Software Design Description
Version 1.1
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Web Accessible Alumni Database

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Submitted in partial fulfillment
Of the requirements of
Masters Studio Project

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1.0. Introduction

1.1. Purpose

This Software Design Document provides the design details of Jacksonville State University Computing and Information Sciences Web Accessible Alumni Database (CISWAAD).

The expected audience is Jacksonville State University Computing and Information Sciences Faculty, including Dr. Martin and studio committee members, the CISWAAD developers, and the people who will maintain the CISWAAD. It will also serve as a reference for Studio students.

1.2. Scope

This document contains a complete description of the design of CISWAAD.

The basic architecture is a web server from a client server paradigm. The basic pages will be in HTML and JSP.

The designated faculty member in charge of the CISWAAD will have full access to make changes, as he/she deems necessary. The changes could include, but not limited to, changing the survey questions, data collected on each Alum, and the ability for one Alum to e-mail another Alum.

1.3. Glossary

Term	**Definition**
Alum	Graduate of Jacksonville State University Computing and Information Sciences Department
BDE	Borland Database Engine
CI	Configuration Item
CIS	Computing and Information Sciences Department
Html	Hyper text markup language
IEEE	Institute of Electrical and Electronic Engineers

QA	Quality assurance
SCMP	Software Configuration Management Plan
SDD	Software Design Document
SEI	Software Engineering Institute, Pittsburgh, Pa
SQAP	Software Quality Assurance Plan
SRS	Software Requirement Specification
Tbd	To be decided
Tbn	To be named
Web Site	A place on the world wide web

1.4. References

[IEEE] The applicable IEEE standards are published in “IEEE Standards Collection,” 2001 edition.

[Bruade] The principal source of textbook material is “Software Engineering: An Object-Oriented Perspective” by Eric J. Bruade (Wiley 2001).

Reaves, Michael J. “Software Project Management Plan Jacksonville State University Computing and Information Sciences Web Accessible Alumni Database.” Jacksonville State University, 2003.

Reaves, Michael J. “Software Requirement Specifications Jacksonville State University Computing and Information Sciences Web Accessible Alumni Database.” Jacksonville State University, 2003.

1.5. Overview of document

The remaining chapters and their contents are listed below.

Section 2 is a Deployment Diagram that shows the physical locations where the system actually exists. This allows a clear explanation of where each design entity will reside. Each part will work in unison to accomplish each requested task.

Section 3 is the Architectural Design that specifies the design entities that collaborate to perform all the functions included in the system. Each of these entities has an Abstract description concerning the services that it provides to the rest of the system. In turn, each design entity is expanded into a set of lower-level design operations that collaborate to perform its services.

Section 4 concerns the Data Structure Design.

Section 5 contains the Use Case Realizations. Each Use Case stated in the SRS Document can be traced by the given design objects.

Section 6 discusses the User Interface Design, and how it can be created with maximum user efficiency and ease of use.

Section 7 covers the help system.

2.0. Deployment diagram

Error! Not a valid link.

Figure 1 Deployment Diagram

The CIS Alumni database is external to the web system. All of the pages for the web site will reside on the departmental server.

3.0. Architecture design

3.1. Web System Architecture

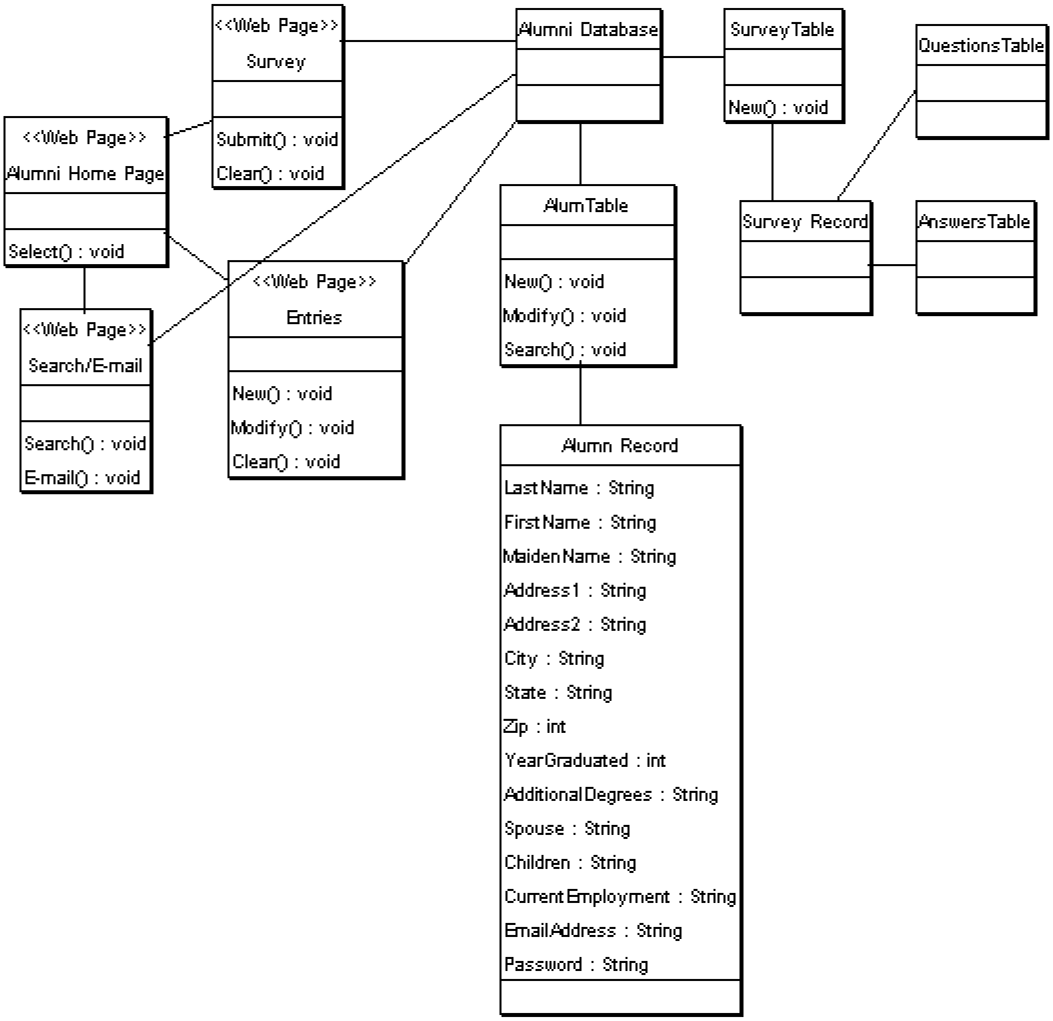


Figure 2 Architecture Design

Alumni Home Page
Name: Alumni Home page
Type: Web page

Description: This is the initial home page presented to the Alum upon connection with the Departmental Server. There are three buttons. One to fill out a survey, one to go to the entries page, and one to search/e-mail an Alum.
Attributes: None
Resources: None
Operations:

Name: Select()
Arguments: None
Returns: No return value
Pre-condition: Connected to site
Post-condition: On another page
Exceptions: None

Flow of Events:

1. Alum is presented with the Alumni Home Page.
2. Alum clicks a button
3. Alum is connected to another page

Survey
Name: Survey Page
Type: Web page form
Description: When the Alum clicks the survey button he/she will be presented with a form. The form will have a combination of list boxes and blank fields to be completed. Some fields will be marked as required. When the form is completed the Alum can submit the form or clear the form. If the form is cleared the Alum can then enter information. If the form is submitted the information is saved on the Departmental Server in the Alumni Database.
Attributes: Text
Resources: None
Operations:

Name: Submit()
Arguments: None
Returns: Text file
Pre-condition: Connected to site
Post-condition: Form saved and faculty member e-mailed
Exceptions: None

Flow of Events:

1. Alum is presented with form
2. Alum fills in boxes and selects from list boxes
3. Alum clicks submit
4. Departmental server save data in a text file
5. Departmental server sends an e-mail to designated faculty member

Name: Clear()

Arguments: None
Returns: No return value
Pre-condition: Connected to site
Post-condition: Form is cleared

Exceptions: None

Flow of Events:

1. Alum is presented with form
2. Alum fills in boxes and selects from list boxes
3. Alum clicks clear
4. Alum is presented with empty form

Entries

Name: Entries

Type: Web page

Description: This page has two links, one to add a new entry and on to update the Alum's entry.

