MySQL database with Web Front-End and Security Features

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for departmental Honors in Computer Science

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Joshua Speicher
Honors Proposal

Executive Summary

The World Wide Web is rapidly changing the way we do things, from how we keep in touch with friends to how we conduct business transactions. Although it has become fairly simple to develop and post an informational web page, the development of web sites that collect data and/or restrict access to data is more complex. The proposed research will involve the investigation of advanced issues related to security, firewalls, encryption, and data integrity and will result in the implementation of a secure web-based data collection application that is protected against hacking and intentional data corruption.

Background

The advanced work in this Honors Project will extend the knowledge and skills that I've acquired in the following upper level courses: CPTR 353 Networking, CPTR 342 Web-Based Programming, CPTR 349 Database Systems, and CPTR 448 Advanced Design and Development.

In CPTR 353 Networking we learned about networks and how they work. We also set up a small network in lab using Windows NT and Novell Network. This project will expand on the Networking class by studying firewalls and how to fully secure data transfers between computers and different networks. Networking class never made it far enough to study firewalls and how then protect data from hackers. The database involved will need to be accessed from outside the campus firewall. Therefore to complete the project the firewall must be setup in a way to allow access only to the database and no other part of the schools servers.

CPTR 342 Web-based Programming was the study of how to create HTML documents utilizing Perl and CGI. We created a mock database of CDs with MySQL and then created CGI web pages that allowed users to sort, search, and then "buy" a selected CD. The CD Store project used JAVA to verify user data inputted on HTML forms. This honors project will fully extend this idea to include secure web pages, a larger more robust database, more robust data verification, and user-friendly interfaces. The resulting application will be a real-world application that will be put into actual operation. The idea of security will be emphasized throughout this project as the main area of study.

CPTR 349 Database Management Systems is the study of databases and how to correctly setup and query databases in SQL-99. This project will expand on the knowledge learned in DBMS by creating a relational database using MySQL. The database that will be created must have many constraints and advanced trigger commands programmed into it to make sure the data will not be corrupted.

CPTR 448Advanced Design and Development teaches how to use and implement different software engineering techniques. We used the ideas taught to specify, design, implement and document a project of large size. The honors project will expand on these ideas

by using the rapid prototyping technique of planning and implementation. This will result in detailed Specifications, Requirements, and Implementation Documents that will aid in the creation and maintenance of the project in question. Along with those documents there will be a User Manual created to allow future updates and maintenance of the database.

Research

The main topic of research will be the network security and firewall setup. Within the study of security the topics of encryption, password authentication, and hack-proof code will be covered. These ideas will then be put to use in the application, the creation of the database with the web front-end.

Application

The Lycoming chapter of Lambda Chi Alpha has been looking for an easy way to maintain information about their alumni and active brothers. So far the only method they have available to them is paper and pencil. This project is designed to give the local Chapter of Lambda Chi Alpha the ability to store alumni and active brother information in an easy to use, secure database. The database will be accessible and updateable from user-friendly web pages on a secure server.

To make this idea possible this Honors Project will utilize the open source Unix Database MySQL currently on Lycoming's Unix Servers. In conjunction with MySQL the project will implement CGI, Perl, and HTML web pages on a secure server behind Lycoming's firewall, which will allow users to access and make queries on the data stored in the database. There will be extensive study into creating securely coded web pages and databases. The study on security

will be extended to include firewalls and possible loopholes to close in the firewall so hackers will not be able to utilize the web pages created to access sensitive data on Lycoming's servers.

Requirements

The final project will be creating a database in MySQL, web pages to support the database, and security features to protect the database. The database will contain information about active brothers of Lambda Chi Alpha and alumni of Lambda Chi Alpha. Some of the information contained within the database will be IB number, Name, Address, Email address, Date of Graduation, Office Held, and Phone Number. Some other information might be added at the request of the current chapter. To protect the data in the database triggers will be setup that will make sure data input is of correct form and type. There will most likely be two tables, one for active brothers and one for alumni brothers. The primary key for both these tables will be IB number because this is unique throughout the fraternity.

The web pages created will be there to make the interface with the database easy and very interactive. One of the pages created will allow the database administrator to update or modify information about any brother. Another page will be setup exclusively to do searches on the database. One such search would be to find brothers that live near you or brothers that graduated at the same time. To allow the alumni to update the information in the database there will be a way for them to submit new information to the database administrator.

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Requirements Document
Joshua Speicher

Iota Beta Zeta Chapter of Lambda Chi Alpha Member Database
With Web-based Front End

The proposed system is being designed to maintain permanent information about active brothers and alumni of Lycoming College's Lambda Chi Alpha fraternity. A web interface will provide restricted access to a secure database through an easy, interactive front-end.

The project will incorporate both MySQL database design and development with Perl, CGI, JavaScript, and HTML web scripting to create an Alumni Database accessible and updateable from the World Wide Web. The first part of the project will be to build the database itself. The database will be created with MySQL, a free open source database currently on Lycoming College's UNIX server.

There will be four tables of information in the database. The data stored in the brothers table will be the following: Zeta Number (IB), First Name, Middle Name or Initial, Last Name, Surname, Address Line 1, Address Line 2, City, State, Zip Code, Initiation Date, Graduation Date, Email Address, Current Status, and Phone Number. The Primary Key will be the IB or Zeta Number. First Name and Last name will be **Not Null** while everything else can be set to a **NULL** value. The *brothers* table is designed to hold only the current information pertaining to that certain brother. The *work* table will hold the brother's work information, such as place of work, title, and the address of where the brother works. The *BLdata* table will hold only family tree information which will be the brother's big's zeta number and his little's zeta number. Security passwords and usernames will be held in the *username* table. All the passwords will be already encrypted in this table.

The database will be accessible from Iota Beta Zeta's homepage located at http://www.lycoming.edu/org/lca. Once at the database opening page the user will be asked for a username and password. If the user hasn't setup his username and password yet there will be a link to another page where he can register. A password is required to secure data stored in the database, to prohibit unauthorized access to addresses and phone numbers of our alumni. After passing the log-in screen, the user will be able to change his information such as address and phone number or search for the current information of anybody in the database.

If the user finds his information in the database to be incorrect he will be able to access a corrections page where he can make corrections to his information and his only. The user will also be able to remove all of his information except IB, First Name, and Last Name. This new information will be updated automatically by the CGI script. The search page will be comprised of a keyword search and a number of areas to browse through. The browse area will have the following titles: First Name, Last Name, City, State, Initiation Date, Graduation Date, Field of Work, Work State, and Work City. With these simple browses the user will be able to find brothers he graduated with, brothers he was initiated with, and brothers who live or work near him.

There are two other very important pages included in this project. The first is a page to find lost usernames and passwords. The lost usernames or passwords page will be comprised of a simple form where the user enters his email address. If the email address is found in the database the user will be emailed his username and a temporary password that will have to be updated to gain access to the database again. To change his password there will be a password change page. This page will allow the user to change his password anytime. To do this the user

will have to enter his username, old password, and new password. Then the new password and username will be emailed to the user for his records.

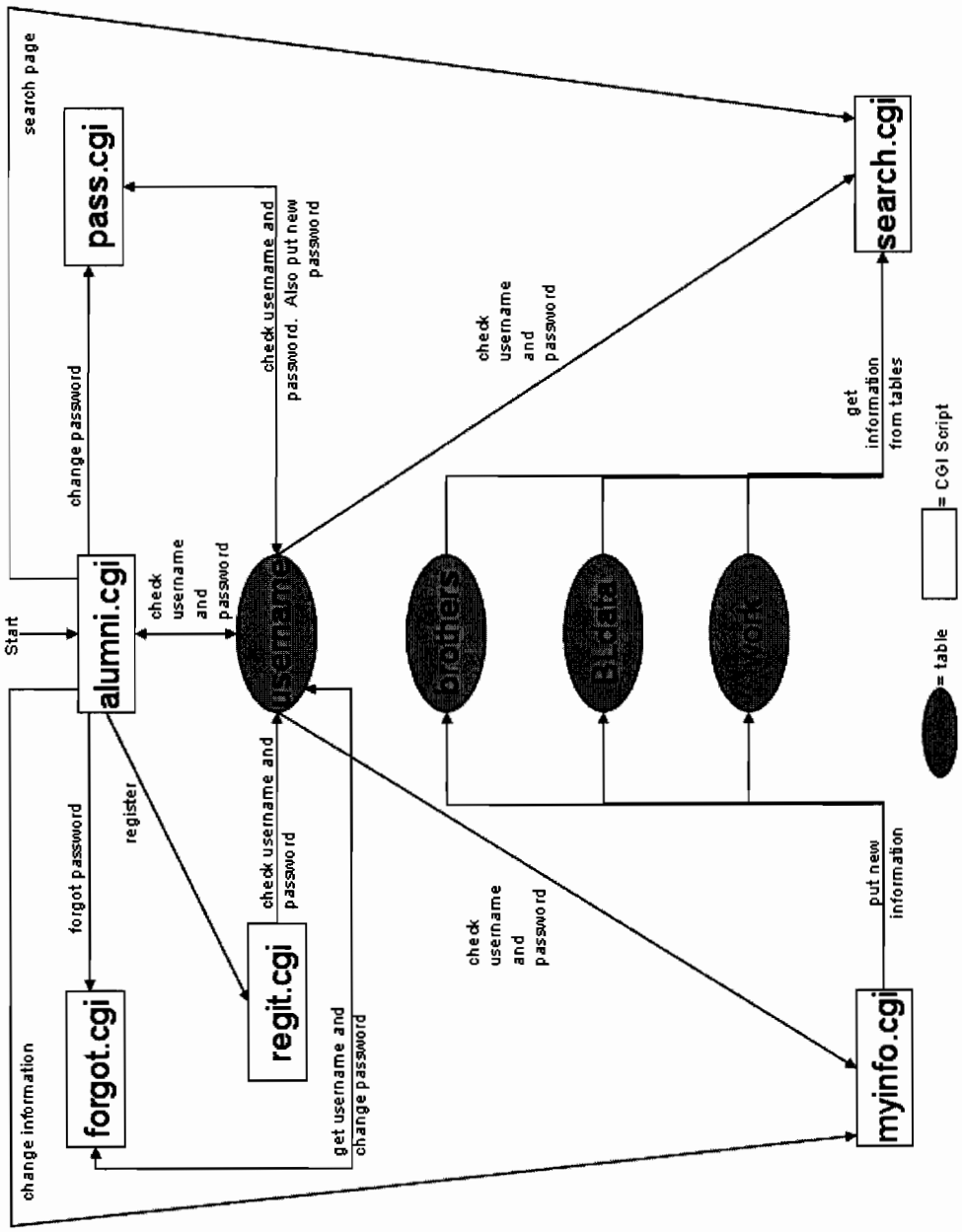
The web pages will all include the latest security measures. These measures include password encryption, password authentication, and secure script-writing techniques. Everything will be fully tested to ensure that the web pages and database will pose no threat to the college community or those people who are included in the database itself.

Modification from Honors Proposal

The honors proposal spoke of firewall modification. This was not needed in the final project as it was found that the database could be made secure enough with the current configuration of Lycoming's firewall. The CGI scripts are accessed the same way any HTML web page would be accessed; there is no need to make changes to the security already present.

An administration page was to be incorporated into the final project, a page where the administrator could modify user information and database information. This page was not completed because of time constraints and because all administration can be done from the UNIX environment. The user manual will address all administration techniques. The only thing the administrator will have to do is add new brothers to the database so they can register and change their own information. I plan on being the primary administrator for at least another year, in which time I will program an administrator page for the administrator to follow me.

Dataflow Diagram

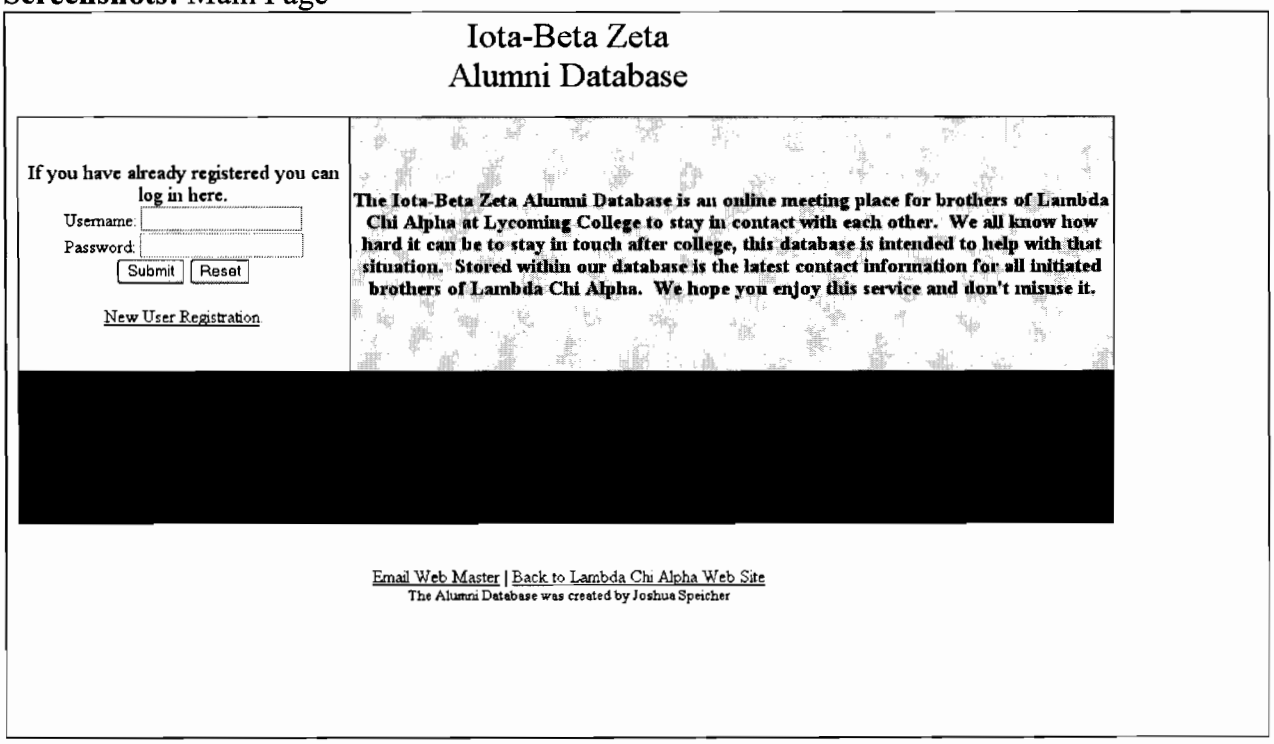


Title: Alumni.cgi

Purpose: This CGI will display the welcome message and allow the user to login or link to the registration page. If the user tried to register and gives the wrong username or password a link will show up for forgotten passwords or usernames. After the user correctly logs in a menu page will appear with three links, Password Change, My Information Page, and Search Page.

Security: This page has security for the password and username. All input from the HTML is checked by a regular expression. In this case the regular expression checks to make sure the input is only alphanumeric, only letters and numbers. The database interface is secure because the password and username for the database is abstracted to another file outside the scope of the HTML directory. Because the password and username for the database are outside the HTML directory only the administrator can read it, nobody can read this file without logging into the LCA UNIX account. The password is encrypted by the MD5 algorithm before being crosschecked with the encrypted password in the username table of the database.

Screenshots: Main Page



Menu

Iota-Beta Zeta
Alumni Database

To see and modify your user information go to your information page.

To Search the Iota-Beta Zeta Alumni Database go to the Search Page.

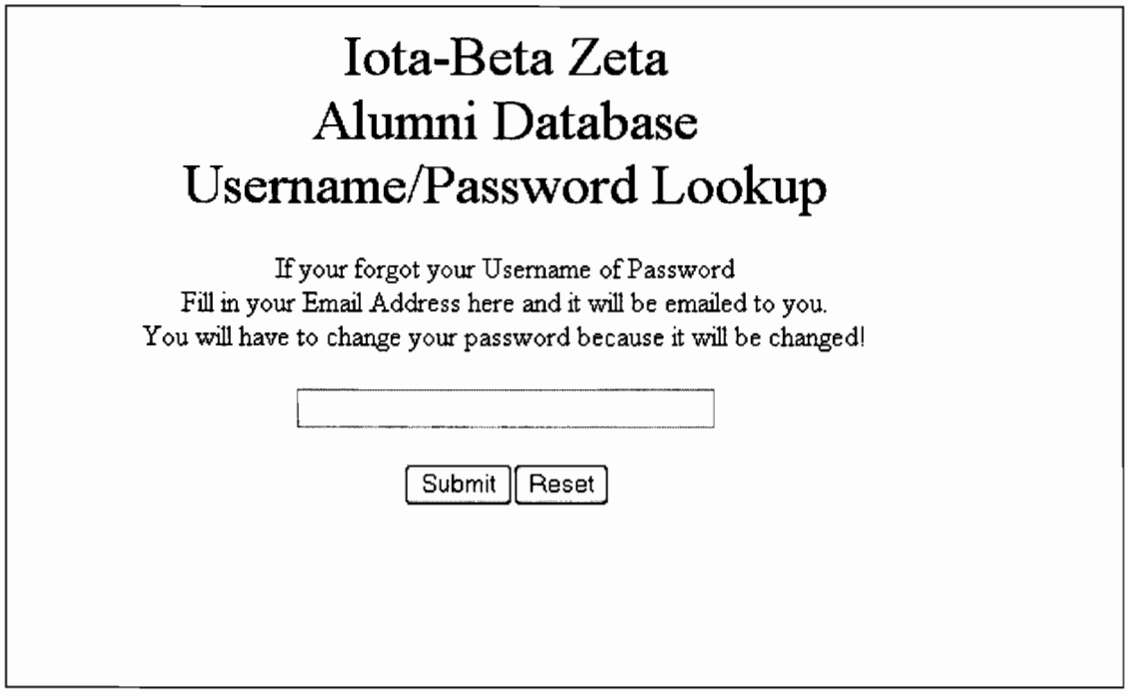
Email Web Master | Back to Lambda Chi Alpha Web Site
The Alumni Database was created by Joshua Speicher

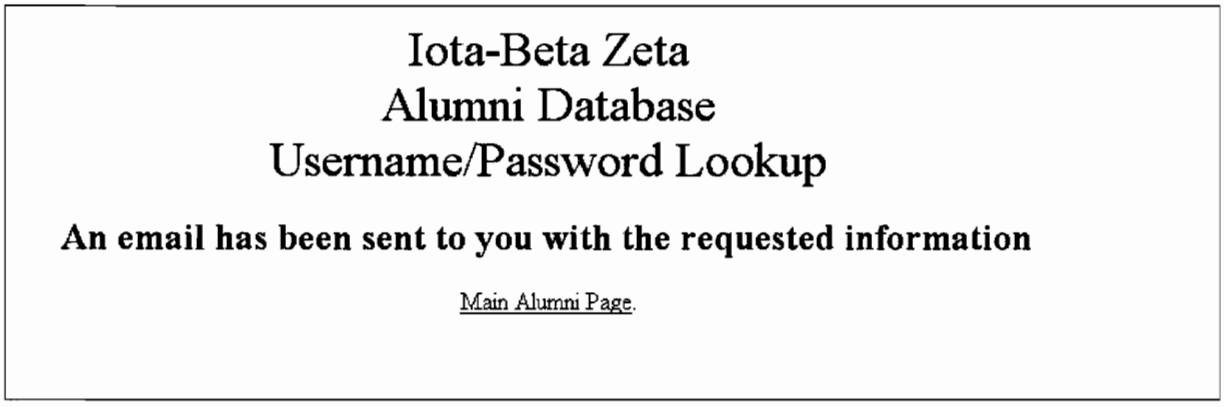
Title: forgot.cgi

Purpose: This page is designed to allow the user to find his forgotten username or password. The user enters his email address into the form and hits submit. If he has registered with that email address he will be emailed with his username and a new password to login to the database. After he enters the site again he will be prompted to change his password.