On the Add New Entry page the Alum is presented with a form to be completed. Once the Alum has completed the form the Alum can then either submit or clear the form. When the form is submitted the Departmental Server will check to ensure that the required fields are not blank. If the required fields are blank the Departmental Server will return a message stating a required field is blank. The all required fields are not blank the Departmental Server will create a new record in the Alum Table in the Alumni Database.

On the Update Information page the Alum will be presented with a drop down box list of years of graduation. The Alum chooses one of those years and clicks submit. The Departmental Server will return a list of all Alums from that year. The Alum will check his/her name and click submit. The Departmental Server will present a form requesting the Alum's password. The Departmental Server will check the password against the password stored in the Alum's record in the Alumni Database. If the passwords match the Departmental Server will return all of the data in that Alum's record in a form with a message to update whatever information they wish and click submit or click cancel to make no changes. If the passwords do not match, the Departmental Server will return a message to contact the faculty member in charge of the Alumni Database to receive their password.

Attributes: None

Resources: None

Operations: New

Name: Submit()

Arguments: None

Returns: None

Pre-condition: Connected to site

Post-condition: New entry in Alumni database created

Exceptions: None

Flow of Events:

1. Alum is on the Add Entry form
2. Alum completes the empty boxes and chooses from list boxes.
3. Alum clicks submit.
4. Departmental server add the new entry to the Alumni Database
5. Alum is returned to the Alum Home Page

Name: Clear()

Arguments: None

Returns: None
Pre-condition: Connected to site
Post-condition: Form is cleared
Exceptions: None

Flow of Events:

1. Alum is presented with form
2. Alum fills in boxes and selects from list boxes
3. Alum clicks clear
4. Alum is presented with empty form

Operations: Modify entry
Name: Submit()

Arguments: None
Returns: None
Pre-condition: Connected to site
Post-condition: Year selected is sent to the Departmental server
Exceptions: None

Flow of Events:

1. The Alum is on the Update Entry Page
2. The Alum is presented with a form that has a list box of years of graduation.
3. The Alum chooses a year.
4. The Alum clicks submit.
5. The Departmental server returns a list of all graduates in the Alumni Database that graduated that year.

Name: Cancel()

Arguments: None
Returns: None
Pre-condition: Connected to site
Post-condition: Form is cleared and Alum is returned to the Alumni Home Page
Exceptions: None

Flow of Events:

1. The Alum is on the Update Entry Page form
2. The Alum fills in the fields he/she want to change
3. The Alum clicks cancel
4. The form is cleared and the Alum is returned to the Alumni Home Page

Search/E-mail an Alum

Name: Search/E-mail an Alum
Type: Web page
Description: The Alum is on the search/e-mail page. The Alum is presented with a list box of graduation date. The Alum chooses a date and clicks submit. The Departmental server queries the Alumni Database for all Alums that graduated that year. The Departmental server presents the Alum with a list of graduates. If the Alum that the requesting Alum is searching for is listed, the Alum will check the box next to his/her name and click submit. The Departmental server will retrieve the non-sensitive information about the requested Alum and present it to the Alum. The Alum can then

either search for another Alum, e-mail that Alum if that Alum will accept e-mail, or return to the Alumni Home Page. If the Alum chooses to e-mail the Alum, the Department server will present the Alum with a box for the e-mail. The Alum then fills in the message to send and click send. The Departmental server will e-mail the message to the Alum with the sending Alum's name and return the Alum to the search/e-mail page.

Operations:

Name: Submit()

Arguments: None
Returns: None
Pre-condition: Connected to site
Post-condition: Year/name is sent to the Departmental server
Exceptions: None

Flow of Events:

1. The Alum is on the search/e-mail page.
2. The Alum chooses a year/name from the list box
3. The Alum clicks submit.
4. The Departmental server queries the Alumni Database for the information
5. If the information is present, the Departmental server will present it to the Alum.

Name: Cancel()

Arguments: None
Returns: None
Pre-condition: Connected to site
Post-condition: Form is cleared and Alum is returned to the Alumni Home Page
Exceptions: None

Flow of Events:

1. The Alum is on the search/e-mail page
2. The Alum clicks cancel
3. The Departmental server returns the Alum to the Alumni Home Page

Name: Send()

Arguments: None
Returns: None
Pre-condition: Connected to site
Post-condition: The message is e-mailed to the requested Alum and the requesting Alum is returned to the Alumni Home Page
Exceptions: None

Flow of Events:

1. The Alum is on the e-mail page.
2. The Alum types his/her message in the message box.
3. The Alum clicks send.
4. The Departmental server sends the message to the requested Alum and returns the requesting Alum to the search/e-mail page.

Alumni Database

Name: Alumni Database

Type: Database
Descriptions: The Alumni Database will reside on the Departmental server. The Alumni Database will be created and maintained in Access.
Attributes:
Last Name: String
First Name: String
Maiden Name: String
Address: String
City: String
State: String
Zip: int
Year Graduated: int
Additional Degrees: String
Spouse: String
Children: String
Current Employment: String
E-mail Address: String
Receive e-mails: boolean
Password: String

Operations:
Name: New()
Arguments: None
Returns: None
Pre-condition: None
Post-condition: A new record is added to the Alumni Database Table
Exceptions: None

Flow of Events:

1. The Alum is on the add an entry form page.
2. The Alum fields in the fields
3. The Alum clicks submit
4. The Departmental server adds the new information as a table in the Alumni Database

Name: Replace()
Arguments: None
Returns: None
Pre-condition: The requested Alum is in the Alumni Database
Post-condition: The requested table is replaced with the new table
Exceptions: None

Flow of Events:

1. The Alum is on the update entry page
2. The Alum changes the field he/she wants changed
3. The Alum clicks submit
4. The Departmental server overwrites the existing table with the new table

Name: Search()
Arguments: None
Returns: Record
Pre-condition: None

Post-condition: The Alumni Database has been searched
Exceptions: None

Flow of Events:

1. The Departmental server searches the Alumni Database for a particular record
2. If the record is found the Departmental Server presents the record to the Alum

4.0. Data structure design

The data is stored in a relational database using Access. The relations are described by the database administrator for the CIS. The fields for transmitting to and from the database are given in the following table.

4.1. Data field types and sizes.

Attribute Name	Attribute Type	Attribute Size
LastName*#	String	30
FirstName*#	String	30
MaidenName*#	String	30
Address1*#	String	50
Address2#	String	50
City*#	String	30
State*#	String	2
Zip*#	Int	6
Year*#	Int	4
AdditionalDegrees#	String	50
Spouse#	String	30
Children#	String	50
CurrentEmployment#	String	50
EmailAddress#	String	20
ReceiveEmails#^	Boolean	1
Password*#	String	10
EntireRecordVisible*^	Boolean	1

Fields marked with an '*' are required fields. Fields marked with a '#' can be visible or not visible and is determined by the Alum. Fields marked with a '^' are never visible to anyone other than the Alum.