Security: The security on this page consists of a full check of the email address entered. Email addresses go through a thorough check for form, content, and special security characters.

Screenshot:



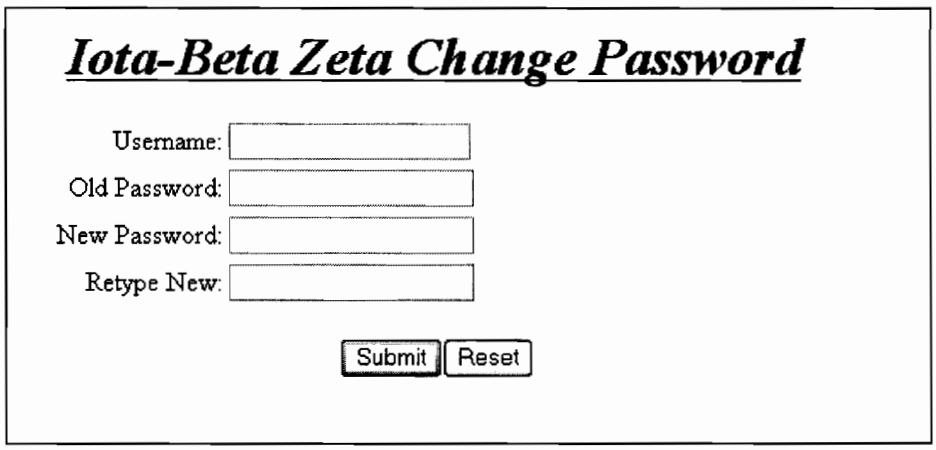


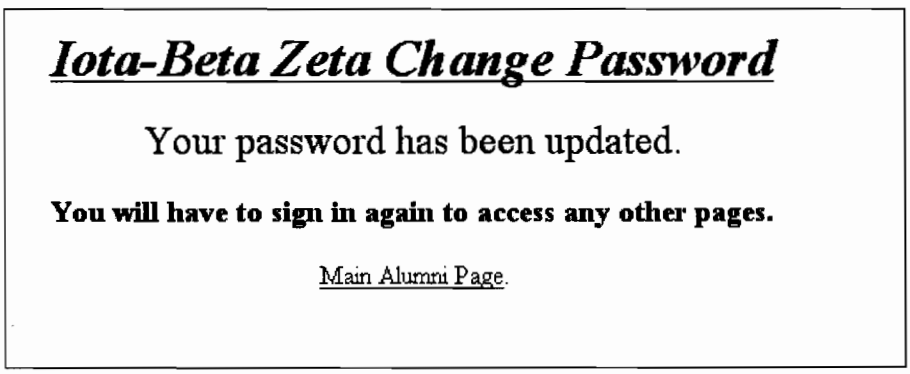
Title: pass.cgi

Purpose: Pass.cgi is designed to allow the user to change his password. The user enters his username, old password, and new password twice. His password is then changed for the next time he logs in to the database.

Security: This page does pattern matching on all input. The username and passwords must be all alphanumeric. The email address goes through a check for form, special characters, and security checks. This security check on the email address is needed because the email function in the CGI script interacts with the UNIX environment. If the user enters an email address with UNIX commands embedded in it, the user could email himself sensitive data. The email address check removes all security leaks that could occur from somebody trying to do this.

Screenshots:



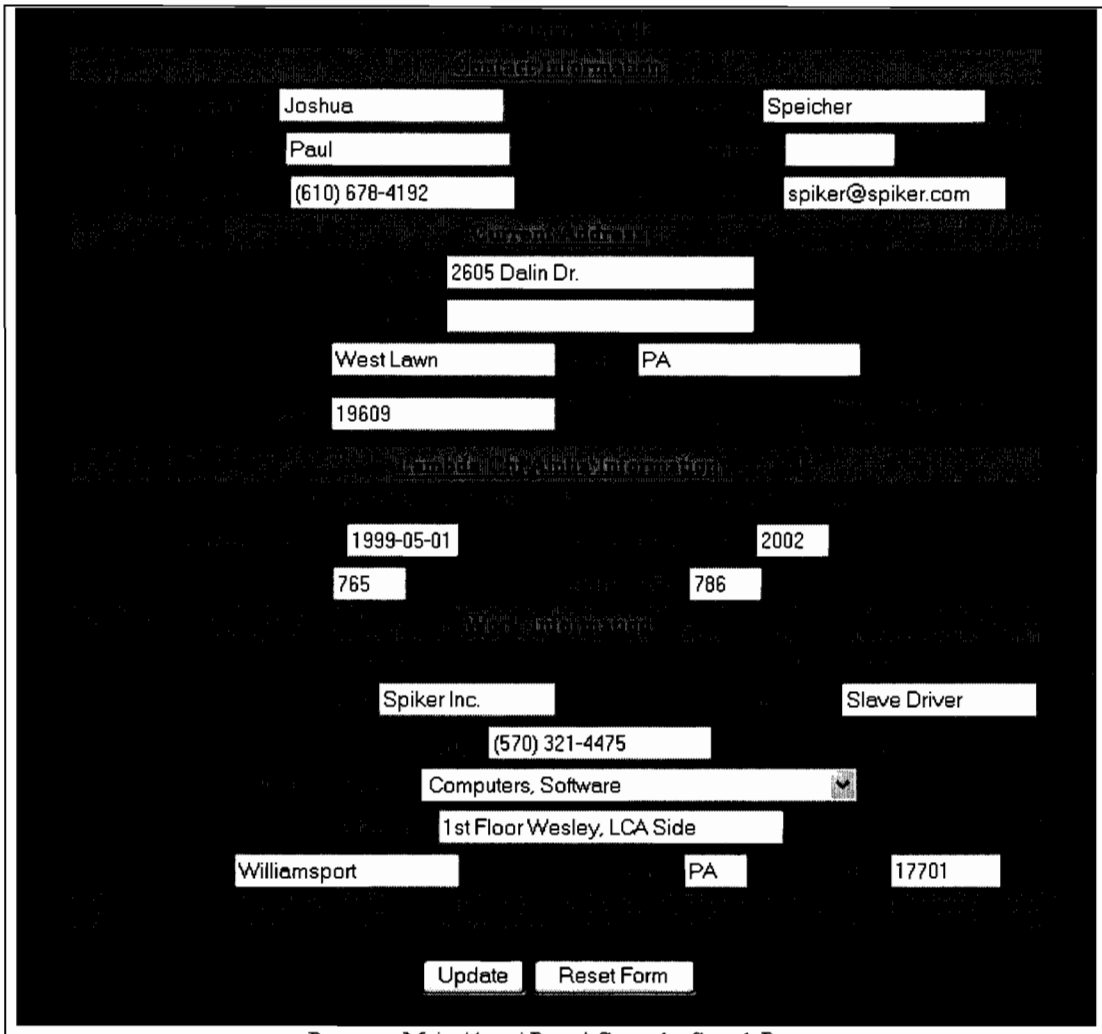


Title: myinfo.cgi

Purpose: My Info page is set up to allow the user the ability to update his information at anytime. The user does this by changing or adding information to the form. After he is done he will submit the changes to the CGI which will update all tables in the database.

Security: This page has full security on all fields, both with JavaScript and with pattern matching. No illegal dangerous characters are allowed such as the "|" or the quote. Each field has its own check; some fields must be all characters while others must have specific formats.

Screenshot:

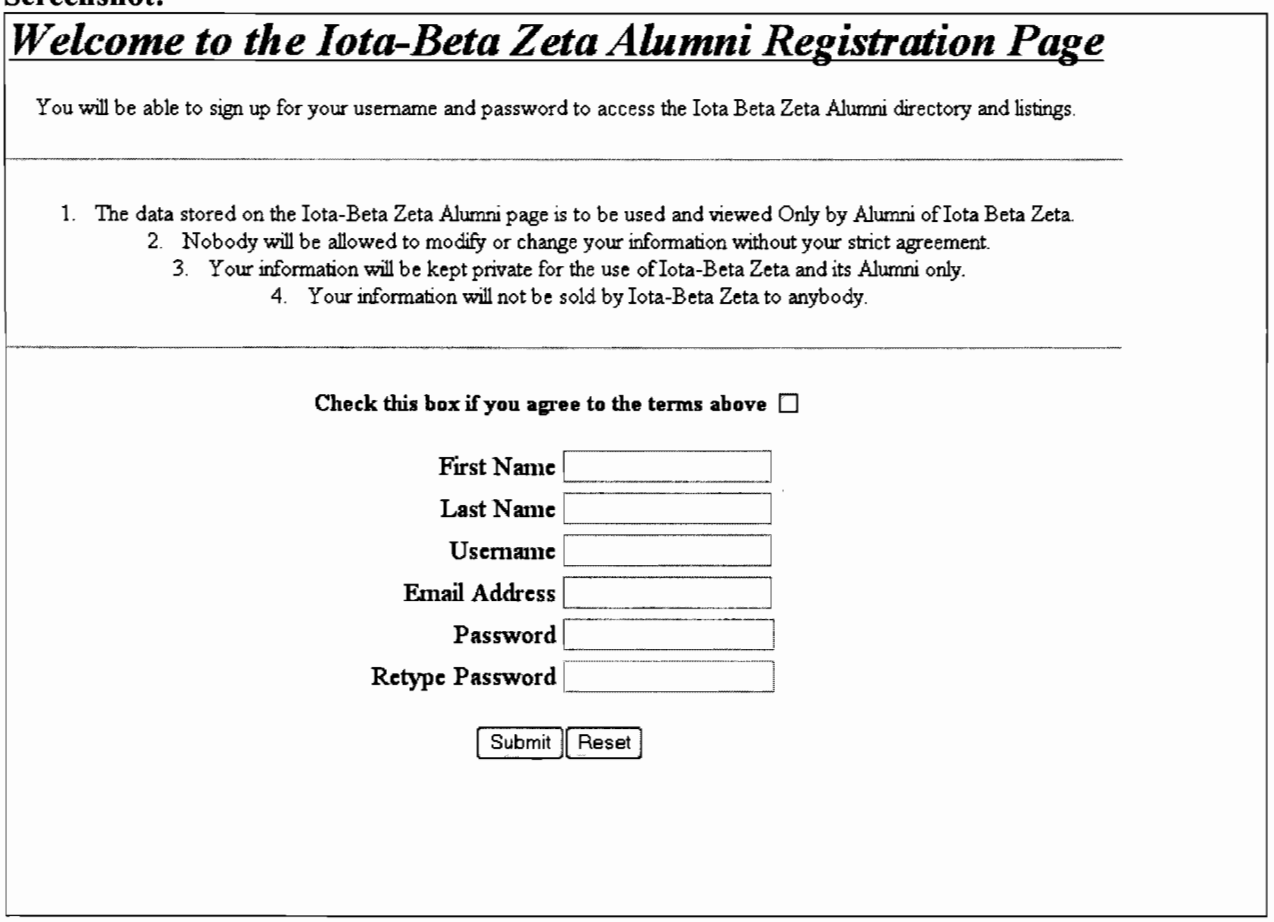


Title: regit.cgi

Purpose: Regit is short for register. This page allows alumni and active brothers to register for a username to access the database. To do this they must supply their first name, last name, email address, and password twice. After the user is identified by the database he is added to the username table with his password encrypted and then emailed his username and password. The user must already be in the *brothers* table of the database, this ensures that only initiated brothers of Iota-Beta Zeta are allowed to register for access to the database.

Security: This page incorporates pattern matching on all fields. It also has JavaScript to assure that all fields are filled in and the user agrees to the terms and conditions of the database. The password is encrypted with MD5 before being saved in the *username* table. The email address is fully checked by a security algorithm.

Screenshot:

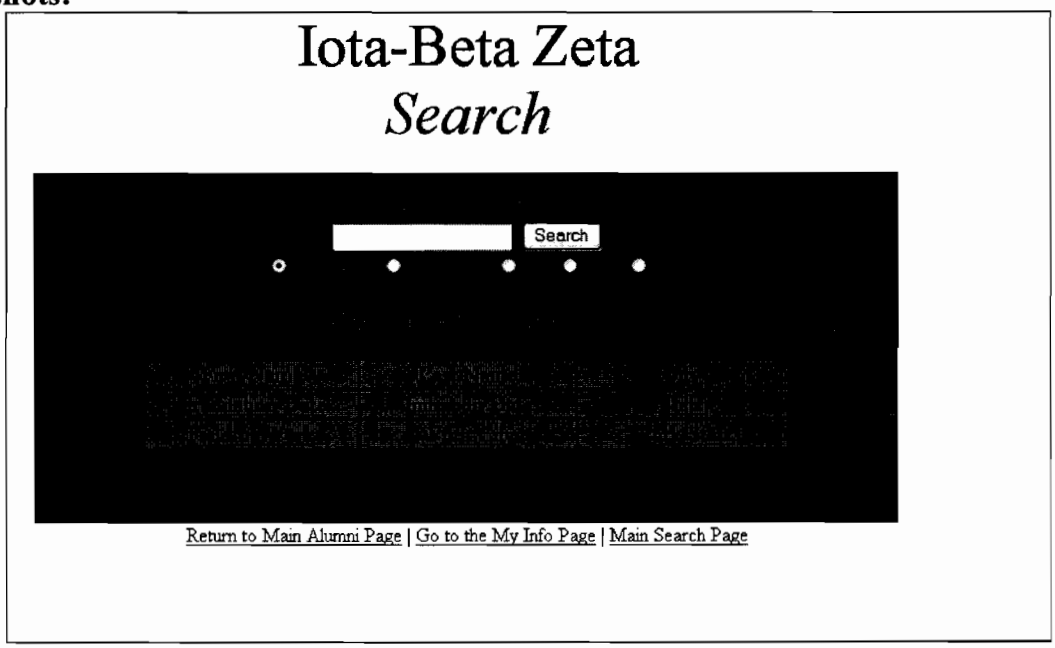


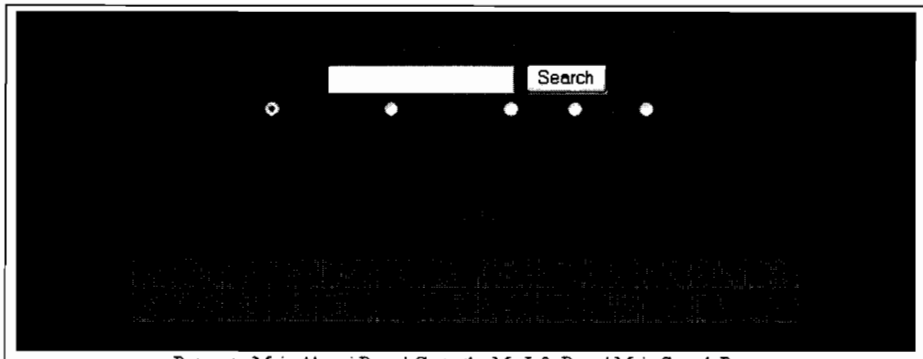
Title: search.cgi

Purpose: Search.cgi allows the user to search specific keywords or browse by categories to find their old friends and brothers. The keyword search is limited to either first name, last name, IB, state, or city. And the browse categories are first name, last name, city, state, initiation date, graduation date, field of work, work city, and work state. After browsing or searching to a list of brothers, those brothers on the screen can be sorted by IB, first name, or last name. Once the user finds somebody they want to know more about, they can click on that person's IB to be shown that person's information. And by clicking on that person's email address they can send an email to that person.

Security: This page doesn't require that much security. The password and username are checked from the temporary cookie stored in memory against the username table. This cookie will be deleted immediately when the user exits the browser. The keyword searches can only be alphanumeric so no illegal searches can occur.

Screenshots:





Return to Main Alumni Page | Go to the My Info Page | Main Search Page

Data Dictionary for Iota-Beta Zeta Alumni Database

Name of Data Element	Description	Narrative
lca_data	Database containing four tables: brothers work BLdata username	The whole Database containing all information about Iota-Beta Zeta Alumni and Active Brothers
brothers	Records: ib first_name last_name middle_name surname street1 street2 city state zip grad init_date status phone email	Table in Database containing contact information about brother, also includes graduation date, initiation date, and status
work	Records: ib title company work_phone work_address work_city work_state work_zip fieldofwork	Table in Database containing current work information about brother.
BLdata	Records: ib big little	Table containing family tree information for brothers in Iota-Beta Zeta
username	Records: ib username password	Table containing security information for brothers registered to use database.