5.0. Use case realizations

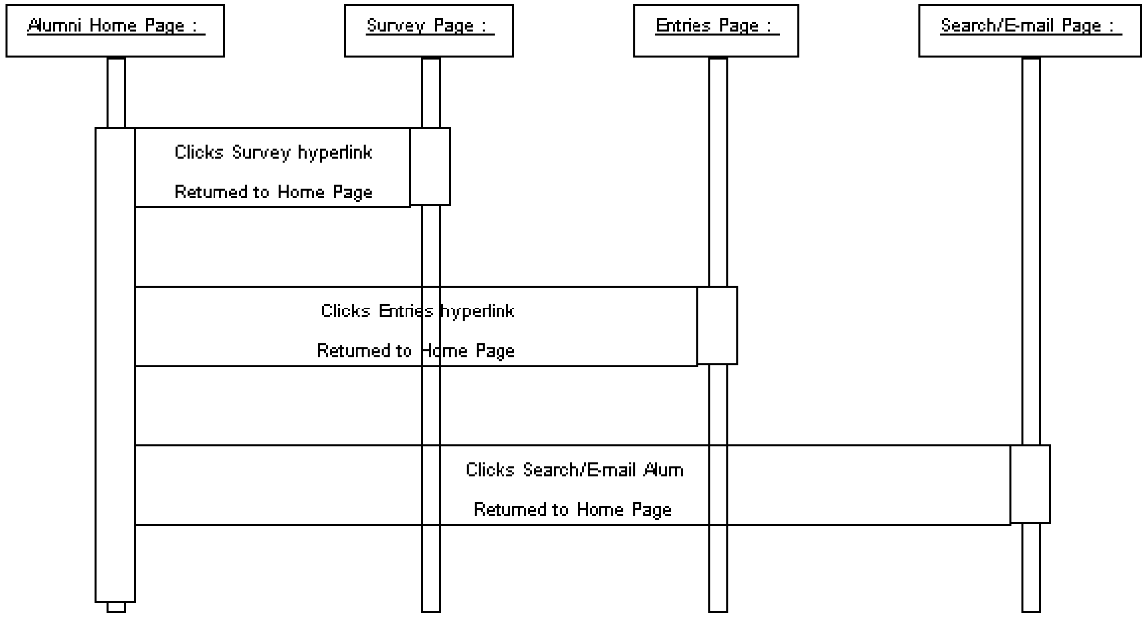


Figure 3 System Sequence Diagram

Use Case: Survey

See also Detail Survey in Software Requirement Specifications 3.2.

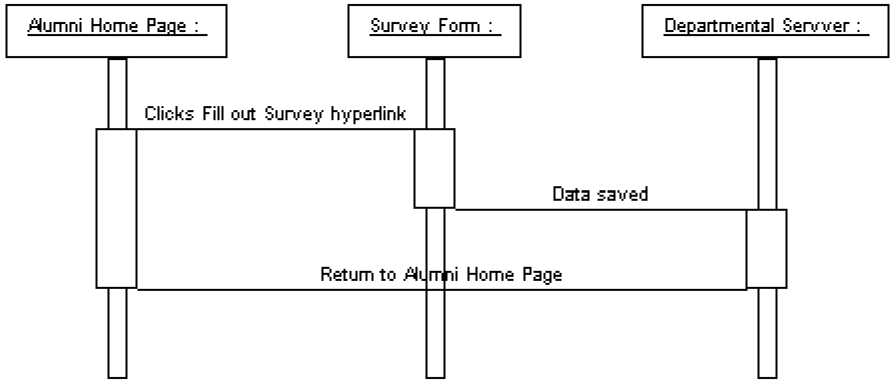


Figure 4 Survey Sequence Diagram

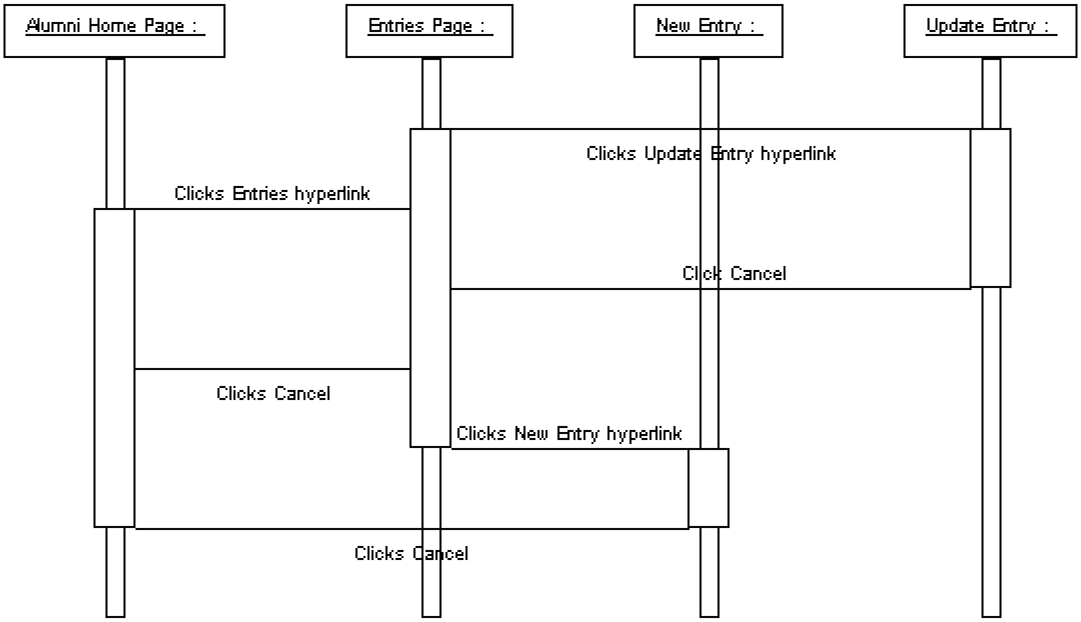


Figure 5 Entries Sequence Diagram

Use Case: Add Entry

See also Detail Add Entry in Software Requirement Specifications 3.2.

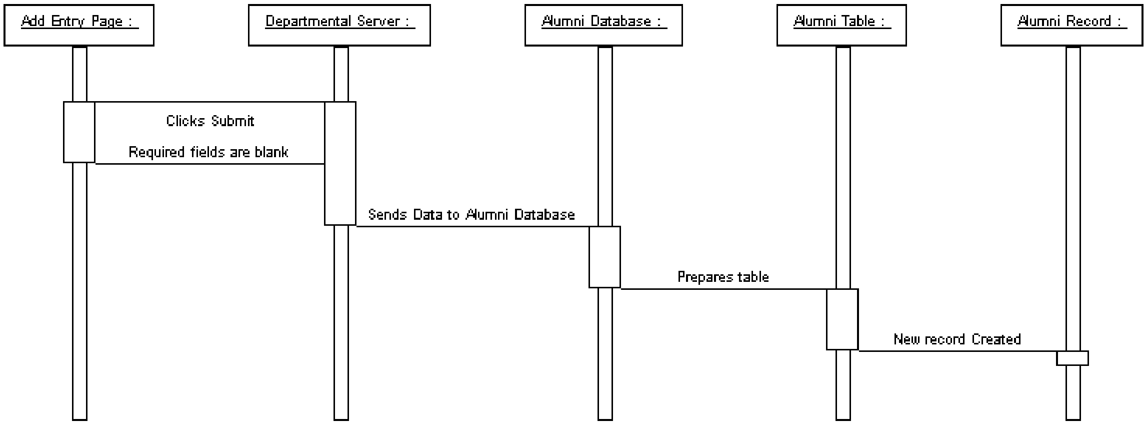


Figure 6 Add Entry Sequence Diagram

Use Case: Update Entry

See also Detail Update Entry in Software Requirement Specifications 3.2.

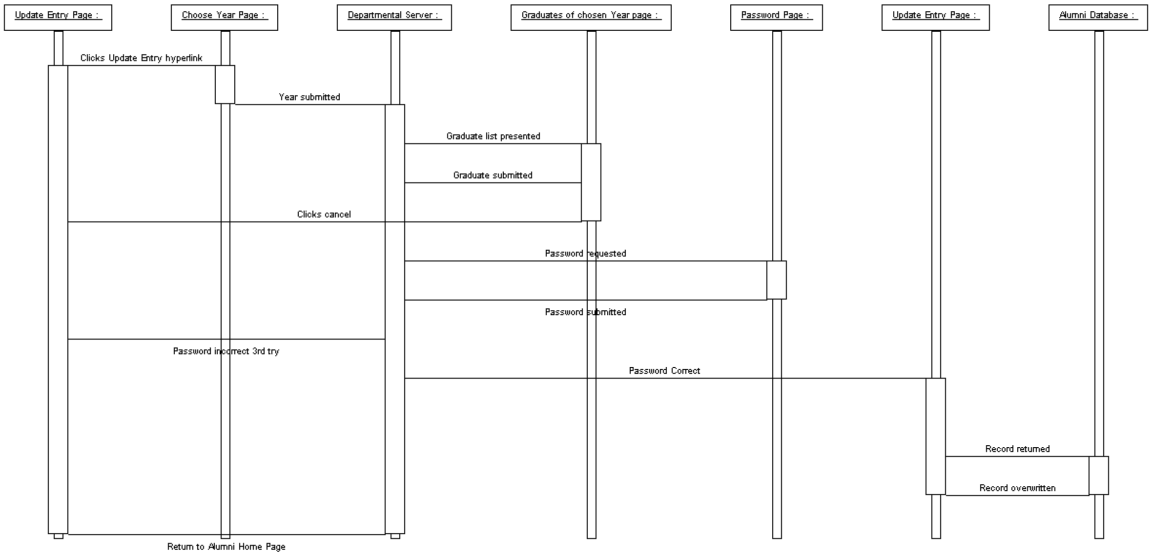


Figure 7 Update Entry Sequence Diagram

Use Case: Search/E-mail Alum

See also Detail Search/E-mail Alum in Software Requirement Specifications 3.2.