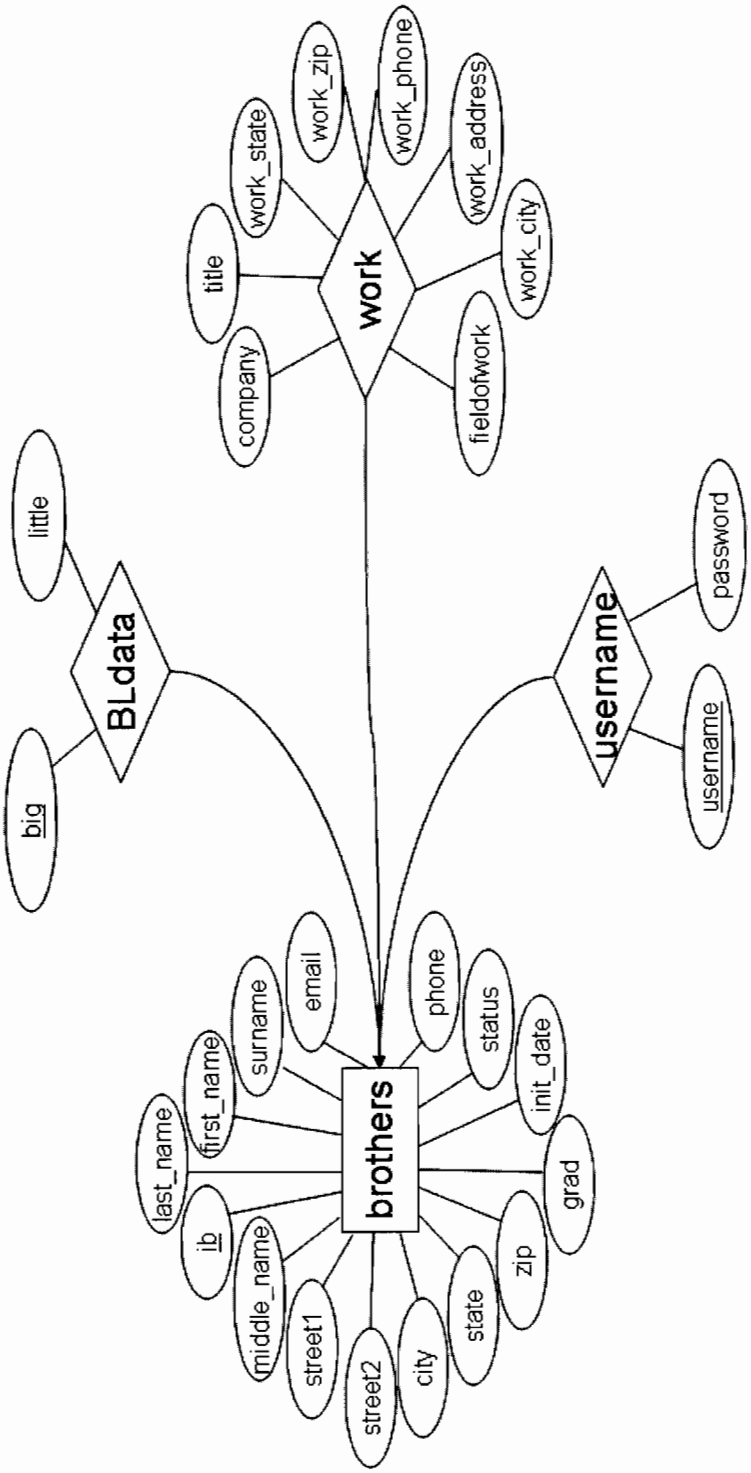
Name of Data Element in brothers table	Description	Narrative
ib	10-digit unsigned integer	Unique number given to every initiated brother of Iota-Beta Zeta. This is the Primary Key for the Entire Database
first_name	20 character string	The First name of a brother, cannot be NULL.
middle_name	20 character string	The Middle name if specified of a brother.
last_name	20 character string	The Last name of a brother, cannot be NULL
suffix	5 character string	Used to store titles like Dr. or surnames like Jr.
street1	50 character string	First line of address
street2	50 character string	Second line of address if needed
city	50 character string	City or City and Country of address
state	2 character string	The State of the address, or nothing if not in USA
zip	10 character string	Postal Zip Code
init_data	Date	The initiated date of brother stored as YYYY-MM-DD
grad	10-digit unsigned integer	Graduation Date of brother stored as YYYY
phone	20 character string	Current or last known phone number of brother
email	80 character string	Email address of brother
status	30 character string	Current status of brother: Active, Alumni, Missing or Deceased

Name of Data Element in work table	Description	Narrative
ib	10-digit unsigned integer	Unique number given to every initiated brother of Iota-Beta Zeta. This is the Primary Key for the Entire Database
title	20 character string	Brother's title at his work place
work_phone	20 character string	Brother's work place phone number
fieldofwork	50 character string	Brother's Field of Work
work_address	70 character string	Address of Work Place
work_city	50 character string	City of work place
work_state	2 character string	State or work place
work_zip	10 character string	Work place postal code
company	20 character string	Company name of work place

Name of Data Element in BLdata table	Description	Narrative
ib	10-digit unsigned integer	Unique number given to every initiated brother of Iota-Beta Zeta. This is the Primary Key for the Entire Database
big	10-digit unsigned integer	Ib of fraternal big brother
little	10-digit unsigned integer	Ib of fraternal little

Name of Data Element in username table	Description	Narrative
ib	10-digit unsigned integer	Unique number given to every initiated brother of Iota-Beta Zeta. This is the Primary Key for the Entire Database
username	20 character string	Username of registered user
password	35 character string	MD5 128 bit encrypted password of user, stored as string of Hexadecimal code

Entity Relationship Diagram



User Manual for maintenance of the Iota-Beta Zeta Alumni Database

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Ch.1 Logging in to the UNIX System

The alumni database is completely set-up in the UNIX system of Lycoming College. To do any maintenance on the alumni database you must first be logged into the system, for example through X-Win32 or Telnet. First we will work through using X-Win32, the current system interface found in all of Lycoming College's computer labs. Then we will work on gaining access to the UNIX account through Telnet, a program found in all Windows operating systems.

To start X-Win32 go to the **Start** menu on a computer lab computer. Go to **Course Programs**, **Programming**, and then **X-Win32**. A screen will open up with the X-Win login screen. Enter our user account name here, **LCA**. The next screen will ask for the password. Enter the password for the LCA account. If you do not know the password you can get it from the Unix Administrator in the office of Communication Technology. Now you're logged in to the UNIX system "*lyco.lycoming.edu*". The next chapter will explain how to work in X-Win32.

Some maintenance operations of the database and CGI scripts that interact with the database cannot be done from the X-Win32 interface. To do these operations you must be using a telnet-type program. The telnet program that comes with all Microsoft Windows operating systems is easy to use. To access the LYCO system, go to the **Start Menu** and then **Run**. The Run command prompt will pop-up. Enter this command here exactly, ***telnet lyco.lycoming.edu***. This command will open a telnet window to the LYCO server of Lycoming College, such as the one in **Figure 1**. Now enter the account name, LCA. It will ask for the password. Enter the LCA account password to see the welcome screen. Under the welcome text is some information of interest, the last unsuccessful login and the last login for the account. You can use this information to see if anybody was trying to hack into the account.

Figure 1

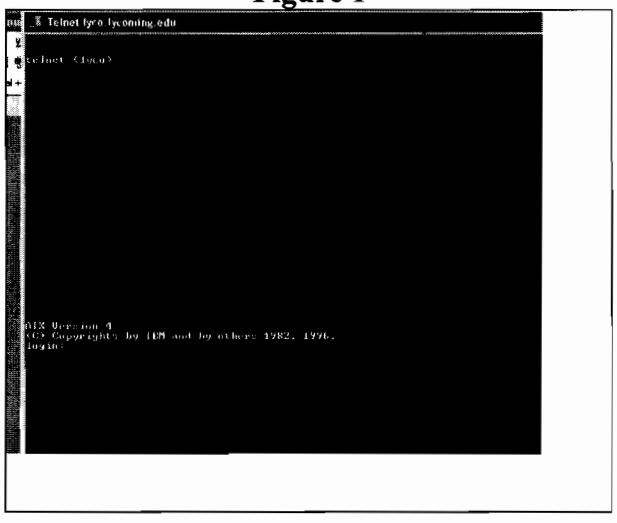
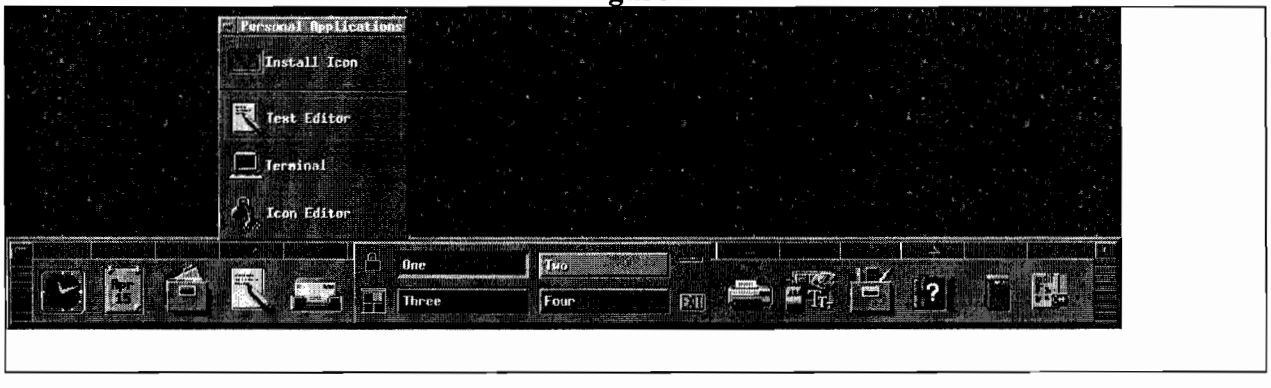


Figure 2

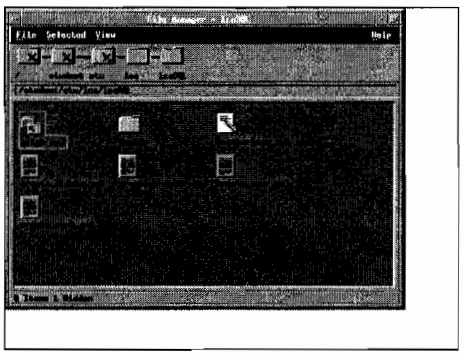


CH. 2 Working with X-Win32

Now that you know how to login to X-Win32 you should begin familiarizing yourself with its operations. At the bottom of the X-Windows interface you should see what looks like **Figure 2**. There are two icons of major interest, the first being the third icon from the left. This icon looks like a file cabinet, and opens the X-Win file browser. In this browser you will be able to rename, change permissions, move, and open files in your UNIX account. The next important icon is hidden in a menu above the fourth icon from the left, what looks like a paper and pencil. This menu hides the Terminal icon which opens a Terminal window; a Terminal window is just like a Telnet connection.

The file browser will look like **Figure 3**. In this case we are in the lcaSQL directory; this directory contains all the files that are associated with MySQL and its set-up. The file browser will allow you to easily change file permissions, open files to be edited, and copy files to different directories. To open a file for editing simply right click on its icon and select **OPEN** from the options. If you double-click on the icon it will try to run the file; this will not work because the ".sql" files need to be run at the command prompt and the ".cgi" files need to be run from a web browser.

Figure 3

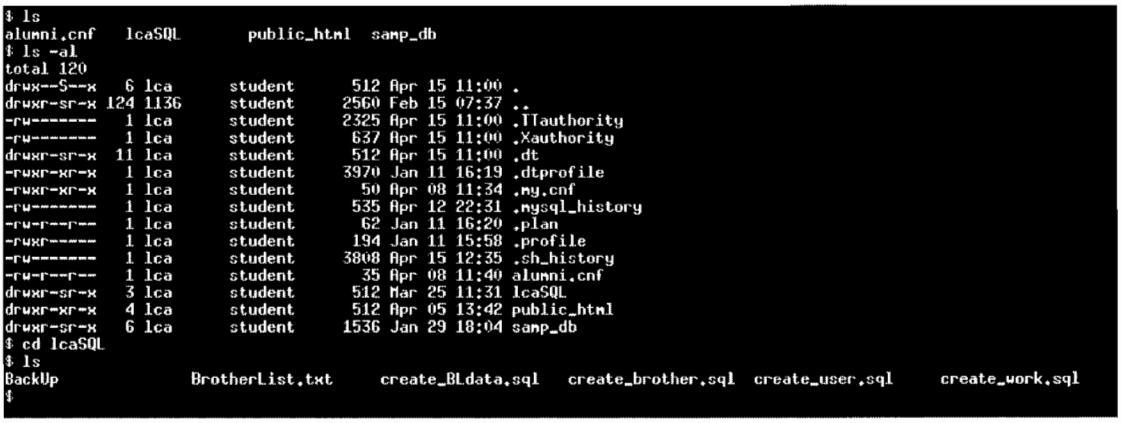


CH. 3 Working with UNIX

The file browser will only allow you to do simple operations. To do more complex operations you're going to have to use the terminal window and UNIX commands. We'll work through a couple of very useful commands that you will have to know to work in UNIX. The first is ***ls***; ***ls*** is the same as *dir* in DOS. This command will give you a simple listing of files and directories in the current directory. As with all commands in UNIX you can add options onto the end of the command to make it do more. A useful combination is ***ls –al***, this will give you all files and directories, including hidden, with file permissions in front of the file name. File permissions will be explained a little bit later.

Now that you know what directories and files are located in your current directory, you may want to change directories. To do this you must use the ***cd*** command, which stands for change directory. The change directory command, **cd**, is combined with a directory name to move into that directory. An example is ***cd public_html*** or more complex ***cd public_html/cgi-bin/alumni***. The first command will move down one directory into the public_html directory, while the second command moves you all the way down to the alumni directory in the cgi-bin. This is where you will find most of the scripts for the web pages of the database. To move up a directory to the directory you just came from you add two periods to the ***cd*** command, which will look like this "***cd ..***" The **ls** and **cd** commands will look like **Figure 4** in UNIX.

Figure 4

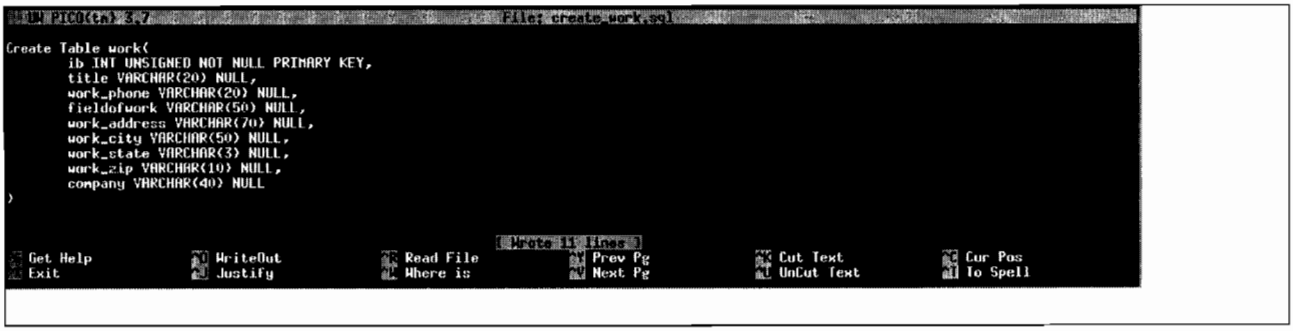


```
$ ls
alumni.cnf    lcaSQL        public_html   samp_db
$ ls -al
total 120
drwx--S---   6 lca      student      512 Apr 15 11:00 .
drwxr-sr-x 124 1136     student     2560 Feb 15 07:37 ..
-rw-------   1 lca      student     2325 Apr 15 11:00 .ITauthority
-rw-------   1 lca      student      637 Apr 15 11:00 .Xauthority
drwxr-sr-x  11 lca      student      512 Apr 15 11:00 .dt
-rwxr-xr-x   1 lca      student     3970 Jan 11 16:19 .dtprofile
-rwxr-xr-x   1 lca      student       50 Apr 08 11:34 .my.cnf
-rw-------   1 lca      student      535 Apr 12 22:31 .mysql_history
-rw-r--r--   1 lca      student       62 Jan 11 16:20 .plan
-rwxr-----   1 lca      student      194 Jan 11 15:58 .profile
-rw-------   1 lca      student     3808 Apr 15 12:35 .sh_history
-rw-r--r--   1 lca      student       35 Apr 08 11:40 alumni.cnf
drwxr-sr-x   3 lca      student      512 Mar 25 11:31 lcaSQL
drwxr-xr-x   4 lca      student      512 Apr 05 13:42 public_html
drwxr-sr-x   6 lca      student     1536 Jan 29 18:04 samp_db
$ cd lcaSQL
$ ls
BackUp             BrotherList.txt     create_BLdata.sql   create_brother.sql  create_user.sql     create_work.sql
$
```

Now that you can navigate through the UNIX file system and also know what is in the directory your in, you should be able to move the **lcaSQL** directory off the main LCA directory. The contents should be the same as the last line in **Figure 4**. To open a file for editing in UNIX you can use the **pico** editor. To open files with pico simply add the file name to the end of **pico**. So, to open the *create_work.sql* file, type ***pico create_work.sql*** and the file will open in the pico editor. There are commands at the bottom of the pico screen; you will have to familiarize yourself with these commands to do anything in pico. To see the pico screen look at **Figure 5** on the next page. The "^" in front of each command stands for "ctrl", so to save the file you would hold down the ctrl key and then hit O.

Then to exit you would hold down the ctrl key and hit X. You should be able to get the basic idea very quickly.

Figure 5

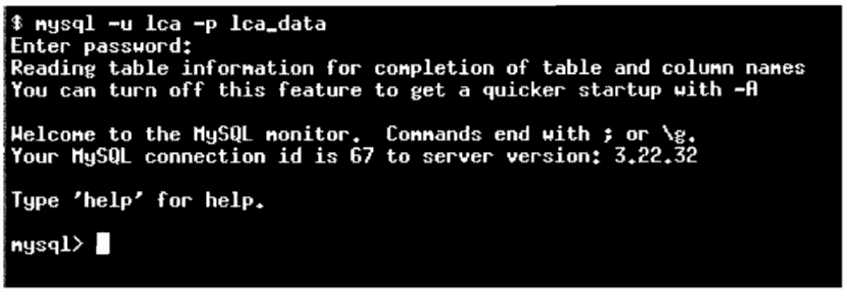


If you need to know more UNIX commands than the ones described here, go to the web. There are many web sites set-up that do nothing more than list UNIX commands and what they do. We will now move on to working with MySQL in UNIX.

CH. 4 Accessing MySQL

To access MySQL you must login through the UNIX system. To login to MySQL type ***mysql –u lca –p lca_data*** at the command prompt in UNIX. This will show the screen in Figure 6. The **–u** means you're supplying the user name, in this case **lca**. And the **–p** means you're using a specific database, in this case **lca_data**. Always use this means of logging into MySQL, that way you will always access the correct database. After you hit enter to send the command, it will ask you for the password. Simply type the password in to gain access to MySQL.

Figure 6



CH. 5 Getting Information From and Putting Information into the database

After logging in you can modify or query any of the tables in the *lca_data* database. We will discuss making tables and backing up data in the next chapter. To query a table you will have to use the **SELECT** statement. A simple **SELECT** statement to find all brothers with last names starting in "S" looks like this:

```
SELECT first_name, last_name
FROM brothers
WHERE last_name like "S%";
```

Try typing this command at the MySQL prompt. You should see a list of all the brothers with last names starting with "S". There are three basic parts to a **SELECT** statement, the first line asks for what fields you want to retrieve from the table. The second line specifies what table or tables you want this data from. And the third line limits the select statement to specific values, in this case any last name that starts with "S" with anything after it. The "%" means anything, so if you typed "Spe%", the returned results would be all brothers with last names starting with "Spe". Capitalization does not matter in any SQL statement. To find a specific value, replace the "like" with an equal sign, "=". To find out about more complex **SELECT** statements I suggest either searching the web or going to the library and reading the book titled *MySQL* by Paul DuBois.

Another useful command in MySQL is **DESCRIBE**. We use **DESCRIBE** to describe what tables are comprised of. If we enter ***DESCRIBE brothers*** at the command prompt it will show a description of the brothers table. This is useful information to know when we want to add another brother to the table; we will need the exact field names. To add a brother to the brothers table you will have to use the following command:

```
INSERT INTO brothers (ib, first_name, last_name)
VALUES (773, "Joshua", "Speicher");
```

This command will insert the IB 773, first name "Joshua", and last name "Speicher" into the brothers table. You will have to do this for all new initiated brothers. You must remember that

the IB must be unique; if not, the **INSERT** statement will give you an error. To add other information like address or phone number, simply add the field names after last_name and add the values after the last name. Always separate values and field names with commas, and add quotes around values that are *varchar*, or alphanumeric.