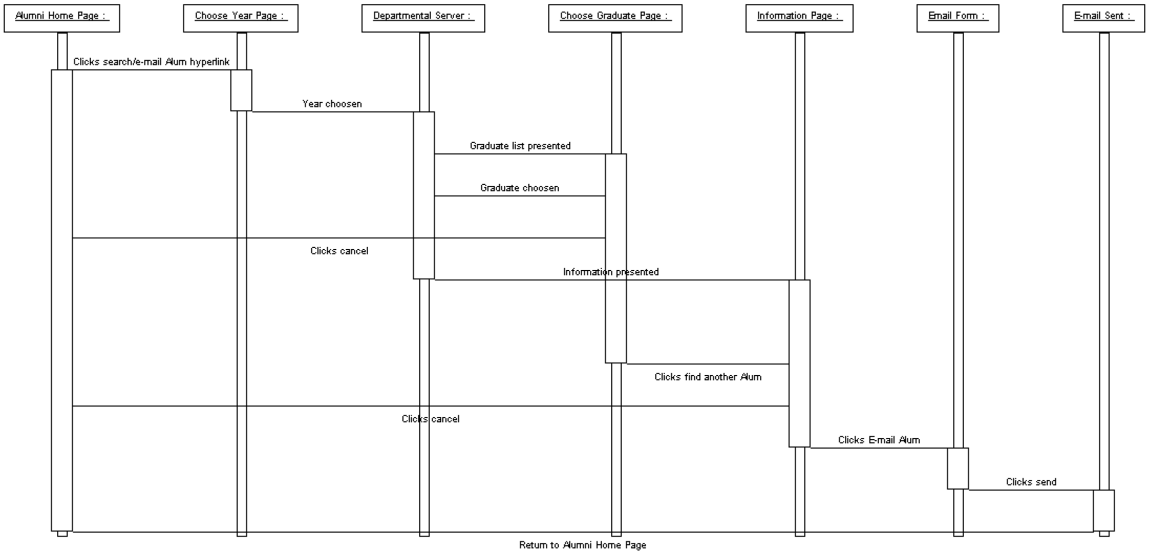
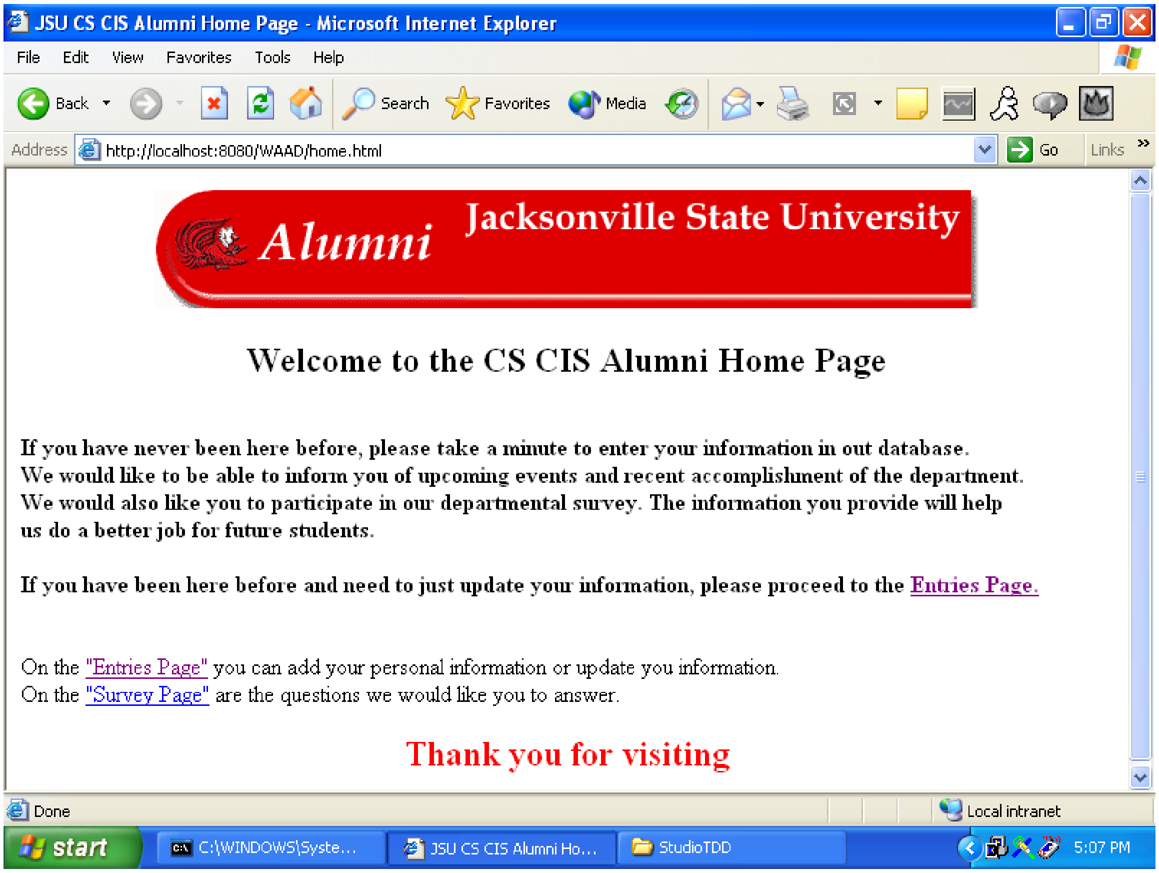


Figure 8 Search/E-mail Sequence Diagram

6.0. Interface design

The interface will use the same color and design scheme used on the other Jacksonville University Web pages to create a continuous effect. The exact pages will be placed here in a future version.



Welcome to the CS CIS Alumni Home Page

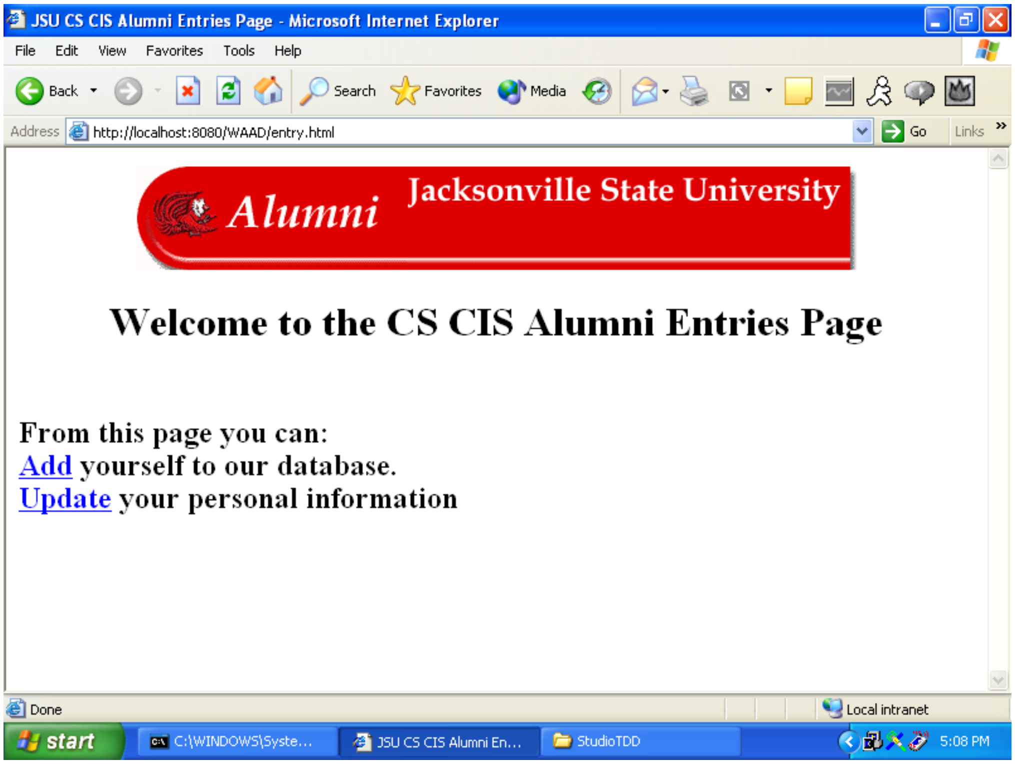
If you have never been here before, please take a minute to enter your information in out database. We would like to be able to inform you of upcoming events and recent accomplishlment of the department. We would also like you to participate in our departmental survey. The information you provide will help us do a better job for future students.

If you have been here before and need to just update your information, please proceed to the Entries Page.

On the "Entries Page" you can add your personal information or update you information.
On the "Survey Page" are the questions we would like you to answer.

Thank you for visiting

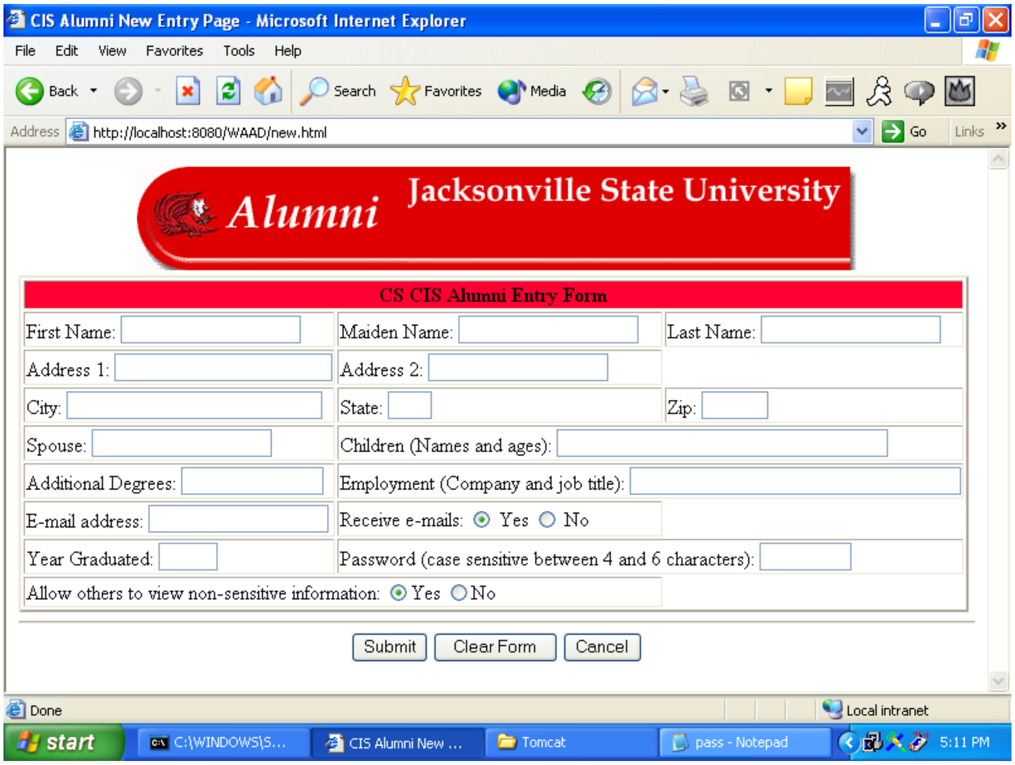
Figure 9 Home page


JSU CS CIS Alumni Entries Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:8080/WAAD/entry.html
Go Links
Alumni Jacksonville State University
Done
Local intranet
start
C:\WINDOWS\Syste...
JSU CS CIS Alumni En...
StudioTDD
5:08 PM

Welcome to the CS CIS Alumni Entries Page

From this page you can:
Add yourself to our database.
Update your personal information

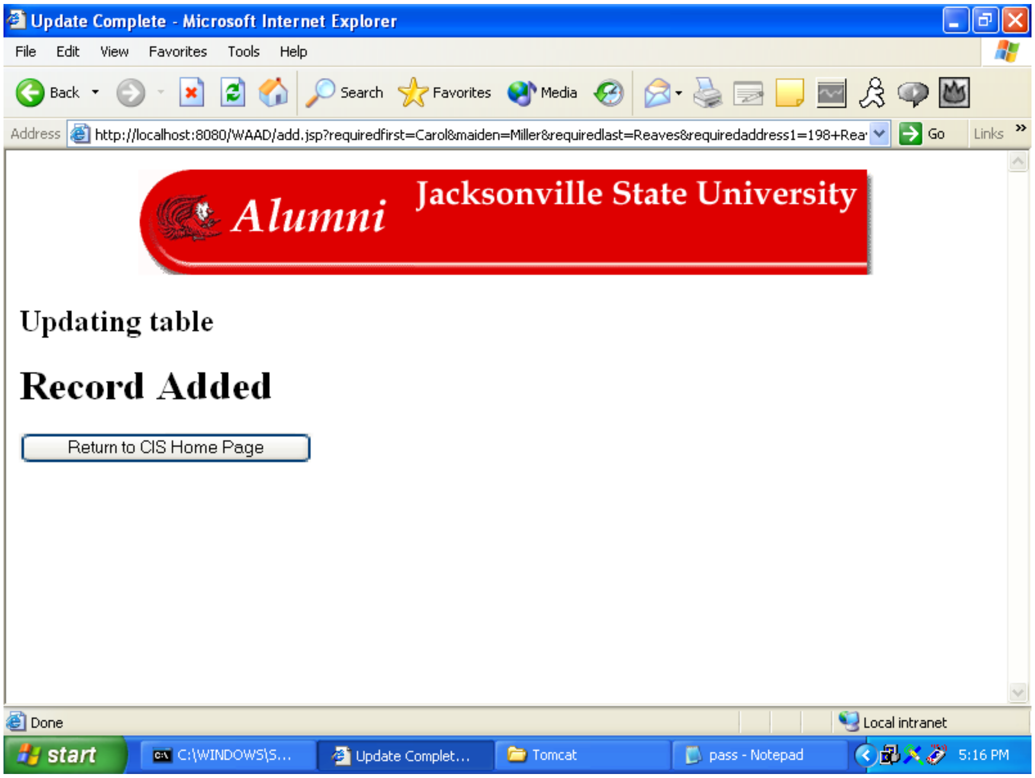
Figure 10 Entries page


CIS Alumni New Entry Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:8080/WAAD/new.html
Go Links
Alumni Jacksonville State University
Submit
Clear Form
Cancel
Done
Local intranet
start
C:\WINDOWS\S...
CIS Alumni New ...
Tomcat
pass - Notepad
5:11 PM

CS CIS Alumni Entry Form

First Name:	Maiden Name:	Last Name:
Address 1:	Address 2:	
City:	State:	Zip:
Spouse:	Children (Names and ages):	
Additional Degrees:	Employment (Company and job title):	
E-mail address:	Receive e-mails: ● Yes ○ No	
Year Graduated:	Password (case sensitive between 4 and 6 characters):	
Allow others to view non-sensitive information: ● Yes ○ No		