CH. 6 Updating Information in the Database

To update a brother's information, say if a brother changes his email address, you will have to use the **UPDATE** statement. To update the email address for a brother use this command:

```
UPDATE brothers
SET email = "name@dot.com"
WHERE ib = 773;
```

This statement will change the brother with IB 773 email address to "name@dot.com." You can also modify many brothers information at once. Say you want to change the status of recently graduated seniors; you can change the above statement to look like this:

```
UPDATE brothers
SET status = "alumni"
WHERE grad = "2002";
```

This will update every brother who graduates in 2002 to alumni status.

CH. 7 Restoring and Backing up the Database

Making backups of the database is a must, and should be done on a weekly to biweekly basis. To do such a backup you must be logged into UNIX from Telnet. Go to the **lcaSQL** directory and then the **BackUp** directory in the **lcaSQL** directory. To do this you can type ***cd lcaSQL/BackUp*** right after you log in. To make a backup of the database and its table design, you will have to use the **mysqldump** command from the UNIX prompt. Type **mysqldump --add-drop-table --add-locks lca_data > lcaDataBackUp** at the command prompt to make a full

backup of the database and all information contained within. The file created will look similar to, but not the same as, **Figure 7**.

Figure 7

```
# MySQL dump 7.1
#
# Host: localhost    Database: lca_data
#--------------------------------------------------------
# Server version        3.22.32

#
# Table structure for table 'BLdata'
#
CREATE TABLE BLdata (
  ib int(10) unsigned DEFAULT '0' NOT NULL,
  big int(10) unsigned DEFAULT '0' NOT NULL,
  little int(10) unsigned DEFAULT '0' NOT NULL,
  PRIMARY KEY (ib)
);

#
# Dumping data for table 'BLdata'
#

INSERT INTO BLdata VALUES (773,765,786);
INSERT INTO BLdata VALUES (768,0,0);
INSERT INTO BLdata VALUES (765,0,0);
INSERT INTO BLdata VALUES (776,756,0);
INSERT INTO BLdata VALUES (642,0,0);
INSERT INTO BLdata VALUES (772,747,783);
INSERT INTO BLdata VALUES (783,772,0);
INSERT INTO BLdata VALUES (747,727,0);
INSERT INTO BLdata VALUES (443,0,444);
INSERT INTO BLdata VALUES (748,0,0);
INSERT INTO BLdata VALUES (797,787,0);
INSERT INTO BLdata VALUES (775,754,791);

#
# Table structure for table 'brothers'
#
CREATE TABLE brothers (
  ib int(10) unsigned DEFAULT '0' NOT NULL,
  first_name varchar(20) DEFAULT '' NOT NULL,
  middle_name varchar(20),
  last_name varchar(20) DEFAULT '' NOT NULL,
  suffix varchar(5),
  street1 varchar(50),
  street2 varchar(50),
  city varchar(50),
  state char(2),
  zip varchar(10),
  init date date DEFAULT '0000-00-00',
  grad int(10) unsigned,
  phone varchar(20),
  email varchar(80),
  status varchar(30),
```

The file created with mysqldump will allow you to restore the database if it would ever be deleted. Now to restore the backup of the database you will have to use the following command, ***mysql –u lca –p lca_data < lcaDataBackUp.*** It will ask for the password, type the password in to complete the restore. The database will be fully restored to the exact same condition it was in at the last backup. This is why it is so important to backup the database on a regular schedule.

Appendix A

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```
          #!/usr/bin/per1
#note: there should be a "-T" at end of first line, but getting WEIRD error so not using like I should be

##############################################################################################
# Title : Iota Beta Zeta Alumni Directory                                                    #
# Author: Joshua Speicher                                                                    #
# Last Update: 3/25/02                                                                       #
# Purpose : This is the welcome page to the Iota Beta Zeta Directory, this will allows       #
# the alumni to log in or link to the register page                                          #
# Pre : None                                                                                 #
# Post : If username and password found givin menu options and allowed to continue on        #
##############################################################################################

use DBI;    #For accessing Database
use strict; #Keeps variables local or global
use CGI;    #Needed for CGI.pm
use MD5;    #Needed for 128bit encryption

my $md5 = new MD5;

my $cgi = new CGI;


my($User) = $cgi->cookie("user_name") =~ /^([\w.]+)$/;            #Gets username from Cookie
my($Pass) = $cgi->cookie("password") =~ /^([\w.]+)$/;             #Gets Password from Cookie
my($UserName) = $cgi->param("user_name") =~ /^([\w.]+)$/;   #Gets Username from enviroment/form
my($PassWord) = $cgi->param("password") =~ /^([\w.]+)$/;    #Gets Password from enviroment/form
my($Return) = $cgi->param("return");                        #If returning to alumni menu?
my($db_return);                                  #Used to save data from database
my($error) = 0;                                  #If not logged in

      #START OF DBI SETUP FOR USERNAME AND CONNECTION PARAMS
my($sth);

my($host_name, $user_name, $password) = (undef, undef, undef);
my($db_name) = "lca_data";

my($dbh ,$dsn);
my(%attr) = (RaiseError => 1);

$dsn = "dbi:mysql:$db_name";
```

```
$dsn .= ":hostname=$host_name" if $host_name;
$dsn .= ";mysql_read_default_file=/student/stu/lca/alumni.cnf";
      #END OF DBI SETUP

#########################################################################

if((!$UserName || !$PassWord) && (!$Return)){
      print $cgi->header(-type => "text/html");
      print $cgi->start_html(-title=>"Iota Beta Zeta Alumni Directory");
      StartPage();
      PrintTable();
}
else{
      if(($PassWord eq "IotaBeta") || ($PassWord eq "iotabeta")){
        #If user forgot his password he must change it
            print $cgi->header(-type => "text/html");
            print $cgi->start_html(-title=>"Iota-Beta Zeta Alumni Directory");
            StartPage();
            print "<center>";
            print $cgi->h3("You must update your password before you can continue.");
            print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/pass.cgi\">
                        Update Password</a>";
            print "</center>";
      }
      else{
        #User doesn't have to change password
            if(!$Return){
               #If user is returning from another page and is already logged in
                  my $UserCookie = $cgi->cookie(      -name       => "user_name",
                              -value      => $UserName);    #Set's username cookie
                  EncryptPass();
                  my $PassCookie = $cgi->cookie(  -name   => "password",
                                    -value  => $PassWord);  #Set's password cookie
                  print $cgi->header(-type => "text/html", -cookie => [$UserCookie, $PassCookie] );
            }
            else{
              #Not returning from another page
                  print $cgi->header(-type => "text/html");
            }
            print $cgi->start_html(-title=>"Iota-Beta Zeta Alumni Directory");
            StartPage();                  #Start the page with a title and the table
```

```
            CheckDB();              #Check for username and password
            if($db_return->{ib}){         #If password found
                  PrintMenu();            #Print the table of options
            }
            else{
                  $error = 1;       #else not logged in right
                  PrintTable();           #Print table with error message
            }
      }
}
#############################################################################

      ## Encrypts the password for crosschecking with the username database
sub EncryptPass{
              ### this encrypts the password ##
                $PassWord =~ tr/A-Z/a-z/;
                $md5->add($PassWord);
                $PassWord = $md5->hexdigest();
                ##################################
}

#Purpose: Checks the Username database for the username and encrypted password
#Pre: Database must be built with username table
#Post: user's IB is saved in variable "$Ib"
sub CheckDB{

        $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

          # Checks for ib in username table, can't have two of the same usernames
        $sth = $dbh->prepare(qq{
                        SELECT ib FROM username
                        WHERE user_name = ? and password = ?
                });

        $sth->execute($UserName, $PassWord);

        $db_return = $sth->fetchrow_hashref();
         #if password and username are not in cookie
      if(!$db_return->{ib}){
                  $sth->execute($User, $Pass);
                      $db_return = $sth->fetchrow_hashref();
```

```
	}
	$dbh->disconnect();
}

#Purpose: Starts the HTML and prints the title for the page.  Also has the JavaScript Embedded in it.
#Pre: None
#Post: Page is started with javascript and header
sub StartPage{
	print <<ENDHTML;  #Print to end of html
  <script src="http://lyco.lycoming.edu/~lca/js-lib/formLib.js"></script>
	  <script><!--
		function validateForm(form){
			requiredText = new Array( "user_name", "password");
			return requiredValues(form, requiredText)
				&& checkProblems();
		}
	//-->
	</script>

  <p align="center"><font size="6">Iota-Beta Zeta<br>
  Alumni Database</font></p>
ENDHTML
};


#Purpose: Prints the Menu of options after logging in with hidden fields for passing username and password
information
#Pre: None
#Post: menu of options is displayed on the screen
sub PrintMenu{
	print <<ENDHTML;  #Print HTML
<div align="center">
  <center>
  <table border="1" cellpadding="5" style="border-collapse: collapse" bordercolor="#111111" width="100%"
id="AutoNumber1">
    <tr>
      <td width="50%" bgcolor="#FFFF00">
      <p align="left"><font size="4" color="#6600CC">To see and modify your user
      information go to your
      <a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/myinfo.cgi\">
      information page</a>.</font></td>
```

```
      <td width="50%" bgcolor="#41D526">
      <p align="left"><font size="4" color="#0000FF">To change your password go
      <a href="http://lyco.lycoming.edu/~lca/cgi-bin/alumni/pass.cgi">here</a>.</font></td>
    </tr>
    <tr>
      <td width="100%" colspan="2" bgcolor="#6600CC">
      <p align="center"><font size="4" color="#FFFF00">To Search the Iota-Beta
      Zeta Alumni Database go to the
      <a href="http://lyco.lycoming.edu/~lca/cgi-bin/alumni/search.cgi">
      <font color="#FFFF00">Search Page</font></a>.</font></td>
    </tr>
  </table>
  </center>
</div>
</body>

</html>
ENDHTML
      #End of HTML Print
}

#Purpose: Prints the Table for the Welcome page, gives an error message if username or password are
incorrect.
#Pre: HTML must be started already
#Post: Print's html for main alumni page
sub PrintTable{
      print <<ENDHTML;
<table border="1" cellspacing="0" width="100%" id="AutoNumber1" height="354" bgcolor="#FFFFFF"
style="border-collapse: collapse" bordercolor="#111111" cellpadding="2">
  <tr>
    <td width="11%" height="207"> <form method="POST" action="alumni.cgi" onSubmit="return
validateForm( this );">
ENDHTML

if($error){       #If not logged in correctly
print <<ENDHTML
      <center>
      <font size="4">Your Username or Password was not found.</font><br>
      Username: <input type="text" name="user_name" size="20"><br>
      Password: <input type="password" name="password" size="20"><br>
      <input type="submit" value="Submit" name="B1">
```

```
      <input type="reset" value="Reset" name="B2"></p>
    </form>
    <p align="center"><a href="http://lyco.lycoming.edu/~lca/cgi-bin/alumni/regit.cgi">New User
Registration</a>.</p>
    <p align="center"><a href="http://lyco.lycoming.edu/~lca/cgi-bin/alumni/forgot.cgi">Password or
Username Lookup</a>.</p>
    <p> 
    </center>
   </td>
ENDHTML
}

else{             #hasn't tried to log in yet
print <<ENDHTML
      <center><font size="4">If you have already registered you can log in here.</font><br>
      Username: <input type="text" name="user_name" size="20"><br>
      Password: <input type="password" name="password" size="20"><br>
      <input type="submit" value="Submit" name="B1">
      <input type="reset" value="Reset" name="B2"></p>
    </form>
    </center>
    <p align="center"><a href="http://lyco.lycoming.edu/~lca/cgi-bin/alumni/regit.cgi">New User
Registration</a>.</p>
    <p> 
</td>

ENDHTML
}
  #Print to End of Page
      print <<ENDHTML
    <td width="504%" height="207" align="center" bgcolor="#FFFF00">
    <font size="4" color="#008000"><strong>The Iota-Beta Zeta Alumni Database is
    an online meeting place for brothers of Lambda Chi Alpha at Lycoming College
    to stay in contact with each other.  We all know how hard it can be to
    stay in touch after college, this database is intended to help with
    that situation.  Stored within our database is the latest contact
    information for all initiated brothers of Lambda Chi Alpha.  We hope
    you enjoy this service and don't misuse it.</strong></font></td>
  </tr>
  <tr>
    <td width="30%" height="138" bgcolor="#333399"> </td>
```

```
    <td width="70%" height="138" bordercolor="#008000" bgcolor="#008000"> </td>
  </tr>
</table>

</body>

</html>
ENDHTML
};
```

```
#!/usr/bin/perl
#note: there should be a "-T" at end of first line, but getting WEIRD error so not using like I should be

##############################################################################################
# Title : Forgot Username or Password Page                                                   #
# Author: Joshua Speicher                                                                    #
# Last Update: 3/25/02                                                                       #
# Purpose : This page is a simple password or username forgot page, it will just email       #
#   the user his username and reset his password to a default value                          #
# Pre : None                                                                                 #
# Post : If username and password found givin menu options and allowed to continue on        #
##############################################################################################

use DBI;
use CGI;
use strict;
use MD5;

my($md5) = new MD5;

my($cgi) = new CGI;

my($Email) = validate_email_address( $cgi->param("email")); #Validated email address
my($UserName);                                    #UserName from username table
my($PassWord) = "IotaBeta";                       #New PassWord
my($Ib);                                        #Ib from username table
my($FirstName);                                   #First Name from brothers table
my($LastName);                                    #Last Name from brothers table
my($db_return1);                                #Hash of row returns from database
my($db_return2);                                #Hash of row returns from database

      #START OF DBI SETUP FOR USERNAME AND CONNECTION PARAMS
my($sth);

my($host_name, $user_name, $password) = (undef, undef, undef);
my($db_name) = "lca_data";

my($dbh ,$dsn);
my(%attr) = (RaiseError => 1);

$dsn = "dbi:mysql:$db_name";
```

```
$dsn .= ":hostname=$host_name" if $host_name;
$dsn .= ";mysql_read_default_file=/student/stu/lca/alumni.cnf";
      #END OF DBI SETUP

#################################################################################################################

print $cgi->header();

      ####this is the Mail Section of the program
if(!$Email){            #If no email address given
        StartPage();    #start the html
      PrintForm();      #Print the form
}
else{
        CheckDB();      #check db for email address and change password
}
print $cgi->end_html();

#################################################################################################################

#Purpose: Checks email address for correct format
#Pre: none
#Post: Email address is cleared of any illegal characters or formatting
sub validate_email_address{
        my $addr_to_check = shift;
        $addr_to_check =~ s/("(?:[^"\\]|\\.)*"\[^\t "]*)[ \t]*/$1/g;

        my $esc         = '\\\\';
        my $space       = '\040';
        my $ctrl        = '\000-\037';
        my $dot         = '\.';
        my $nonASCII    = '\x80-\xff';
        my $CRlist      = '\012\015';
        my $letter      = 'a-zA-Z';
        my $digit       = '\d';
        my $atom_char   = qq{ [^$space<>\@,;:".\\[\\]$esc$ctrl$nonASCII] };
        my $atom        = qq{ $atom_char+ };
        my $byte        = qq{ (?: 1?$digit?$digit |
                                  2[0-4]$digit      |
                                  25[0-5]         ) };
        my $qtext       = qq{ [^$esc$nonASCII$CRlist"] };
```

```
        my $quoted_pair = qq{ $esc [^$nonASCII] };
        my $quoted_str  = qq{ " (?: $qtext | $quoted_pair )* " };

        my $word        = qq{ (?: $atom | $quoted_str ) };
        my $ip_address  = qq{ \\[ $byte (?: $dot $byte ) {3} \\] };
        my $sub_domain  = qq{   [$letter$digit]
                                [$letter$digit-]{0,61} [$letter$digit]};
        my $top_level   = qq{ (?: $atom_char ){2,4} };
        my $domain_name = qq{ (?: $sub_domain $dot )+ $top_level };
        my $domain      = qq{ (?: $domain_name | $ip_address ) };
        my $local_part  = qq{ $word (?: $dot $word )* };
        my $address     = qq{ $local_part \@ $domain };

        return $addr_to_check =~ /^$address$/ox ? $addr_to_check : "";

}

      ## Encrypts the password for crosschecking with the username database
sub EncryptPass{
              ############################ this encrypts the password ######################
                $PassWord =~ tr/A-Z/a-z/;
                $md5->add($PassWord);
                $PassWord = $md5->hexdigest();
                ##############################################################################
}

#Purpose: Emails user desired information, username, new password, and now to change it
#Pre: $Email, $FirstName, $LastName, $PassWord must be defined
#Post: User is emailed his username and new password
sub Mail{
        open MAIL, "| /usr/lib/sendmail -t -i";
        print MAIL <<END_MAIL;
To: $Email
From: IotaBetaZeta\@Yahoo.com
Reply-To: IotaBetaZeta\@yahoo.com
Subject: Iota-Beta Zeta Forgot Password or Username

$FirstName $LastName,
  Here is your Username and Password you will have to
update your password before being able to enter the web site again.
```

```
To do that visit http://lyco.lycoming.edu/~lca/cgi-bin/alumni/pass.cgi
and update your password.