Figure 11 New Alum form page



Update Complete - Microsoft Internet Explorer

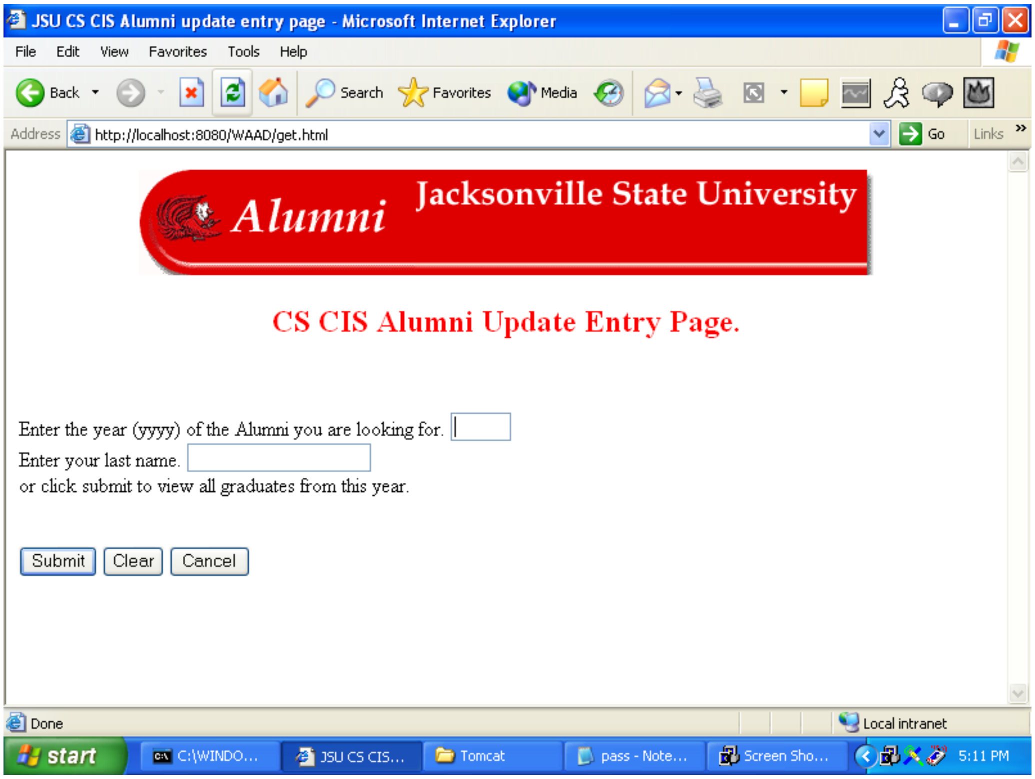
Address: http://localhost:8080/WAAD/add.jsp?requiredfirst=Carol&maiden=Miller&requiredlast=Reaves&requiredaddress1=198+Rea

Alumni Jacksonville State University

Updating table

Record Added

Figure 12 Recorded added page



JSU CS CIS Alumni update entry page - Microsoft Internet Explorer

Address: http://localhost:8080/WAAD/get.html

Alumni Jacksonville State University

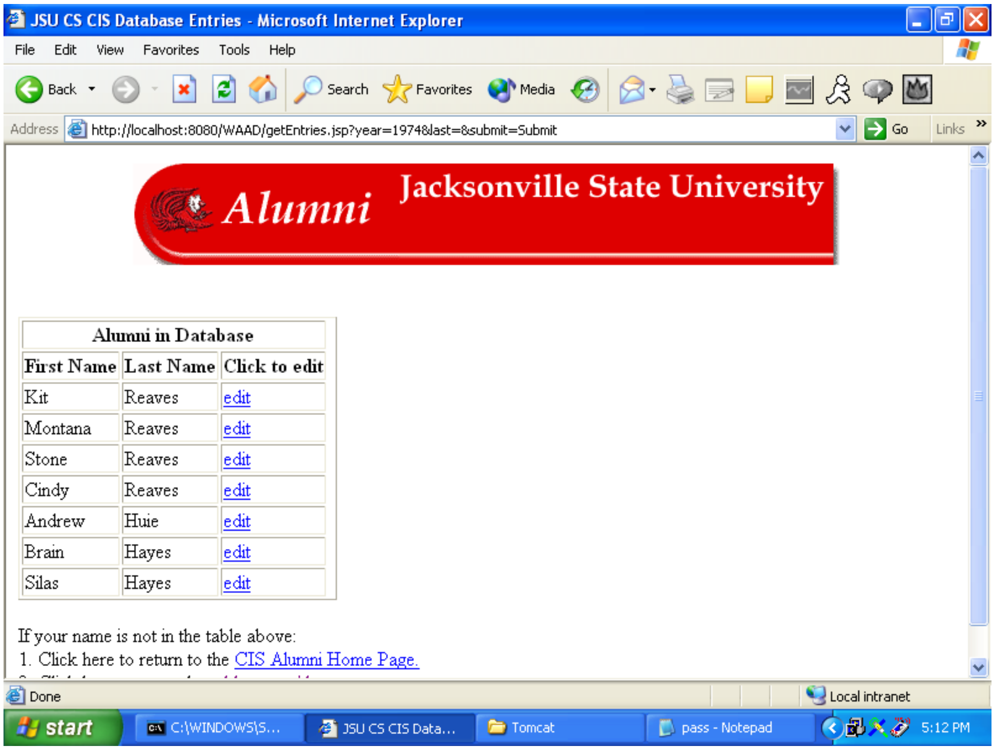
CS CIS Alumni Update Entry Page.

Enter the year (yyyy) of the Alumni you are looking for.

Enter your last name.

or click submit to view all graduates from this year.

Figure 13 Get year page

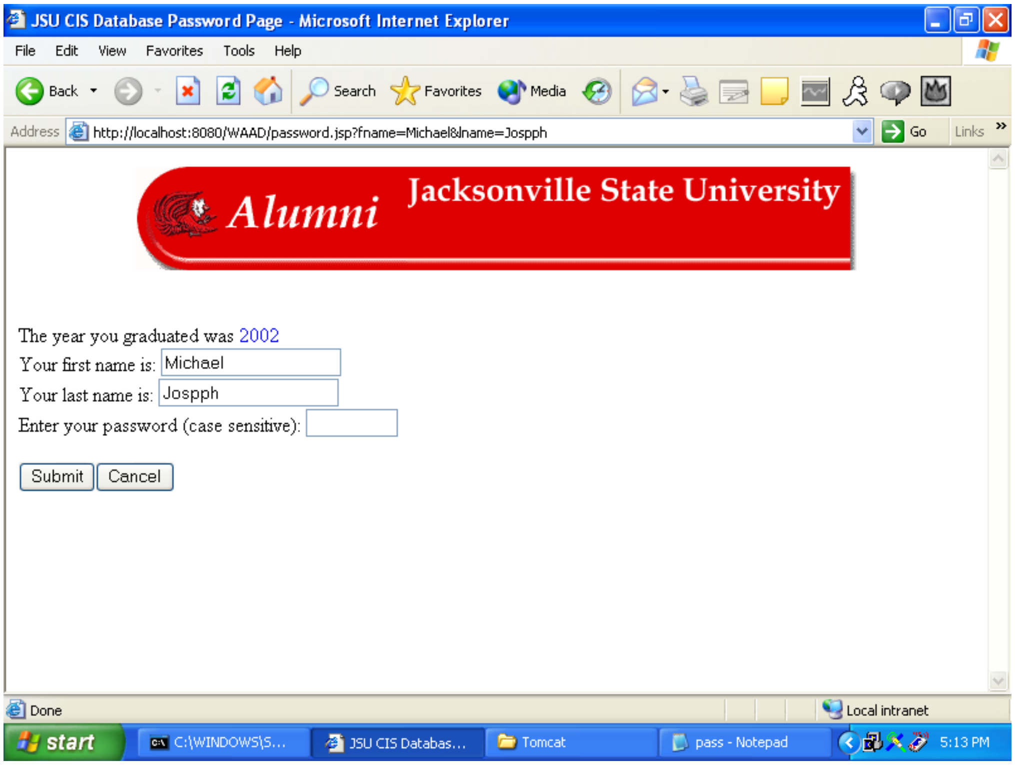

JSU CS CIS Database Entries - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Alumni Jacksonville State University
Done
Local intranet
start C:\WINDOWS\S... JSU CS CIS Data... Tomcat pass - Notepad 5:12 PM

http://localhost:8080/WAAD/getEntries.jsp?year=1974&last=&submit=Submit

Alumni in Database		
First Name	Last Name	Click to edit
Kit	Reaves	edit
Montana	Reaves	edit
Stone	Reaves	edit
Cindy	Reaves	edit
Andrew	Huie	edit
Brain	Hayes	edit
Silas	Hayes	edit

If your name is not in the table above:
1. Click here to return to the CIS Alumni Home Page.

Figure 14 Get Alum page

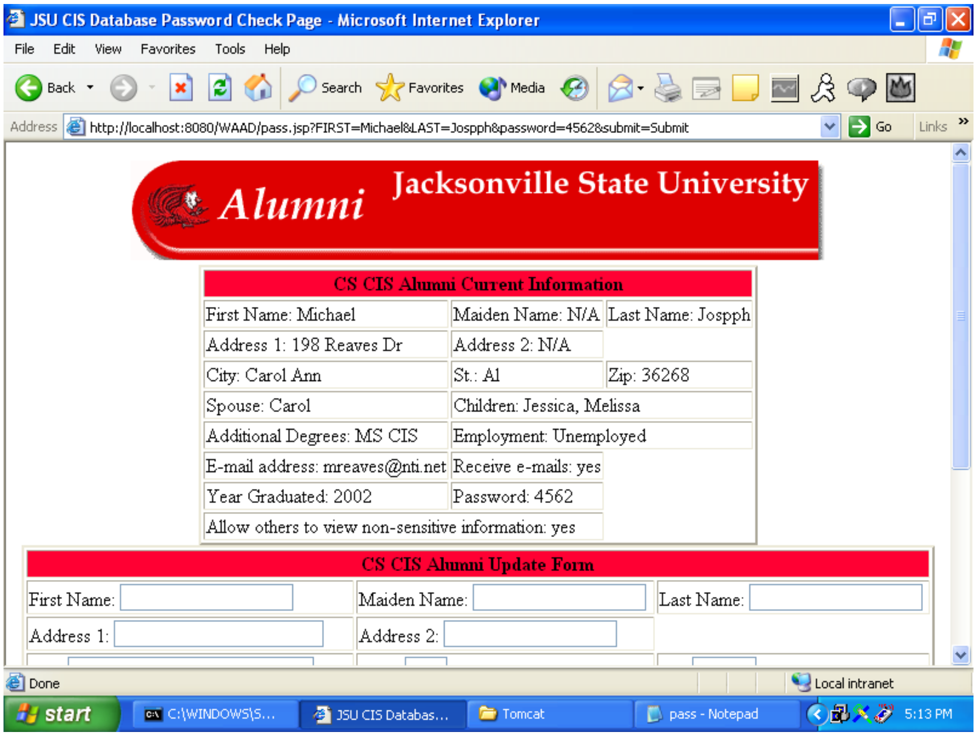

JSU CIS Database Password Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Alumni Jacksonville State University
Done
Local intranet
start C:\WINDOWS\S... JSU CIS Databas... Tomcat pass - Notepad 5:13 PM

http://localhost:8080/WAAD/password.jsp?fname=Michael&lname=Jospph

The year you graduated was 2002
Your first name is: Michael
Your last name is: Jospph
Enter your password (case sensitive):

Submit Cancel

Figure 15 Get password page


JSU CIS Database Password Check Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Alumni Jacksonville State University
Done
Local intranet
start
C:\WINDOWS\S...
JSU CIS Databas...
Tomcat
pass - Notepad
5:13 PM

http://localhost:8080/WAAD/pass.jsp?FIRST=Michael&LAST=Jospph&password=4562&submit=Submit

CS CIS Alumni Current Information

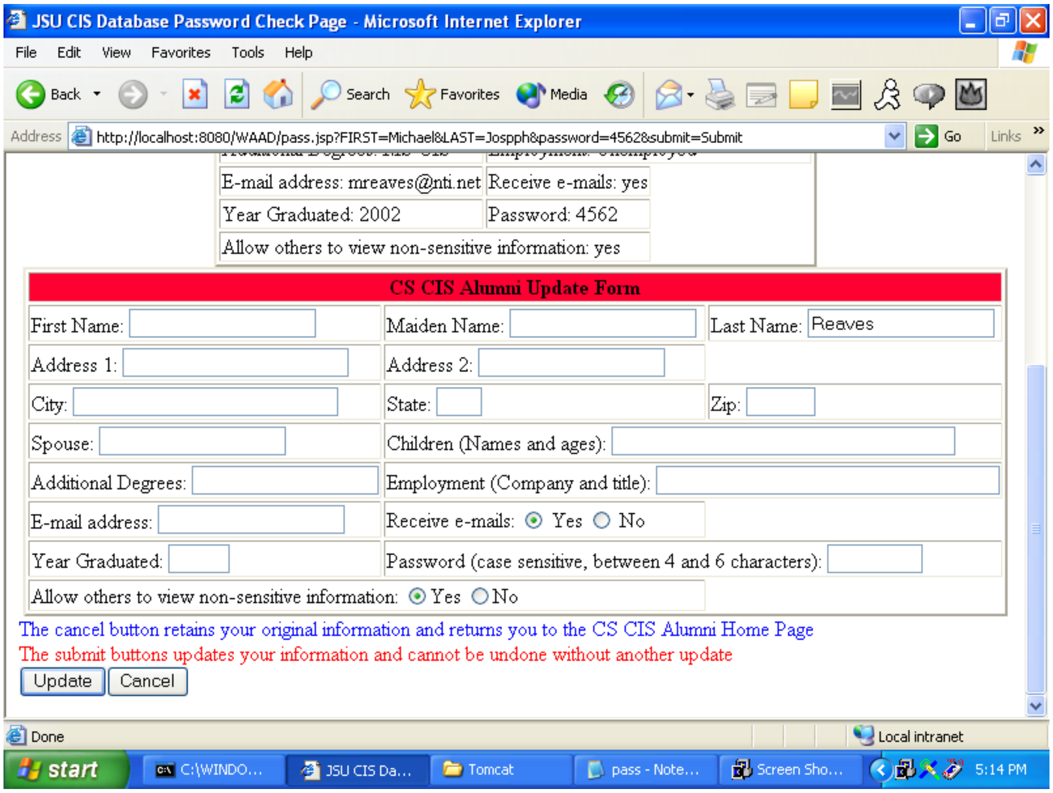
First Name: Michael	Maiden Name: N/A	Last Name: Jospph
Address 1: 198 Reaves Dr	Address 2: N/A	
City: Carol Ann	St.: Al	Zip: 36268
Spouse: Carol	Children: Jessica, Melissa	
Additional Degrees: MS CIS	Employment: Unemployed	
E-mail address: mreaves@nti.net	Receive e-mails: yes	
Year Graduated: 2002	Password: 4562	
Allow others to view non-sensitive information: yes		

CS CIS Alumni Update Form

First Name: Maiden Name: Last Name:

Address 1: Address 2:

Figure 16 Data retrieved page


JSU CIS Database Password Check Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Update
Cancel
Done
Local intranet
start
C:\WINDO...
JSU CIS Da...
Tomcat
pass - Note...
Screen Sho...
5:14 PM

http://localhost:8080/WAAD/pass.jsp?FIRST=Michael&LAST=Jospph&password=4562&submit=Submit

E-mail address: mreaves@nti.net	Receive e-mails: yes
Year Graduated: 2002	Password: 4562
Allow others to view non-sensitive information: yes	

CS CIS Alumni Update Form

First Name: Maiden Name: Last Name: Reaves

Address 1: Address 2:

City: State: Zip:

Spouse: Children (Names and ages):

Additional Degrees: Employment (Company and title):