Your Username is: $UserName
Your Temporary Password is: $PassWord

                Thank You,
                        From all the Brothers of Iota-Beta Zeta

P.S. If you have any questions or recieved this email by error send comments to IotaBetaZeta\@Yahoo.com

END_MAIL
        close MAIL
}

#Purpose: Checks the Username database for the username and encrypted password
#Pre: Username and Password must be defined
#Post: $Ib is saved in global variable
sub CheckDB{
        $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

        # Checks for ib in username table, can't have two of the same usernames
        $sth = $dbh->prepare(qq{
                        SELECT first_name, last_name, ib FROM brothers
                        WHERE email = ?
                });
        $sth->execute($Email);                  #Execute quarey with email address entered

        $db_return1 = $sth->fetchrow_hashref(); #Get hash of data from brothers table

        $FirstName = $db_return1->{first_name}; #set $FirstName to first_name got from table
        $LastName = $db_return1->{last_name};   #set $LastName to last_name got from table
        $Ib = $db_return1->{ib};          #set $Ib to ib got from table

        if($Ib){                        #If ib found in database
            $sth = $dbh->prepare(qq{
                        SELECT * FROM username
                        WHERE ib = ?
                });
                $sth->execute($Ib);
```

```
            $db_return2 = $sth->fetchrow_hashref();

        if($db_return2->{user_name}){ #if user_name was found in username
            $UserName = $db_return2->{user_name};      #Set $UserName equal to username from table
                Mail();                                #E-mail the user his information
            $sth = $dbh->prepare(qq{
                UPDATE username
                SET password = ?
                WHERE ib = ?
            });
            EncryptPass();                        #Encrypt the Password
            $sth->execute($PassWord, $Ib);            #Update the username table with new information
            PrintThank();                         #Show the thankyou message
          }
          else{                                   #If IB not found
            print "<Center>";
            print $cgi->h2("That Email Address was not found.");
                print $cgi->h3("You may not have registered yet.");
                print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/regit.cgi\">
                       Registration Page</font></a>.</font>";
                print "</Center>";
          }

      }
      else{                                       #If no ib found in username, hence not registred
            print "<Center>";
            print $cgi->h2("That email address was not found in our records");
            print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/regit.cgi\">
                        Registration Page</font></a>.</font>";
            print "</Center>";
      }

    $dbh->disconnect();
}

#Purpose: Starts the HTML and prints the title for the page.  Also has the JavaScript Embedded in it.
#Pre: none
#Post: none
sub StartPage{
print <<ENDHTML;
  <html>
```

```
  <head>
  <title>Iota-Beta Zeta Username or Password Lookup</title>
  <script src="http://lyco.lycoming.edu/~lca/js-lib/formLib.js"></script>
        <script><!--
                function validateForm(form){
                        requiredText = new Array( "email");
                        return requiredValues(form, requiredText)
                                && checkProblems();
                }
      //-->
      </script>

  </head>

  <body>

  <p align="center"><font size="6">Iota-Beta Zeta<br>
  Alumni Database<br>Username/Password Lookup</font></p>
ENDHTML
};


#Purpose: This Prints the Form for Email Address Lookup
#Pre: HTML must be started already
#Post: None
sub PrintForm{
      print <<END;
<form method="POST" action="" onSubmit="return validateForm( this );">
  <Center>
  If your forgot your Username of Password<br>
  Fill in your Email Address here and it will be emailed to you.<br>
  You will have to change your password because it will be changed!</p></Center>
  <p align="center"><input type="text" name="email" size="35"></p>
  <p align="center"><input type="submit" value="Submit" name="B1"><input type="reset" value="Reset"
name="B2"></p>
</form>
<p align="center"> </p>
END
}
```

```
#Purpose: To print the thankyou information
#Pre: HTML must be started
#Post: NONE
sub PrintThank{
      StartPage();
      print "<Center>";
      print $cgi->h2("An email has been sent to you with the requested information");
        print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/alumni.cgi\">
                  Main Alumni Page</font></a>.</font>";
      print "</Center>";
}
```

```
#!/usr/bin/perl
#note: there should be a "-T" at end of first line, but getting WEIRD error so not using like I should be

##############################################################################################
# Title :  Iota Beta Zeta Update User Information#
# Author: Joshua Speicher                                                                    #
# Last Update: 3/25/02                                                                       #
# Purpose : This page allows users to update their own information stored in the Database #
#  I felt it would be better to allow the user to do this updating then the administrator#
#  because it would mean little or NO maintance once working fully                          #
# Pre : user must have username and password already                                  #
# Post : All updated informtion will be stored in correct database                          #
##############################################################################################

use DBI;
use CGI;
use strict;
use MD5;

my($md5) = new MD5;           #Used for encrypting

my($cgi) = new CGI;           #Used for using CGI script

my($UserName) = $cgi->cookie("user_name") =~ /^([\w.]+)$/;  #Gets username from Cookie
my($PassWord) = $cgi->cookie("password") =~ /^([\w.]+)$/;   #Gets Password from Cookie

      #the next two arrays for for storing field information, very messy looking!
my @Fields = ("first_name", "last_name", "middle_name", "suffix", "phone", "email",
            "street1", "street2", "city", "state", "zip", "init_date", "grad");

my @WorkFields = ("title", "work_phone", "fieldofwork", "work_address", "work_city", "work_state",
                  "work_zip", "company");

my($Big) = $cgi->param("big")  =~ /^(\d*)$/;          #Match only Numbers
my($Little) = $cgi->param("little")  =~ /^(\d*)$/;    #Match Only Numbers

my %data;                           #HASH of user information, easy access and storage!!
my %work;                           #HASH of work data, again easy to use and update, not too messy

my $field;                          #used with for loops
```

```
#The next two foreach loops get the data from the form
foreach $field (@Fields){                  #Loop through each field in array fields
      if($cgi->param($field) =~ /([\w\s\.\(\)\-\,\@]+)/){   #Matches only
            $data{$field} = $1;                          #if correct set to data
      }
      else{
            $data{$field} = "";                          #if not correct make sure empty
      }
}
foreach $field (@WorkFields){
        if($cgi->param($field) =~ /([\w\s\.\(\)\-\@\,]+)/){ #Matches only char, spaces, . ( ) - @ ,
                $work{$field} = $1;        #if in correct format with pattern matching then set
        }
        else{
                $work{$field} = "";        #If not in correct format make sure it's empty
        }
}

my($Ib);                #the users IB stored in one easy to access variable
my($db_return1);        #Used to fetch data from MySQL
my($db_return2);        #Used to fetch more data from MySQL
my($db_return3);                #Used to fetch so much more data from MySQL

      #START OF DBI SETUP FOR USERNAME AND CONNECTION PARAMS
my($sth);

my($host_name, $user_name, $password) = (undef, undef, undef);
my($db_name) = "lca_data";

my($dbh ,$dsn);
my(%attr) = (RaiseError => 1);

$dsn = "dbi:mysql:$db_name";
$dsn .= ":hostname=$host_name" if $host_name;
$dsn .= ";mysql_read_default_file=/student/stu/lca/alumni.cnf";
      #END OF DBI SETUP

###############################################################################################
print $cgi->header(-type => "text/html");              #Print Header
print $cgi->start_html(-title=>"Your Information Page");    #Print Title and Start HTML
```

```
CheckDB();        #Checks the Databases for user IB and Password
StartPage();            #Starts the page with title and greeting
if($Ib){          #If IB found do this stuff
      if( !$cgi->param("submit") ){
            GetData();  #if user visiting for first time
      }
      else{
            CheckData();      #Checks data in perl just incase java is turned off
            PutData();  #if user wants to update info then go ahead and do so
            GetData();
      }
      PrintForm();            #Print the pretty Form!
}
else{                   #Not a user or cookies not enabled
      print $cgi->center;
      print $cgi->h3("Either you are not Signed in or you do not have cookies enabled."),
            $cgi->h3("Please return to the main alumni page and sign in.");
}

print "<center>";
print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/alumni.cgi?return=true\">
       Return to Main Alumni Page</a>";
print " | ";
print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/search.cgi\">
       Go to the Search Page</a>";
print "</center>";
print $cgi->end_html();       #Finnish it all off with some html brackets

##########################################################################################################

# Purpose: To check input for special characters and form
# Pre: all variables must already be read in
# Post: if error, then error message.  If all good then nothing
sub CheckData{
}


# Purpose:  Checks email address for correct format
# Pre: none
# Post: Checked email address without any "dangerous" content
sub validate_email_address{
```

```
        my $addr_to_check = shift;
        $addr_to_check =~ s/("(?:[^"\\]|\\.)*"\[^\t "]*)[ \t]*/$1/g;

        my $esc         = '\\\\';
        my $space       = '\040';
        my $ctrl        = '\000-\037';
        my $dot         = '\.';
        my $nonASCII    = '\x80-\xff';
        my $CRlist      = '\012\015';
        my $letter      = 'a-zA-Z';
        my $digit       = '\d';
        my $atom_char   = qq{ [^$space<>\@,;:".\\[\\]$esc$ctrl$nonASCII] };
        my $atom        = qq{ $atom_char+ };
        my $byte        = qq{ (?: 1?$digit?$digit |
                                2[0-4]$digit      |
                                25[0-5]         ) };
        my $qtext       = qq{ [^$esc$nonASCII$CRlist"] };
        my $quoted_pair = qq{ $esc [^$nonASCII] };
        my $quoted_str  = qq{ " (?: $qtext | $quoted_pair )* " };

        my $word        = qq{ (?: $atom | $quoted_str ) };
        my $ip_address  = qq{ \\[ $byte (?: $dot $byte ) {3} \\] };
        my $sub_domain  = qq{   [$letter$digit]
                                [$letter$digit-]{0,61} [$letter$digit]};
        my $top_level   = qq{ (?: $atom_char ){2,4} };
        my $domain_name = qq{ (?: $sub_domain $dot )+ $top_level };
        my $domain      = qq{ (?: $domain_name | $ip_address ) };
        my $local_part  = qq{ $word (?: $dot $word )* };
        my $address     = qq{ $local_part \@ $domain };

        return $addr_to_check =~ /^$address$/ox ? $addr_to_check : "";

}

      ## Encrypts the password for crosschecking with the username database
sub EncryptPass{
        ############################ this encrypts the password ######################
      $PassWord =~ tr/A-Z/a-z/;
      $md5->reset();
        $md5->add($PassWord);
        $PassWord = $md5->hexdigest();
```

```
        ##############################################################################
}

#Purpose: Checks the Username Database for Username and Password
#Pre: Connect information must be defined elsewhere
#Post: $Ib is loaded with ib from table if found
sub CheckDB{
        $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

              # Checks for ib in username table
        $sth = $dbh->prepare(qq{
            SELECT ib FROM username
            WHERE user_name = ? and password = ?
        });
        $sth->execute($UserName, $PassWord);

      $db_return1 = $sth->fetchrow_hashref();

      $Ib = $db_return1->{"ib"};

      $dbh->disconnect();
}

#Purpose: Gets the User's information for many different databases
#Pre: Databases must be set up correctly
#Post: Data is stored in correct array
sub GetData{
        $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

      if($Ib){          #If logged in
            #Gets all the information about person from brothers table, if in username table
            $sth = $dbh->prepare(qq{
                  SELECT * FROM brothers
                  WHERE ib = ?
            });
            $sth->execute($Ib);

            $db_return1 = $sth->fetchrow_hashref();

            my $field;
            foreach $field (@Fields){
```

```
            $data{$field} = $db_return1->{$field};    #Load array with information
        }

        #Gets all the information about person from work table, if in username table
        $sth = $dbh->prepare(qq{
            SELECT * FROM work
            WHERE ib = ?
        });
        $sth->execute($Ib);

        $db_return2 = $sth->fetchrow_hashref();

        foreach $field (@WorkFields){
            $work{$field} = $db_return2->{$field};    #Load array with information
        }

        #Gets all the information about person from BLdata table, if in username table
            $sth = $dbh->prepare(qq{
                    SELECT * FROM BLdata
                    WHERE ib = ?
            });
            $sth->execute($Ib);

            $db_return3 = $sth->fetchrow_hashref();
        $Big = $db_return3->{"big"};        #Set Big's ib
        $Little = $db_return3->{"little"};      #Set little's ib

    }

    $dbh->disconnect();
}

#Purpose: Puts all that informtion back into those many databases!
#Pre: Data arrays must be loaded with information and parsed for errors
#Post: Data is loaded back into databases
sub PutData{
      $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);
        #must use very long update statement because mysql is hard to work with!!
    if($Ib){
            $sth = $dbh->prepare(qq{
              UPDATE brothers   SET first_name = ?, last_name = ?,
```

```
      middle_name = ?, suffix = ?, phone = ?, email = ?,
      street1 = ?, street2 = ?, city = ?, state = ?,
      init_date = ?, grad = ?
      WHERE ib = ?
    });
$sth->execute($data{"first_name"}, $data{"last_name"}, $data{"middle_name"},
            $data{"suffix"}, $data{"phone"}, $data{"email"},
            $data{"street1"}, $data{"street2"}, $data{"city"},
            $data{"state"}, $data{"init_date"}, $data{"grad"},
            $Ib); #LOADS THE BROTHERS DATABASE WITH NEW VALUES


$sth = $dbh->prepare(qq{
      SELECT ib FROM work
      WHERE ib = ?
    });
    $sth->execute($Ib);

$db_return1 = $sth->fetchrow_hashref();

            #if ib found in work database
if($db_return1->{"ib"}){
        $sth = $dbh->prepare(qq{
                  UPDATE work SET title = ?, work_phone = ?,
                  fieldofwork = ?, work_address = ?, work_city = ?,
                  work_state = ?, work_zip = ?, company = ?
                  WHERE ib = ?
      });
      $sth->execute($work{"title"}, $work{"work_phone"}, $work{"fieldofwork"},
                    $work{"work_address"}, $work{"work_city"}, $work{"work_state"},
                    $work{"work_zip"}, $work{"company"}, $Ib);
                  #LOADS WORK TABLE WITH NEW VALUES
}
else{             #if ib not in work database must create entry instead of updating
      $sth = $dbh->prepare(qq{
            INSERT INTO work VALUES(?,?,?,?,?,?,?,?,?)
      });
      $sth->execute($Ib, $work{"title"}, $work{"work_phone"}, $work{"fieldofwork"},
            $work{"work_address"}, $work{"work_city"}, $work{"work_state"},
            $work{"work_zip"}, $work{"company"});
                  #LOADS WORK TABLE WITH NEW VALUES IF NOT ALREADY CREATED LIKE ABOVE
```

```
            }

                  ## insert big and little into BLdata table, but first find IB's of last names...
            $sth = $dbh->prepare(qq{
                        SELECT ib FROM BLdata
                        WHERE ib = ?
                  });
            $sth->execute($Ib);
            $db_return1 = $sth->fetchrow_hashref();
            if($db_return1->{"ib"}){      #If BLdata table has users information already
                        $sth = $dbh->prepare(qq{
                                UPDATE BLdata SET big = ?, little = ?
                                WHERE ib = ?
                        });
                        $sth->execute($Big, $Little, $Ib);
                  }
                  else{      #if ib not in work database must create entry instead of updating
                        $sth = $dbh->prepare(qq{
                                INSERT INTO BLdata VALUES(?,?,?)
                        });
                        $sth->execute($Ib, $Big, $Little);
                  }
      }
      $dbh->disconnect();
}

#Purpose: Starts the HTML and prints the title for the page.  Also has the JavaScript Embedded in it.
#Pre: None
#Post: Javascript is loaded along with title
sub StartPage{
print <<ENDHTML;
<meta http-equiv="Content-Language" content="en-us">
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
  <script src="http://lyco.lycoming.edu/~lca/js-lib/formLib.js"></script>
        <script><!--
                  function validateForm(form){
                        requiredText = new Array("first_name", "last_name", "email");
                        var conf = confirm("Are you sure you want to update this information?");
                    if(conf == true){
                        return requiredValues(form, requiredText)
                              && checkProblems();
```

```
                }
                else{
                        return false;
                }
        }
        function checkPassword(form){
                if(!((form["newpass1"].value) == (form["newpass2"].value))){
                        alert("Please Retype your Passwords, they do not match.");
                        return false;
                }
                return true;
        }
//-->
</script>

<p align="center"><font size="7">Iota Beta Zeta<br>
<i>Alumni Database</i></font></p>
<p align="center"><u><font size="6">Your Information</font></u></p>
ENDHTML
};


#Purpose: This Prints the Form for User Information
#Pre: Array's of data must be loaded from lca_data database
#Post: form created where user and update his information
sub PrintForm{
      print <<END;
<div align="center">
  <center>
  <table
border="1" cellpadding="0" cellspacing="0" style="border-collapse: collapse" bordercolor="#111111"
width="70%" bgcolor="#9758E4">
   <tr>
      <td width="100%" bordercolor="#000000">
      <form method="POST" action="myinfo.cgi" onSubmit="return validateForm(this);">
        <div align="center">
          <center>
          <table border="0" style="border-collapse: collapse" bordercolor="#111111" width="90%"
cellpadding="2" bgcolor="#9758E4">
            <tr>
              <td width="100%" colspan="3" align="center"><b>
```

```
            <font size ="4" color="#FF0000">*</font> = Required Field</b></td>
          </tr>
        <tr>
            <td width="100%" colspan="3" bgcolor="#41D526" align="center"><u>
            <b>Contact Information</b></u></td>
          </tr>
          <tr>
            <td width="50%" align="center"><b>First Name<font color="#FF0000" size="4">*</font>
            : <input type="text" name="first_name" size="20" tabindex="1" value= '$data{"first_name"}'
></b></td>
            <td width="50%" align="center" colspan="2"><b>Last Name<font color="#FF0000"
size="4">*</font>
            : <input type="text" name="last_name" size="20" tabindex="2" value=
'$data{"last_name"}'></b></td>
          </tr>
          <tr>
            <td width="50%" align="center"><b>Middle Name :
            <input type="text" name="middle_name" size="20" tabindex="3" value=
'$data{"middle_name"}'></b></td>
            <td width="50%" align="center" colspan="2"><b>Suffix :
            <input type="text" name="suffix" size="8" tabindex="4" value= '$data{"suffix"}'></b></td>
          </tr>
          <tr>
            <td width="50%" align="center"><b>Phone Number</b> :
            <input type="text" name="phone" size="20" onChange=\"checkPhone(this);\" tabindex="5" value=
'$data{"phone"}' ></td>
            <td width="50%" align="center" colspan="2"><b>Email Address</b>
            <font color="#FF0000" size="4">*</font> :
            <input type="text" name="email" size="20" onChange=\"checkEmail(this);\" tabindex="6" value=
'$data{"email"}'></td>
          </tr>
          <tr>
            <td width="100%" colspan="3" bgcolor="#41D526">
            <p align="center"><u><b>Current Address</b></u></td>
          </tr>
          <tr>
            <td width="100%" colspan="3" align="center"><b>Street :
            <input type="text" name="street1" size="29" tabindex="7" value='$data{"street1"}'></b></td>
          </tr>
          <tr>
            <td width="100%" colspan="3" align="center"><b>Line 2 :
```

```
            <input type="text" name="street2" size="29" tabindex="8" value='$data{"street2"}'></b></td>
          </tr>
          <tr>
            <td width="50%" align="right"><b>City :
            <input type="text" name="city" size="20" tabindex="9" value='$data{"city"}'></b></td>
            <td width="50%" colspan="2"><b>State :
            <input type="text" name="state" size="20" tabindex="10" value='$data{"state"}'></b></td>
          </tr>
          <tr>
            <td width="50%" align="right"><b>Zip : 
            <input type="text" name="zip" size="20" onChange=\"checkZip(this);\" tabindex="11"
value='$data{"zip"}'></b></td>
            <td width="50%" colspan="2">
            <p align="center">If you live outside the US, enter country
            instead of City and ignore State.</td>
          </tr>
          <tr>
            <td width="100%" align="right" colspan="3" bordercolor="#41D526" bgcolor="#41D526">
            <p align="center"><u><b>Lambda Chi Alpha Information</b></u></td>
          </tr>
          <tr>
            <td width="100%" align="right" colspan="3">
            <p align="center">Do not update this information unless you are
            absolutely certain!</td>
          </tr>
          <tr>
            <td width="50%" align="center"><b>Initiation Date :
            <input type="text" name="init_date" size="8" onChange=\"checkInit(this);\"
                tabindex="12" value='$data{"init_date"}'></b></td>
            <td width="50%" align="center" colspan="2">
            <p align="left"><b>Graduation Year :
            <input type="text" name="grad" size="4" onChange=\"checkDate(this);\" tabindex="13"
value='$data{"grad"}'></b></td>
          </tr>
          <tr>
            <td width="50%" align="center"><b>Big's IB :
            <input type="text" name="big" size="4" onChange=\"checkIB(this);\" tabindex="14"
value='$Big'></b></td>
            <td width="50%" align="center" colspan="2">
            <p align="left"><b>Little's IB :
            <input type="text" name="little" size="4" tabindex="15" value='$Little'></b></td>
```

```
            </tr>
            <tr>
              <td width="100%" align="right" colspan="3" bgcolor="#41D526">
              <p align="center"><u><b>Work Information</b></u></td>
            </tr>
            <tr>
              <td width="100%" align="right" colspan="3">
              <p align="center">We would like your work information so other
              brothers can find jobs through you.</td>
            </tr>
            <tr>
              <td width="50%">
              <p align="right"><b>Company Name :<input type="text"
                  name="company" size="15" value='$work{"company"}'></b></td>
            <td width="50%" colspan="2">
              <p align="right"><b>Job Title :<input type="text" name="title"
                  size="17"  value='$work{"title"}'>
              </b></td>
            </tr>
            <tr>
              <td width="100%" colspan="3">
              <p align="center"><b>Phone :
              <input type="text" name="work_phone" onChange=\"checkPhone(this);\" size="20"
value='$work{"work_phone"}'></b></td>
            </tr>
            <tr>
              <td width="100%" align="center" colspan="3"><b>Field of Work :
              <select size="1" name="fieldofwork" value='$work{"fieldofwork"}'>
              <option>Choose One</option>
              <option>Accounting/Auditing</option>
              <option>Administrative and Support Services</option>
              <option>Advertising/Marketing/Pulbic Relations</option>
              <option>Agriculture, Forestry, & Fishing</option>
              <option>Architectural Services</option>
              <option>Arts, Entertainment, and Media</option>
              <option>Banking</option>
              <option>Biotechnology and Pharmaceutical</option>
              <option>Community, Social Services, and Nonprofit</option>
              <option>Computers, Hardware</option>
              <option>Computers, Software</option>
              <option>Construction, Mining and Trades</option>
```

```
  <option>Consulting Services</option>
  <option>Customer Service and Call Center</option>
  <option>Education, Training, and Library</option>
  <option>Employment Placement Agencies</option>
  <option>Engineering</option>
  <option>Finance/Economics</option>
  <option>Financial Services</option>
  <option>Government and Policy</option>
  <option>Healthcare, Other</option>
  <option>Hospitality/Tourism</option>
  <option>Human Resources</option>
  <option>Information Technology</option>
  <option>Installation, Maintenance, and Repair</option>
  <option>Insurance</option>
  <option>Internet/E-Commerce</option>
  <option>Law Enforcement, and Security</option>
  <option>Legal</option>
  <option>Manufacturing and Production</option>
  <option>Military</option>
  <option>Other</option>
  <option>Personal Care and Service</option>
  <option>Real Estate</option>
  <option>Restaurant and Food Service</option>
  <option>Retail/Wholesale</option>
  <option>Sales</option>
  <option>Science</option>
  <option>Sports and Recreation</option>
  <option>Telecommunications</option>
  <option>Transportation and Warehousing</option>
  <option>Student</option>
  </select></b></td>
</tr>
<tr>
  <td width="100%" align="right" colspan="3">
  <p align="center"><b>Address :
  <input type="text" name="work_address" size="33"  value='$work{"work_address"}'></b></td>
</tr>
<tr>
  <td width="50%" align="right">
  <p align="center"><b>City :
  <input type="text" name="work_city" size="20" value='$work{"work_city"}'></b></td>
```

```
            <td width="25%" align="center"><b>State :
            <input type="text" name="work_state" size="3" value='$work{"work_state"}'></b></td>
            <td width="25%" align="center"><b>Zip :
            <input type="text" name="work_zip" onChange=\"checkZip(this);\"
                size="8" value='$work{"work_zip"}'></b></td>
          </tr>
          <tr>
            <td width="100%" align="right" bgcolor="#41D526" colspan="3"> </td>
          </tr>
        </table>
        </center>
      </div>
      <p align="center">
      <input type="submit" value="Update" name="submit">
    <input type="reset" value="Reset Form" name="B2"></p>
    </form>
    </td>
    </td>
  </tr>
</table>
</center>
</div>
END
}

# you can stop reading my code here!
```

```
#!/usr/bin/perl

#Shoud have "-T" behind, but that was creating an error.  If you try this code you should
#     try the -T for Taint Checking

##########################################################################################
# Title : User Name Register Page for LCA Online Database                                #
# Author: Joshua Speicher                                                                #
# Last Update: 3/20/02                                                                   #
# Purpose : This cgi will allow LCA alumni to register for a username so they can access#
# the alumni database of Iota Beta Zeta                                                  #
# Pre : None                                                                             #
# Post : If User's name found in database and agrees to terms and conditions his info     #
# username and encrypted password will be inserted into the username table of the    #
# lca_data Database                                                                      #
##########################################################################################

use DBI;          #Database Interface
use CGI;          #Common Gateway Interface
use strict;       #Strict Subs
use MD5;          #Password encryption

my($md5) = new MD5;
my($cgi) = new CGI;

my $title = "Iota-Beta Zeta Alumni Registration";
      #all of these variables are checked to have only alphanumeric
my($FirstName) = $cgi->param("first_name") =~ /^([\w.]+)$/; #First name from form
my($LastName) = $cgi->param("last_name") =~ /^([\w.]+)$/;   #Last name from form
my($UserName) = $cgi->param("username") =~ /^([\w.]+)$/;    #Username from form
my($Pass1) = $cgi->param("password1") =~ /^([\w.]+)$/;           #Password from form
my($Pass2) = $cgi->param("password2") =~ /^([\w.]+)$/;           #Check Pass Spelling from form
my($CkBox) = $cgi->param("agree_box");                      #Check Box from form
my($EmailAddress) = validate_email_address( $cgi->param("email") ); #Validated Email address from form

      #START OF DBI SETUP FOR USERNAME AND CONNECTION PARAMS
my($sth);

my($host_name, $user_name, $password) = (undef, undef, undef);
my($db_name) = "lca_data";
```

```
my($dbh ,$dsn);
my(%attr) = (RaiseError => 1);

$dsn = "dbi:mysql:$db_name";
$dsn .= ":hostname=$host_name" if $host_name;
$dsn .= ";mysql_read_default_file=/student/stu/lca/alumni.cnf";
      #END OF DBI SETUP

#########################################################################
print $cgi->header();   #Start HTML for CGI

StartPage();      #Start the page with title and javascript


# Process the form for anything missing, first open, or everything filled in, if
# everything is filled in call CheckForm and FindName functions

if(!$FirstName && !$LastName && !$UserName && !$Pass1 && !$Pass2 && !$CkBox && !$EmailAddress){
   #If nothing filled in on form display the form
      FillForm();
}
elsif($FirstName && $LastName && !$UserName && $Pass1 && $Pass2 && $CkBox && $EmailAddress){
   #If everything is filled in on the form except username had an illegal character
      print "<center>";
        print $cgi->h2("Username can only have letters, numbers, and underscores.");
        print "</center>";
        FillForm();
}
elsif(!$FirstName || !$LastName || !$UserName || !$Pass1 || !$Pass2 || !$CkBox || !$EmailAddress){
   #If anything missing on the form display error
      print "<center>";
      print $cgi->h2("You must fill in everything requested and agree to the terms and conditions.");
      print "</center>";
      FillForm();
}
else{
   #If everything filled in check the form and update the database
      CheckForm();
      FindName();
}
```

```
#Purpose: Starts the HTML with title and javascript set-up
#Pre: NONE
#Post: Javascript is set-up and title of page is on screen
#Last Updated: 3/20/02
sub StartPage{
print <<ENDTEXT;
 <html>
  <head>
      <title>Alumni Registration Page</title>
      <script src="http://lyco.lycoming.edu/~lca/js-lib/formLib.js"></script>
      <script><!--
            function validateForm(form){
                  requiredText = new Array( "first_name", "last_name", "username", "email", "password1",
"password2");
                  requiredRadio = new Array( "agree_box" );
                  return requiredRadios(form, requiredRadio)
                        && requiredValues(form, requiredText)
                        && checkPassword(form)
                        && checkProblems();
            }
            function checkPassword(form){
                  if(!((form["password1"].value) == (form["password2"].value))){
                        alert("Please Retype your Passwords, they do not match.");
                        return false;
                  }
                  return true;
            }
      //-->
      </script>
   </head>
      <body>

        <p align="center"><b><u><i><font size="6">Welcome to the Iota-Beta Zeta Alumni
        Registration Page</font></i></u></b></p>
        <p align="center">You will be able to sign up for your username and password to
        access the Iota Beta Zeta Alumni directory and listings.<br>
        </p>
        <hr>
ENDTEXT
}
```

```
#Purpose: this function checks the form for security breaks and for password missmatches
#Pre: Form Values must be ready in already
#Post: Form fields are validated
sub CheckForm{

      if ($FirstName !~ /\w/){      #If not all alphanumeric
            print "<center>";
            print $cgi->h2("First Name was not in correct format.");
            print "</center>";
            FillForm();
      }
      if ($LastName !~ /\w/){       #If not all alphanumeric
            print "<center>";
            print $cgi->h2("Last Name was not in correct format.");
            print "</center>";
            FillForm();
      }
      if ($UserName !~ /\w/){       #If not all alphanumeric
            print "<center>";
            print $cgi->h2("User Name was not in correct format.");
            print "</center>";
            FillForm();
      }
      if ($Pass1 ne $Pass2){        #If Pass1 does not match exactly Pass2
            print "<center>";
            print $cgi->h2("Retype Passwords, they do not match.");
            print "</center>";
            FillForm();
      }
}


#Purpose: ThankYou displays a thankyou message for registering and redirects to the main page for logging
in.
#Pre: None
#Post: thankyou displayed on screen
#Last Updated: 3/20/02
sub ThankYou{
      print <<END_TEXT;
```

```
      <p align="center"><font size="5">Thank You for registering with Iota-Beta Zeta's
      Alumni Directory.</font></p>
      <p align="center">An email has been sent to you with your Username and Password</p>
      <p align="center">To log in and continue on with Iota-Beta Zeta's Alumni
      Directory go <a href="http://lyco.lycoming.edu/~lca/cgi-bin/alumni/alumni.cgi">here</a>.</p>
      <hr>

   </body>
   </html>

END_TEXT
}


#Purpose: Email will send a confirmation email to the new user with his username and password
#  and instructions on how to login to the LCA database
#Pre: Values must be ready in from form and validated for security issues
#Post: Email sent to user with username and password and instructions on how to login
#Last Updated: 3/20/02
sub Email{
      open MAIL, "| /usr/lib/sendmail -t -i";
      print MAIL <<END_MAIL;
To: $EmailAddress
From: IotaBetaZeta\@Yahoo.com
Reply-To: IotaBetaZeta\@yahoo.com
Subject: Iota-Beta Zeta Alumni Registration

$FirstName $LastName,
  Thankyou for registering with Iota-Beta Zeta's Alumni Database.
You will be able to find all your old brothers and all the new brothers with this service.

Please Save this information for later use.
Your Username is: $UserName
Your Password is: $Pass1

To login and search our web page go to http://lyco.lycoming.edu/~lca/cgi-bin/alumni/alumni.cgi

            Thank You,
                  From all the Brothers of Iota-Beta Zeta

P.S. If you have any questions or recieved this email by error send comments to IotaBetaZeta\@Yahoo.com
```

```
END_MAIL

      close MAIL
}

#Purpose: To validate email address for format and security issues
#Pre: Email address must be ready in and passed to function
#Post: Very Safe and correct format email address
#Last Updated: 3/20/02
sub validate_email_address{
      my $addr_to_check = shift;
      $addr_to_check =~ s/("(?:[^"\\]|\\.)*"\[^\t "]*)[ \t]*/$1/g;

      my $esc           = '\\\\';
      my $space   = '\040';
      my $ctrl    = '\000-\037';
      my $dot           = '\.';
      my $nonASCII      = '\x80-\xff';
      my $CRlist  = '\012\015';
      my $letter  = 'a-zA-Z';
      my $digit   = '\d';
      my $atom_char     = qq{ [^$space<>\@,;:".\\[\\]$esc$ctrl$nonASCII] };
      my $atom    = qq{ $atom_char+ };
      my $byte    = qq{ (?: 1?$digit?$digit |
                        2[0-4]$digit        |
                        25[0-5]           ) };

      my $qtext   = qq{ [^$esc$nonASCII$CRlist"] };
      my $quoted_pair   = qq{ $esc [^$nonASCII] };
      my $quoted_str    = qq{ " (?: $qtext | $quoted_pair )* " };

      my $word    = qq{ (?: $atom | $quoted_str ) };
      my $ip_address    = qq{ \\[ $byte (?: $dot $byte ) {3} \\] };
      my $sub_domain  = qq{   [$letter$digit]
                        [$letter$digit-]{0,61} [$letter$digit]};
      my $top_level     = qq{ (?: $atom_char ){2,4} };
      my $domain_name = qq{ (?: $sub_domain $dot )+ $top_level };
      my $domain  = qq{ (?: $domain_name | $ip_address ) };
      my $local_part    = qq{ $word (?: $dot $word )* };
      my $address = qq{ $local_part \@ $domain };
```

```
      return $addr_to_check =~ /^$address$/ox ? $addr_to_check : "";

}


#Purpose: This will check the database for the name typed in, if not found will post error message
# This will also input the IB, Username, and Encrypted Password into the "username" table
#Pre: Values must be read in and validated
#Post: ib, username, password are inserted into username table
#Last Updated: 3/20/02
sub FindName{
      my($db_return1);
      my($db_return2);
      my($db_return3);

      $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

        #checks for username in the brothers table

      $sth = $dbh->prepare(qq{
                  SELECT ib,first_name, last_name FROM brothers
                  WHERE last_name = ? and first_name = ?
            });
      $sth->execute($LastName,$FirstName);      #Get everything from brothers table

      $db_return1 = $sth->fetchrow_hashref();   #Fetch row from database return

      my($Ib) = $db_return1->{ib};        #Set Ib to ib from table

        # Checks for ib in username table, can't have two of the same usernames
      $sth = $dbh->prepare(qq{
                  SELECT ib FROM username
                  WHERE user_name = ?
            });

      $sth->execute($UserName);     #Check if username already registred

      $db_return2 = $sth->fetchrow_hashref();   #Fetch the database return
```

```
        # Checks for ib in username table, if there user has already registered

      $sth = $dbh->prepare(qq{
                  SELECT ib FROM username
                  WHERE ib = ?
            });
      $sth->execute($Ib);           #Execute with Ib
      $db_return3 = $sth->fetchrow_hashref();   #Fetch results


      if($db_return3->{ib}){        #If ib already registred display error message
            print "<center>";
            print $cgi->h2("You have Already Registered!");
            print "</center>";
            print "<hr>";
            print "<p align=\"center\">To log in and continue on with Iota-Beta Zeta's Alumni
                  Directory go <a href=\"http://lyco.lycoming.edu/~lca/cgi-
bin/alumni/alumni.cgi\">here</a>.</p>";

      }
      elsif($db_return2->{ib}){     #If username already registred display error message
                  print "<center>";
                  print $cgi->h2("Username in Database already, please try another");
                  print "</center>";
        }
      elsif($db_return1->{first_name} && !$db_return2->{ib}) #If ib in brothers table and username not used
      {
            $sth = $dbh->prepare(qq{
                  INSERT INTO username
                  values (?, ?, ?)
            });

            ############################ this encrypts the password ####################
                $Pass1 =~ tr/A-Z/a-z/;
            $md5->add($Pass1);
            my $encrypted = $md5->hexdigest();
            ############################################################################

                  #This Enters the Ib, Username, and encrypted password into the username table
            $sth->execute($Ib, $UserName, $encrypted);
```

```
                #This code will enter the updated email address into the brothers table
            $sth = $dbh->prepare(qq{
                UPDATE brothers SET email = ? WHERE ib = ?
            });

            $sth->execute($EmailAddress, $Ib);

                # Email User his information and password
            Email();
                # Print Thankyou and redirect to another page
            ThankYou();
        }
        elsif(!$db_return1->{first_name}){  #If not a brother of iota-beta zeta or misspelled name
            print "<center>";
            print $cgi->h2("Your name was not found in our database, make sure you use your full name.");
            print "</center>";
            #Finish page if error
            FillForm();
        }

        $dbh->disconnect();                 #Close DBI interface
}


#Purpose: This will post the Form to be filled in by the User, it will repost data previously typed in if
there was an Error
#Pre: None
#Post: None
#Last Updated: 3/20/02
sub FillForm{
        print <<ENDTEXT;
        <ol>
          <li>
          <p align="center">The data stored on the Iota-Beta Zeta Alumni page is to be
          used and viewed Only by Alumni of Iota Beta Zeta.</li>
          <li>
          <p align="center">Nobody will be allowed to modify or change your information
          without your strict agreement.</li>
          <li>
          <p align="center">Your information will be kept private for the use of Iota-Beta
```

```
            Zeta and its Alumni only.</li>
          <li>
          <p align="center">Your information will not be sold by Iota-Beta Zeta to anybody.</li>
      </ol>
      <hr>

      <form method="POST" action="regit.cgi"  onSubmit="return validateForm( this );">

        <p align="center"><b>Check this box if you agree to the terms above</b>
        <input type="checkbox" name="agree_box" value="ON" tabindex="1"></p>
        <table
       border="0" cellpadding="2" cellspacing="1" style="border-collapse: collapse" bordercolor="#111111"
width="100%" id="AutoNumber1">
        <tr>
                  <td width="50%" align="right">
                  <p align="right"><font size="4">First Name</font></td>
                  <td width="50%" align="left">
                  <p align="left">
          <input type="text" name="first_name" value='$FirstName' size="20" tabindex="2"></td>
          </tr>
          <tr>
            <td width="50%" align="right"><font size="4">Last Name</font></td>
            <td width="50%" align="left">
          <input type="text" name="last_name" value='$LastName' size="20" tabindex="2"></td>
        </tr>
        <tr>
                  <td width="50%" align="right"><font size="4">Username</font></td>
                  <td width="50%" align="left">
          <input type="text" name="username" value='$UserName' size="20" tabindex="2"></td>
        </tr>
        <tr>
              <td width="50%" align="right"><font size="4">Email Address</font></td>
              <td width="50%" align="left">
              <input type="text" name="email" value='$EmailAddress'
            onChange="checkEmail(this);"  size="20" tabindex="3"></td>
        </tr>
        <tr>
                  <td width="50%" align="right"><font size="4">Password</font></td>
                  <td width="50%" align="left">
                  <input type="password" name="password1" size="20" tabindex="5"></td>
        </tr>
```

```
          <tr>
                  <td width="50%" align="right"><font size="4">Retype Password</font></td>
                  <td width="50%" align="left">
                  <input type="password" name="password2" size="20" tabindex="6"></td>
          </tr>
        </table>
        <p align="center"><input type="submit" value="Submit" name="Submit"><input type="reset"
value="Reset" name="Reset"></p>
      </form>
      <p align="center"> </p>

ENDTEXT
}

print $cgi->end_html(); #Finnish off HTML
```

```
#!/usr/bin/perl
#note: there should be a "-T" at end of first line, but getting WEIRD error so not using like I should be

##############################################################################################
# Title :  Iota Beta Zeta Search Page                                                        #
# Author: Joshua Speicher                                                                      #
# Last Update: 3/25/02                                                                         #
# Purpose : This page is a search page, it allows browsing and searching for any brother#
#     you can then click on his IB and get information about him                             #
# Pre : user must have username and password already                                          #
# Post : Desired Information is displayed if there is any                                    #
##############################################################################################

use DBI;
use CGI;
use strict;
use MD5;

my($md5) = new MD5;           #Used for encrypting

my($cgi) = new CGI;           #Used for using CGI script

my($UserName) = $cgi->cookie("user_name") =~ /^([\w.]+)$/;  #Gets username from Cookie
my($PassWord) = $cgi->cookie("password") =~ /^([\w.]+)$/;   #Gets Password from Cookie
my($Function) = $cgi->param("func") =~ /^([\w.]+)$/;        #Gets Function Parameter from html space
my($SearchValue) = $cgi->param("keyword") =~ /^([\w\s]+)$/; #Match only alphanumeric and spaces
my($Select) = $cgi->param("select")  =~ /^([\w.]+)$/;       #Match Only alphanumeric
my($Ib);                                          #the users IB stored in one easy to access variable
my($db_return1);                                  #Used to fetch data from MySQL
my ($For) = $cgi->param("for")=~ /^([\w\s\.\(\)\-\,\@]+)$/; #the search delimiter, like a letter or name
my ($By) = $cgi->param("cat") =~ /^([\w.]+)$/;              #What to search for
my ($Order) = $cgi->param("ord") =~ /^([\w.]+)$/;           #What to search for
if(!$Order){                                        #if no order set, set order to "ib"
      $Order = "ib";
}

      #START OF DBI SETUP FOR USERNAME AND CONNECTION PARAMS
my($sth);

my($host_name, $user_name, $password) = (undef, undef, undef);
my($db_name) = "lca_data";
```

```
my($dbh ,$dsn);
my(%attr) = (RaiseError => 1);

$dsn = "dbi:mysql:$db_name";
$dsn .= ":hostname=$host_name" if $host_name;
$dsn .= ";mysql_read_default_file=/student/stu/lca/alumni.cnf";
      #END OF DBI SETUP

##########################################################################################################
print $cgi->header(-type => "text/html");              #Print Header
print $cgi->start_html(-title=>"Iota-Beta Zeta Search");    #Print Title and Start HTML

CheckDB();                                  #Search Database for username and password, if none print error
if($Ib){
      StartPage();                                  #print the search box and javascript
      if($SearchValue){                     #if Search was done with edit box
            Find();
      }
      elsif(($Function eq "search")){               #if browsing for values
            Search();
      }
      elsif($Function eq "browse"){             #if browsing though sections
            Browse();
      }
      elsif($Function eq "lookat"){             #look at individual's information
            LookAt();
      }
      else{
                  PrintForm();                        #if none of the above or just starting
      }
}
else{       #if error do this, print error message
      print $cgi->center,
            $cgi->h1("ERROR!"),
            $cgi->h1("You are not logged in or cookies are not enabled, please return to the main alumni
page.");
}

      #this prints the links to the other Alumni Pages
print "</table>\n";
```

```
print "<center>\n";
print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/alumni.cgi?return=true\">
       Return to Main Alumni Page</a>";
print " | ";
print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/myinfo.cgi\">
       Go to the My Info Page</a>";
print " | ";
print "<a href=\"http://lyco.lycoming.edu/~lca/cgi-bin/alumni/search.cgi\">
       Main Search Page</a>";
print "\n</center>";
print $cgi->end_html();       #Finnish it all off with some html brackets

##############################################################################################################

# Purpose:  Checks email address for correct format
# Pre: none
# Post: Checked email address without any "dangerous" content
sub validate_email_address{
        my $addr_to_check = shift;
        $addr_to_check =~ s/("(?:[^"\\]|\\.)*"\[^\t "]*)[ \t]*/$1/g;

        my $esc         = '\\\\';
        my $space       = '\040';
        my $ctrl        = '\000-\037';
        my $dot         = '\.';
        my $nonASCII    = '\x80-\xff';
        my $CRlist      = '\012\015';
        my $letter      = 'a-zA-Z';
        my $digit       = '\d';
        my $atom_char   = qq{ [^$space<>\@,;:".\\[\\]$esc$ctrl$nonASCII] };
        my $atom        = qq{ $atom_char+ };
        my $byte        = qq{ (?: 1?$digit?$digit |
                                  2[0-4]$digit      |
                                  25[0-5]         ) };
        my $qtext       = qq{ [^$esc$nonASCII$CRlist"] };
        my $quoted_pair = qq{ $esc [^$nonASCII] };
        my $quoted_str  = qq{ " (?: $qtext | $quoted_pair )* " };

        my $word        = qq{ (?: $atom | $quoted_str ) };
        my $ip_address  = qq{ \\[ $byte (?: $dot $byte ) {3} \\] };
        my $sub_domain  = qq{   [$letter$digit]
```

```
                                [$letter$digit-]{0,61} [$letter$digit]};
        my $top_level   = qq{ (?: $atom_char ){2,4} };
        my $domain_name = qq{ (?: $sub_domain $dot )+ $top_level };
        my $domain      = qq{ (?: $domain_name | $ip_address ) };
        my $local_part  = qq{ $word (?: $dot $word )* };
        my $address     = qq{ $local_part \@ $domain };

        return $addr_to_check =~ /^$address$/ox ? $addr_to_check : "";

}

#Purpose: To encrypt the password with 128 Bit encryption
#Pre: MD5 Module must be installed and working and $Password must be set
#Post: Sets Password to encrypted hex string
sub EncryptPass{
        ############################ this encrypts the password ######################
      $PassWord =~ tr/A-Z/a-z/;     #Sets to all lowercase
      $md5->reset();
        $md5->add($PassWord);
        $PassWord = $md5->hexdigest();
        ##########################################################################
}

#Purpose: Checks the Username Database for Username and Password
#Pre: username table must be defined with username and encrypted password
#Post: returns ib of user if user is logged in
sub CheckDB{
      $dbh = DBI->connect ($dsn,$user_name, $password, \%attr);
              # Checks for ib in username table
        $sth = $dbh->prepare(qq{
            SELECT ib FROM username
            WHERE user_name = ? and password = ?
        });
        $sth->execute($UserName, $PassWord);

      $db_return1 = $sth->fetchrow_hashref();

      $Ib = $db_return1->{"ib"};    #Sets $Ib to ib found in username table

      $dbh->disconnect();           #Disconnects from mysql DBI
}
```

```
#Purpose: To search either contents on page or entire database for desired information
#Pre: Alumni Database must be created
#Post: The Search results will be displayed on a page in table form with ib, firstname, lastname
sub Find{
      my($data);        # hash of search return
      my(@Results);           # Array of hashed search results

      if(!$SearchValue){      #If no searchvalue set to searchvalue from browse commands
            $SearchValue = $For;
      }
      if(!$Select){           #If no select set to by value from browse commands
            $Select = $By;
      }

        $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

            $Function = "search";         #Makesure function is set to Keyword for links
      $For = $SearchValue;          #Set $For to searchvalue for links
      $By = $Select;                #Set $By to select for hyperlinks in results
                  # search parameter
            if($Select eq "ib"){          #If searching for specific ib
            $sth = $dbh->prepare(qq{
                        SELECT ib, first_name, last_name
                  FROM brothers
                  WHERE ib = ?
            });
                  $sth->execute($SearchValue);
      }
      else{                       #If searching for anything else in database
            $sth = $dbh->prepare(qq{
                        SELECT ib, first_name, last_name
                  FROM brothers
                  WHERE $Select LIKE ?
                  ORDER BY $Order
            });
            my $temp = "$SearchValue%";
                  $sth->execute($temp);
      }

      while($data = $sth->fetchrow_hashref()){  #While still more results
```

```
                push(@Results, $data);              #Push onto results array
        }
        $sth->finish();                             #Make sure DBI is finnished

        if(@Results){                               #If there are results
                Results(@Results);                  #Print the Table of Results
        }
        else{                                   #If no results
                print $cgi->center,
                        $cgi->h3("Search returned no results");
                print "<a href=\"search.cgi\"><font color=\"#00000\" size=\"4\"><b>Main Page</b></a><br><br>";

        }

          $dbh->disconnect();                       #Disconnect from DBI
}


#Purpose: Search the databases for desired information and display in nice table format with links
#           To get desired information on individual Alumni
#Pre: Alumni database must be created with desired information
#Post: Information displayed on the screen in neat and orderly fasion
sub Search{

          $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

        my ($data1);        #holds data from table for display

        if($Ib){    #Make sure user is logged in, and not just trying to get around security features
                my ($For) = $cgi->param("for") =~ /^([\w\s\.\(\)\-\,\@]+)$/;      #the search delimiter, like a
letter or name
                my ($By) = $cgi->param("cat") =~ /^([\w.]+)$/;              #What to search for
                my ($Order) = $cgi->param("ord") =~ /^([\w.]+)$/;           #What to search for
                if(!$Order){                                            #If no order set, set order by "ib"
                        $Order = "ib";
                }
                my (@Results);                                          #Array of search results

                        #both of these searches would access brothers table for first and last name
                if(($By eq "fieldofwork") || ($By eq "work_city") || ($By eq "work_state")){
                   #If searching in work table for work information
```

```
        $sth = $dbh->prepare(qq{
            SELECT brothers.ib, first_name, last_name
            FROM work, brothers
            WHERE brothers.ib = work.ib
            AND $By = ?
            ORDER BY $Order
        });
        $sth->execute($For);
        while($data1 = $sth->fetchrow_hashref()){ #While more results from search
            push(@Results, $data1);               #Push onto results array
          }
        $sth->finish();                           #Finnish up DBI Work
        $dbh->disconnect();                       #Disconnect from DBI
}
elsif(($By eq "last_name") || ($By eq "first_name")){
   #If Searching for Last Name or First Name
            $sth = $dbh->prepare(qq{
                    SELECT ib, first_name, last_name
            FROM brothers
                    WHERE $By Like ?
            ORDER BY $Order
            });
      my $temp = "$For%";                         #Put "%" at end of search string to
                                                  # indicate anything else...so if your searching
                                                  # for all names starting with S
            $sth->execute($temp);

      while($data1 = $sth->fetchrow_hashref()){ #If more results
            push(@Results, $data1);               #Push onto results array
        }
      $sth->finish();                             #Finnish DBI work
      $dbh->disconnect();                         #Close DBI connection
}
else{
   #if searching in brothers table for brother information
            $sth = $dbh->prepare(qq{
                    SELECT ib, first_name, last_name
            FROM brothers
                    WHERE $By = ?
            ORDER BY $Order
```

```
                        });
                        $sth->execute($For);

                        while($data1 = $sth->fetchrow_hashref()){       #If more results
                                push(@Results, $data1);                 #Push onto results array
                        }
                        $sth->finish();                                 #Finnish DBI work
                        $dbh->disconnect();                             #Close DBI connection
                }

                if(@Results){                   #If there are actual results
                        Results(@Results);      #Print the Table of Results
                }
                else{                       # No results from search so print error message
                        print $cgi->center,
                                $cgi->h3("Search returned no results");
                        print "<a href=\"search.cgi\"><font color=\"#00000\" size=\"4\"><b>Main
Page</b></a><br><br>";
                }
        }

}

#Purpose: To print the table of results from searches
#Pre: Must have hash of results from table queries
#Post:  I displayed table of ib, first name, last name, with hyperlink
sub Results{
        my $element;

          print "<br>";
        print "\n<center>";
          print "<font size=\"5\">Results<font>";
         #Print start of table and table heading Titles
        print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
                bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">
                <tr><td align=\"center\"><font size=\"5\">
                        <a href=\"search.cgi?func=$Function&for=$For&ord=ib&cat=$By\">
                                <font color=\"#00000\" size=\"5\">IB</a></td>
                <td align=\"center\"><font size=\"5\">
                        <a href=\"search.cgi?func=$Function&for=$For&ord=first_name&cat=$By\">
                                <font color=\"#00000\" size=\"5\">First Name</a></td>
```

```
            <td align=\"center\"><font size=\"5\">
                  <a href=\"search.cgi?func=$Function&for=$For&ord=last_name&cat=$By\">
                        <font color=\"#00000\" size=\"5\">Last Name</a></td>";
      while($element = shift){                                  #While more stuff to display
            print "<tr><td align=\"center\"><font size=\"4\">
                        <a href=\"search.cgi?func=lookat&for=$element->{ib}\">
                        <font size=\"4\">$element->{ib}</a></font></td>
                  <td align=\"center\"><font size=\"4\">$element->{first_name}</font></td>
                  <td align=\"center\"><font size=\"4\">$element->{last_name}</font></td>";

      }
      print "</table>";
        print "\n</center>";
        print " ";
}

#Purpose: to be able to Browse by different catagories, needs to access database,
#           very sorry for the messy nature, will try to clean up later
#     This Function is very long because it has many "if" statements, please read carefully
#Pre: Database must be created with tables and information
#Post: links to different search parameters organized neatly for easy browsing
sub Browse{
      my($Cat) = $cgi->param("for");            #Get what to search for

        $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

      if($Ib){    #If logged in to the alumni database site
        #Browse by Different Catagories, each one requiring it's own function
            if($Cat eq "first_name"){     #Browse by first name
                        print "<br>";
                  print "\n<center>";
                        print "<font size=\"5\">Browse By<font>"; #Print Title
                        print $cgi->h3("First Name");
                  AlphaBetTable("first_name");              #Show alphabet table with first_name as link
                        print "\n</center>";
                        print " ";

            }
            elsif($Cat eq "last_name"){   #Browse by Last Name
                        print "\n<center>";
                        print "<font size=\"5\">Browse By<font>";
```

```
            print $cgi->h3("Last Name");
        AlphaBetTable("last_name");   #Show alphabet table with last_name as links
            print "\n</center>";
            print " ";

    }
elsif($Cat eq "grad"){        #Browse by Graduation Date
        $sth = $dbh->prepare(qq{
                    SELECT distinct grad
                    FROM brothers
                    ORDER BY grad
            });
            $sth->execute();        #Get all the distinct graduation dates from the database

        print "\n<center>";
        print "<font size=\"5\">Browse By<font>";
        print $cgi->h3("Graduation Year");
            #While there are more graduation dates
        while($db_return1 = $sth->fetchrow_hashref()){
                #Print the table of graduation dates
            print "<font size=\"4\">
                <a href=\"search.cgi?func=search&for=$db_return1->{grad}&cat=grad\">
                <font color =\"#000000\">$db_return1->{grad}</a></font>";
        }
        print "\n</center>";
        print " ";
    }
elsif($Cat eq "init_date"){   #Browse by Initiation Date
            $sth = $dbh->prepare(qq{
                    SELECT distinct init_date
                    FROM brothers
                    ORDER BY init_date
            });
            $sth->execute();  #Get all the distinct initiation dates from the database

            print "\n<center>";
            print "<font size=\"5\">Browse By<font>";
            print $cgi->h3("Initiation Date");  #Print title of results
        print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
            bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">";
        my $count = -1;         #Set up counter
```

```
                    while($db_return1 = $sth->fetchrow_hashref()){
                    $count = $count + 1;    #increment counter for # of cells in row
                    if($count > 4){               #If 5 elements in row
                          $count = 0;       #Reset counter because starting new row
                          print "<tr><td align=\"center\"><font size=\"4\">
                                <a href=\"search.cgi?func=search&for=$db_return1-
>{init_date}&cat=init_date\">
                                <font size=\"3\">$db_return1->{init_date}</a></font></td>";
                    }
                    else{                   #Under 5 elements in row
                              print "<td align=\"center\"><font size=\"4\">
                                <a href=\"search.cgi?func=search&for=$db_return1-
>{init_date}&cat=init_date\">
                                <font size=\"3\">$db_return1->{init_date}</a></font></td>";
                    }
                    }
              print "</table>";
                    print "\n</center>";
                    print " ";
            }
        elsif($Cat eq "city"){        #Browse by City
                    $sth = $dbh->prepare(qq{
                            SELECT distinct city, state
                            FROM brothers
                            ORDER BY state
                    });
                    $sth->execute();  #Get all the distinct city, state combinations from the database

                    print "\n<center>";
                    print "<font size=\"5\">Browse By<font>";
                    print $cgi->h3("City");       #Print title of results
              print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
                    bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">";
              my $count = -2;         #Set counter for # of cells in a row
              while($db_return1 = $sth->fetchrow_hashref()){
                  $count = $count + 1;      #Increment Counter
                  if($db_return1->{city}){  #if element to display
                    if($count > 3){         #If 4 elements in Row
                          $count = 0; #Reset counter and start a new row
                          print "<tr><td align=\"center\"><font size=\"4\">
```

```
                                        <a href=\"search.cgi?func=search&for=$db_return1-
>{city}&cat=city\">
                                        <font size=\"4\">$db_return1->{city}, $db_return1-
>{state}</a></font></td>";
                        }
                        else{               #if under 4 elements in row
                                    print "<td align=\"center\"><font size=\"4\">
                                        <a href=\"search.cgi?func=search&for=$db_return1-
>{city}&cat=city\">
                                        <font size=\"4\">$db_return1->{city}, $db_return1-
>{state}</a></font></td>";
                        }
                    }
                        }
                print "</table>";
                        print "\n</center>";
                        print " ";
                }

            elsif($Cat eq "state"){       #Browse by State
                        $sth = $dbh->prepare(qq{
                                SELECT distinct state
                                FROM brothers
                                ORDER BY state
                        });
                        $sth->execute();  #Get all the distinct states from the database

                        print "\n<center>";
                        print "<font size=\"5\">Browse By<font>";
                        print $cgi->h3("State");      #Print title of results
                print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
                        bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">";
                my $count = -1;             #initialize cell counter
                        while($db_return1 = $sth->fetchrow_hashref()){
                        $count = $count + 1;    #Increment cell counter
                        if($count > 4){         #If 5 elements in row, start new row
                                $count = 0; #Reset cell counter because new row
                                print "<tr><td align=\"center\"><font size=\"4\">
                                        <a href=\"search.cgi?func=search&for=$db_return1-
>{state}&cat=state\">
                                        <font color =\"#000000\">$db_return1->{state}</a></font></td>";
```

```
                        }
                        else{               #Under 5 elements in row print cell
                                    print "<td align=\"center\"><font size=\"4\">
                                          <a href=\"search.cgi?func=search&for=$db_return1-
>{state}&cat=state\">
                                          <font color =\"#000000\">$db_return1->{state}</a></font></td>";
                        }
                        }
                  print "</table>";
                        print "\n</center>";
                        print " ";
            }
            elsif($Cat eq "fieldofwork"){       #Browse by Field of Work
                        $sth = $dbh->prepare(qq{
                                SELECT distinct fieldofwork
                                FROM work
                                ORDER BY fieldofwork
                        });
                        $sth->execute();  #Select all the distinct fields of work form the database

                        print "\n<center>";
                        print "<font size=\"5\">Browse By<font>";
                        print $cgi->h3("Field of Work");    #Print title of results
                  print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
                        bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">";
                  my $count = -1;           #Initialize cell counter
                  while($db_return1 = $sth->fetchrow_hashref()){  #If more data from database
                      $count = $count + 1;      #Increment cell counter
                      if($db_return1->{fieldofwork}){ #if not null
                        if($count > 2){           #Only 3 elements per row
                              $count = 0; #Reset cell counter because starting new row
                              print "<tr><td align=\"center\"><font size=\"4\">
                                          <a href=\"search.cgi?func=search&
                                    for=$db_return1->{fieldofwork}&cat=fieldofwork\">
                                          <font size=\"4\">$db_return1->{fieldofwork}</a></font></td>";
                        }
                        else{               #Still under 3 elements in the row
                                    print "<td align=\"center\"><font size=\"4\">
                                          <a href=\"search.cgi?func=search&for=$db_return1-
>{fieldofwork}&cat=fieldofwork\">
                                          <font size=\"4\">$db_return1->{fieldofwork}</a></font></td>";
```

```
                        }
                    }
                        }
                print "</table>";
                        print "\n</center>";
                        print " ";
            }
        elsif($Cat eq "work_city"){   #Browse by Work City
                        $sth = $dbh->prepare(qq{
                                SELECT distinct work_city, work_state
                                FROM work
                                ORDER BY work_state
                        });
                        $sth->execute();  #Select all the distinct work city, state combinations form the
database

                        print "\n<center>";
                        print "<font size=\"5\">Browse By<font>";
                        print $cgi->h3("Work City");  #Print title of search results
                print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
                        bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">";
                my $count = -2;                 #Initialize cell counter
                while($db_return1 = $sth->fetchrow_hashref()){  #If more cells to display
                    $count = $count + 1;        #Increment cell counter
                    if($db_return1->{work_city}){   #If not null
                      if($count > 3){           #Only 4 elements per row of results
                            $count = 0; #Reset cell counter because start new row
                            print "<tr><td align=\"center\"><font size=\"4\">
                                        <a href=\"search.cgi?func=search&for='$db_return1-
>{work_city}'&cat=work_city\">
                                        <font size=\"4\">$db_return1->{work_city}, $db_return1-
>{work_state}</a></font></td>";
                        }
                        else{               #Under 4 elements in the row
                                    print "<td align=\"center\"><font size=\"4\">
                                        <a href=\"search.cgi?func=search&for=$db_return1-
>{work_city}&cat=work_city\">
                                        <font size=\"4\">$db_return1->{work_city}, $db_return1-
>{work_state}</a></font></td>";
                        }
                    }
```

```
                }
            print "</table>";
                print "\n</center>";
                print " ";
        }

    else{       #Browsing by Work State
                $sth = $dbh->prepare(qq{
                        SELECT distinct work_state
                        FROM work
                        ORDER BY work_state
                });
                $sth->execute();
                print "\n<center>";
                print "<font size=\"5\">Browse By<font>";
                print $cgi->h3("Work State"); #Print title of search results
            print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
                bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">";
            my $count = -2;             #initalize cell counter
            while($db_return1 = $sth->fetchrow_hashref()){  #If more cells to display
                $count = $count + 1;    #Increment cell counter
                if($db_return1->{work_state}){  #If work_state is not null
                  if($count > 3){       #Only 4 elements per row
                        $count = 0; #Reset cell counter because start new row
                        print "<tr><td align=\"center\"><font size=\"4\">
                                <a href=\"search.cgi?func=search&for='$db_return1-
>{work_state}'&cat=work_state\">
                                <font size=\"4\">$db_return1->{work_state}</a></font></td>";
                  }
                  else{             #Under 4 elements in row
                            print "<td align=\"center\"><font size=\"4\">
                                <a href=\"search.cgi?func=search&for=$db_return1-
>{work_state}&cat=work_state\">
                                <font size=\"4\">$db_return1->{work_state}</a></font></td>";
                  }
                }
                  }
            print "</table>";
                print "\n</center>";
                print " ";
```

```
            }


      }
      $dbh->disconnect();
}


#Purpose: To print the alphabet table with either first_name or last_name as search criteria
#Pre: What browing for must be past to function...either first_name or last_name
#Post: a table of all alphabet with hyperlinks to search for that letter and type
sub AlphaBetTable{
      my $name = shift;       #Get type from passed value
      print "<table border=\"1\" cellpadding=\"2\" cellspacing=\"0\"
            bordercolor=\"#111111\" width=\"75%\" bgcolor=\"#41D526\">";
      print <<END;
<tr>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=A&cat=$name">A</a></font></td>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=B&cat=$name">B</a></font></td>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=C&cat=$name">C</a></font></td>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=D&cat=$name">D</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=E&cat=$name">E</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=F&cat=$name">F</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=G&cat=$name">G</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=H&cat=$name">H</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=I&cat=$name">I</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=J&cat=$name">J</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=K&cat=$name">K</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=L&cat=$name">L</a></font></td>
```

```
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=M&cat=$name">M</a></font></td>
          </tr>
          <tr>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=N&cat=$name">N</a></font></td>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=O&cat=$name">O</a></font></td>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=P&cat=$name">P</a></font></td>
            <td width="7%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=Q&cat=$name">Q</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=R&cat=$name">R</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=S&cat=$name">S</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=T&cat=$name">T</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=U&cat=$name">U</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=V&cat=$name">V</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=W&cat=$name">W</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=X&cat=$name">X</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=Y&cat=$name">Y</a></font></td>
            <td width="8%" align="center"><font size="4">
            <a href="search.cgi?func=search&for=Z&cat=$name">Z</a></font></td>
          </tr>
      </table>
END

}

#Purpose: to start the html of page and print javascript and title
#Pre: none
#Post: title is displayed on screen and javascrip is enabled
sub StartPage{
      if(!$By){
```

```
            $By = "none";
      }

      print <<ENDHTML;  #Start HTML printing
<meta http-equiv="Content-Language" content="en-us">
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
  <script src="http://lyco.lycoming.edu/~lca/js-lib/formLib.js"></script>
  </script>

<p align="center"><font size="7">Iota-Beta Zeta<br>
<i>Search</i></font></p>
<div align="center">
  <center>
  <table border="1" cellpadding="0" cellspacing="0" bgcolor="#9758E4"
      style="border-collapse: collapse" bordercolor="#111111" width="70%" id="AutoNumber1" $
    <tr>
      <td width="100%" bordercolor="#000000">
      <form method="POST" action="search.cgi">
        <p align="center"><i><b><br>
        Keyword Search:</b></i><br>
      <input type="hidden" name="func" value=$Function>
      <input type="hidden" name="for" value=$For>
      <input type="hidden" name="cat" value=$By>
        <input type="text" name="keyword" size="20"> 
      <input type="submit" value="Search" name="submit"><br>
        <input type="radio" name="select" value="last_name" checked>Last Name
        <input type="radio" value="first_name" name="select">First Name
        <input type="radio" name="select" value="city">City
        <input type="radio" name="select" value="state">State
        <input type="radio" name="select" value="ib">IB
        <br>
      <br>
        </p>
ENDHTML
};


#Purpose: Prints the Form for browsing and searching
#Pre: None
#Post: table for browsing is displayed on screen
sub PrintForm{
```

```
        print <<END;    #Start HTML printing
      <center>
        <i><u><b><font size="5">Browse By Category:</font></b></u></i></p>
        <table border="1" cellspacing="1" style="border-collapse: collapse" bordercolor="#111111"
width="75%" id="AutoNumber2">
          <tr>
            <td width="33%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=first_name">First Name</a></font></td>
            <td width="34%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=last_name">Last
            Name</a></font></td>
            <td width="34%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=city">City</a></font></td>
          </tr>
          <tr>
            <td width="33%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=grad">Graduation Date</a></font></td>
            <td width="34%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=init_date">Initiation Date</a></font></td>
            <td width="33%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=state">State</a></font></td>
          </tr>
          <tr>
            <td width="33%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=fieldofwork">Field of Work</a></font></td>
            <td width="33%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=work_city">Work
            City</a></font></td>
            <td width="34%" align="center" bgcolor="#41D526"><font size="4">
            <a href="search.cgi?func=browse&for=work_state">Work
            State</a></font></td>
          </tr>
        </table>
        <p align="center">
         </p>
      </form>
      </td>
  </center>
</div>

END
```

```
      #End of HTML Printing
}

#Purpose: To view the information for a certain person
#Pre: Person's IB must be defined in the database
#Post: the selected information is displayed on the screen
sub LookAt{

        $dbh = DBI->connect ($dsn, $user_name, $password, \%attr);

              # Checks for ib in username table
        $sth = $dbh->prepare(qq{
            SELECT * FROM brothers
            WHERE ib = ?
        });
        $sth->execute($For);
      my $data = $sth->fetchrow_hashref();      #Set Data to Hash of brothers table information

      $sth = $dbh->prepare(qq{
            SELECT * FROM work
            WHERE ib = ?
        });
        $sth->execute($For);
      my $data2 = $sth->fetchrow_hashref();     #set data2 to hash of work information

      $sth = $dbh->prepare(qq{
            SELECT * FROM BLdata
            WHERE ib = ?
        });
        $sth->execute($For);
      my $data3 = $sth->fetchrow_hashref();     #Set data3 to hash of family tree information


      $dbh->disconnect();                 #End all DBI work

      print <<END;                        #Start HTML printing
          <div align="center">
          <center>
          <table style="BORDER-COLLAPSE: collapse" borderColor="#41D526" cellPadding="2" width="90%"
bgColor="#9758e4" border="1">
            <tr>
```

```
  <td align="middle" width="100%" bgColor="#41d526" colSpan="3"><u>
  <b>Contact Information</b></u></td>
</tr>
<tr>
  <td align="middle" width="50%"><b>First Name<font size="4" color="#FF0000">
  </font>: <font color="#ffff00">$data->{first_name}</font></b></td>
  <td align="middle" width="50%" colSpan="2"><b>Last Name<font size="4" color="#FF0000">
  </font>: <font color="#ffff00">$data->{last_name}</font></b></td>
</tr>
<tr>
  <td align="middle" width="50%"><b>Middle Name :
<font color="#ffff00">$data->{middle_name}</font></b></td>
  <td align="middle" width="50%" colSpan="2"><b>Suffix :
<font color="#ffff00">$data->{suffix}</font></b></td>
</tr>
<tr>
  <td align="middle" width="50%"><b>Phone Number :
<font color="#ffff00">$data->{phone}</font></b></td>
  <td align="middle" width="50%" colSpan="2"><b>Email Address :
      <font color="#ffff00">$data->{email}</font></b></td>
</tr>
<tr>
  <td width="100%" bgColor="#41d526" colSpan="3">
  <p align="center"><u><b>Current Address</b></u></td>
</tr>
<tr>
  <td align="middle" width="100%" colSpan="3"><b>Street :
<font color="#ffff00">$data->{street1}</font></b></td>
</tr>
<tr>
  <td align="middle" width="100%" colSpan="3"><b>Line 2 :
<font color="#ffff00">$data->{street2}</font></b></td>
</tr>
<tr>
  <td align="center" width="50%"><b>City :
<font color="#ffff00">$data->{city}</font></b></td>
  <td align="center" width="50%" colSpan="2"><b>State :
<font color="#ffff00">$data->{state}</font></b></td>
</tr>
<tr>
  <td align="right" width="100%" colspan="3">
```

```
  <p align="center"><b>Zip : 
<font color="#ffff00">$data->{zip}</font></b></td>
</tr>
<tr>
  <td borderColor="#41d526" align="right" width="100%" bgColor="#41d526" colSpan="3">
  <p align="center"><u><b>Lambda Chi Alpha Information</b></u></td>
</tr>
<tr>
  <td align="middle" width="50%"><b>Initiation Date :
<font color="#ffff00">$data->{"init_date"}</font></b></td>
  <td align="middle" width="50%" colSpan="2">
  <p align="center"><b>Graduation Year :
<font color="#ffff00">$data->{grad}</font></b></td>
</tr>
<tr>
  <td align="middle" width="50%"><b>Big's IB :
<font color="#ffff00">$data3->{big}</font></b></td>
  <td align="middle" width="50%" colSpan="2">
  <p align="center"><b>Little's IB :
<font color="#ffff00">$data3->{little}</font></b></td>
</tr>
<tr>
  <td align="right" width="100%" bgColor="#41d526" colSpan="3">
  <p align="center"><u><b>Work Information</b></u></td>
</tr>
<tr>
  <td width="50%">
  <p align="center"><b>Company Name :
<font color="#ffff00">$data2->{company}</font></b></td>
  <td width="50%" colSpan="2">
  <p align="center"><b>Job Title :
<font color="#ffff00">$data2->{title}</font></b></td>
</tr>
<tr>
  <td width="100%" colSpan="3">
  <p align="center"><b>Phone :
<font color="#ffff00">$data2->{work_phone}</font></b></td>
</tr>
<tr>
  <td align="middle" width="100%" colSpan="3"><b>Field of Work :
<font color="#ffff00">$data2->{fieldofwork}</font></b></td>
```

```
            </tr>
            <tr>
              <td align="right" width="100%" colSpan="3">
              <p align="center"><b>Address :
            <font color="#ffff00">$data2->{work_address}</font></b></td>
            </tr>
            <tr>
              <td align="right" width="50%">
              <p align="center"><b>City :
            <font color="#ffff00">$data2->{work_city}</font></b></td>
              <td align="middle" width="25%"><b>State :
            <font color="#ffff00">$data2->{work_state}</font></b></td>
              <td align="middle" width="25%"><b>Zip :
            <font color="#ffff00">$data2->{work_zip}</font></b></td>
            </tr>
            <tr>
             <td align="right" width="100%" bgColor="#41d526" colSpan="3"> </td>
            </tr>
          </table>
          </center>
        </div>
      </td>
    </tr>
  </table>
END
      #End HTML Printing
}

# you can stop reading my code here!
```

```
//formLib.js
//Common functions used with data checking in forms
//The Following functions are adaptations from CGI Programming with Perl
//  Function Adaptation by Joshua Speicher
//  Last Updated 4/2/02

//Used as a hash to track element problems
validate = new Object();


//Used to check if value is an integer
function isInteger(value){
      return(value == parseInt(value));
}


//Checks a range for correctness
function inRange(value, low, high){
      return(!(value<low) && value<=high);
}

//checks values against certain formats such as '#####', '###-###-####'
function checkFormat(value, format){
      if(value.length != format.length){
            return false;
      }
      for(var i = 0; i < format.length; i++){
            if(format.charAt(i) == '#' && !isInteger(value.charAt(i))){
                  return false;
            }
            else if(format.charAt(i) != '#' && format.charAt(i) != value.charAt(i)){
                  return false;
            }
      }
      return true;
}

//takes a form and an array of element names, then verifies that each has a value
function requiredValues(form, requiredValues){
      for(var i = 0; i < requiredValues.length; i++){
```

```
            element = requiredText[i];
            if(form[element].value == ""){
                  alert("Please enter a value for " + element + ".");
                  return false;
            }
      }
      return true;
}


//Takes a form and an array of element names, verifies that each has an option
//selected;  Assumes the first element is instructions so skips first element
function requiredSelects(form, requiredSelect){
      for(var i = 0; i < requiredSelect.length; i++){
            element = requiredSelect[i];
            if(form[element].selectedIndex <= 0){
                  alert( "Please select a value for " + element + ".");
                  return false;
            }
      }
      return true;
}


//Takes a form and an array of element names; verifies that each has a value checked
function requiredRadios(form, requiredRadio){
      for(var i = 0; i < requiredRadio.length; i++){
            element = requiredRadio[i];
            isChecked = 0;
            if(form[element].checked){
                        isChecked = 1;
            }
            if(isChecked == 0){
                  alert( "You Must Agree to the Terms");
                  return false;
            }
      }
      return true;
}

//Verify there are no uncorrected formatting problems with elements
```

```
//validated on a per element basis
function checkProblems(){
      for( element in validate ){
            if(!validate[element]){
                  alert("Please correct the format of " + element + ".");
                  return false;
            }
      }
      return true;
}

//Verifies tha the value of the provided element has ##### format
function checkZip(element){
      if(!checkFormat(element.value, "#####")){
            alert("Please enter a five digit zip code.");
            element.focus();
            validate[element.name] = false;
      }
      else{
            validate[element.name] = true;
      }
      return validate[element.name];
}

//Verifies that the Email Address is in the format something@something.com
function checkEmail(element){
      at = element.value.indexOf("@");
      at2 = element.value.indexOf(".");
      if(at < 0 || at2 < at){
            alert("Must have a Valid Email Address.");
            element.focus();
            validate[element.name] = false;
      }
      else{
            validate[element.name] = true;
      }
      return validate[element.name];
}

// Checks that the date is in this format: ####
function checkDate(element){
```

```
	if(!checkFormat(element.value, "####")){
		alert("Please enter the year of Graduation as ####.");
		element.focus();
		validate[element.name] = false;
	}
	else{
		validate[element.name] = true;
	}
	return validate[element.name];
}

//Makes sure the initiation date is in the format YYYY-MM-DD
function checkInit(element){
	if(!checkFormat(element.value, "####-##-##")){
		alert("Please enter Date of Initiation as YYYY-MM-DD.");
		element.focus();
		validate[element.name] = false;
	}
	else{
		validate[element.name] = true;
	}
	return validate[element.name];
}

//Checks to make sure the ib is all numbers
function checkIB(element){
	if(!isInteger(element.value)){
		alert("The Ib must be all Numbers.");
		element.focus();
		validate[element.name] = false;
	}
	else{
		validate[element.name] = true;
	}
	return validate[element.name];
}

//Checks to see if phone number is in correct format
function checkPhone(element){
	if(checkFormat(element.value, "(###)###-####") || checkFormat(element.value, "(###) ###-####")){
		validate[element.name] = true;
```

```
	}
	else{
		alert("Please enter phone number in this format (###)###-####.");
		element.focus();
		validate[element.name] = false;
	}
	return validate[element.name];
}

//Makes sure the zip code is in the correct format and all numbers
function checkZip(element){
	if(checkFormat(element.value, "#####") || checkFormat(element.value, "#####-####")){
		validate[element.name] = true;
	}
	else{
		alert("Please the Zip Code as 5 digit or extended.");
		element.focus();
		validate[element.name] = false;
	}
	return validate[element.name];
}
```