E-mail address: Receive e-mails: ● Yes ○ No

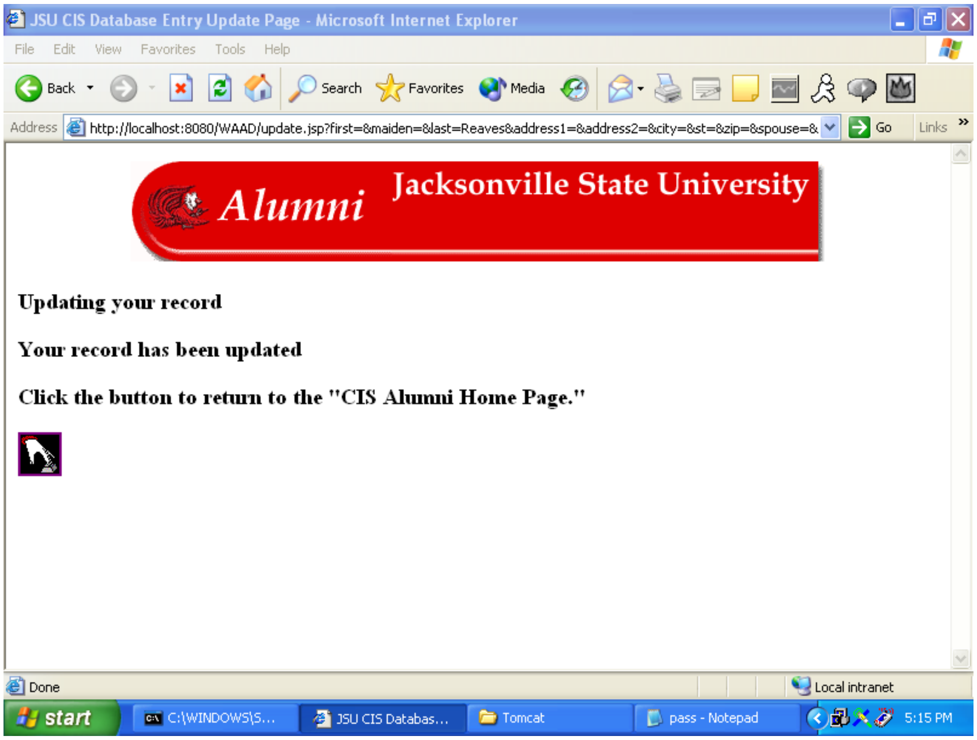
Year Graduated: Password (case sensitive, between 4 and 6 characters):

Allow others to view non-sensitive information: ● Yes ○ No

The cancel button retains your original information and returns you to the CS CIS Alumni Home Page

The submit buttons updates your information and cannot be undone without another update

Figure 17 Data to update page

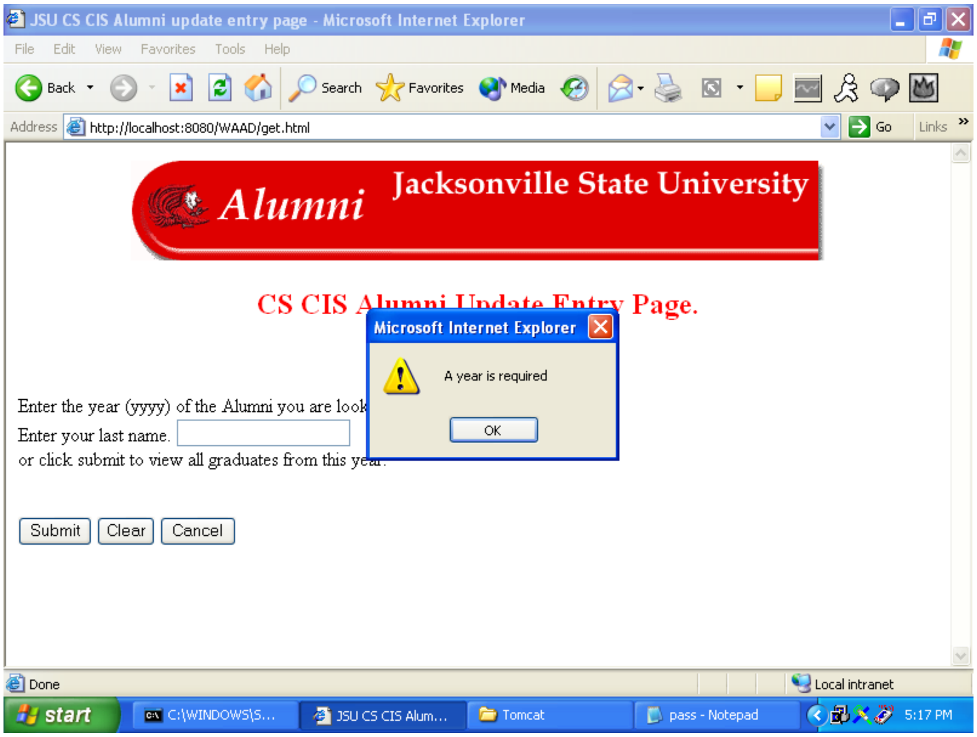

JSU CIS Database Entry Update Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:8080/WAAD/update.jsp?first=&maiden=&last=Reaves&address1=&address2=&city=&st=&zip=&spouse=&
Go Links
Alumni Jacksonville State University
Done
Local intranet
start
C:\WINDOWS\S...
JSU CIS Databas...
Tomcat
pass - Notepad
5:15 PM

Updating your record

Your record has been updated

Click the button to return to the "CIS Alumni Home Page."

Figure 18 Record updated page


JSU CS CIS Alumni update entry page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:8080/WAAD/get.html
Go Links
Alumni Jacksonville State University
Microsoft Internet Explorer
OK
Submit
Clear
Cancel
Done
Local intranet
start
C:\WINDOWS\S...
JSU CS CIS Alum...
Tomcat
pass - Notepad
5:17 PM

CS CIS Alumni Update Entry Page.

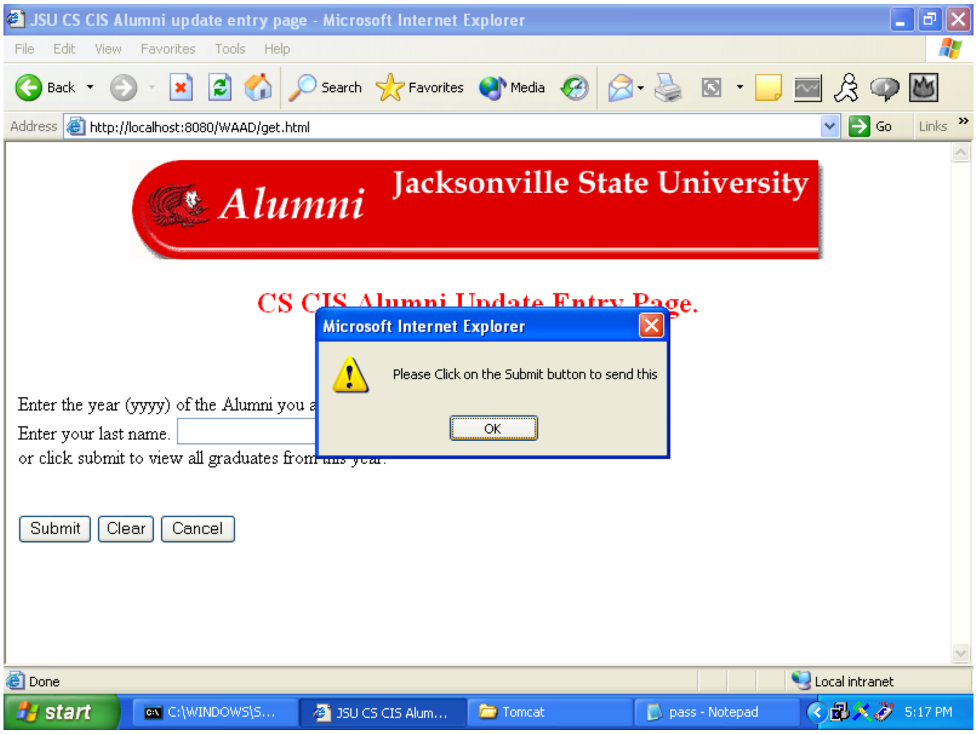
A year is required

Enter the year (yyyy) of the Alumni you are look

Enter your last name.

or click submit to view all graduates from this year.

Figure 19 No year alert


JSU CS CIS Alumni update entry page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Alumni Jacksonville State University
Microsoft Internet Explorer
OK
Submit Clear Cancel
Done
Local intranet
start C:\WINDOWS\S... JSU CS CIS Alum... Tomcat pass - Notepad 5:17 PM

http://localhost:8080/WAAD/get.html

CS CIS Alumni Update Entry Page.

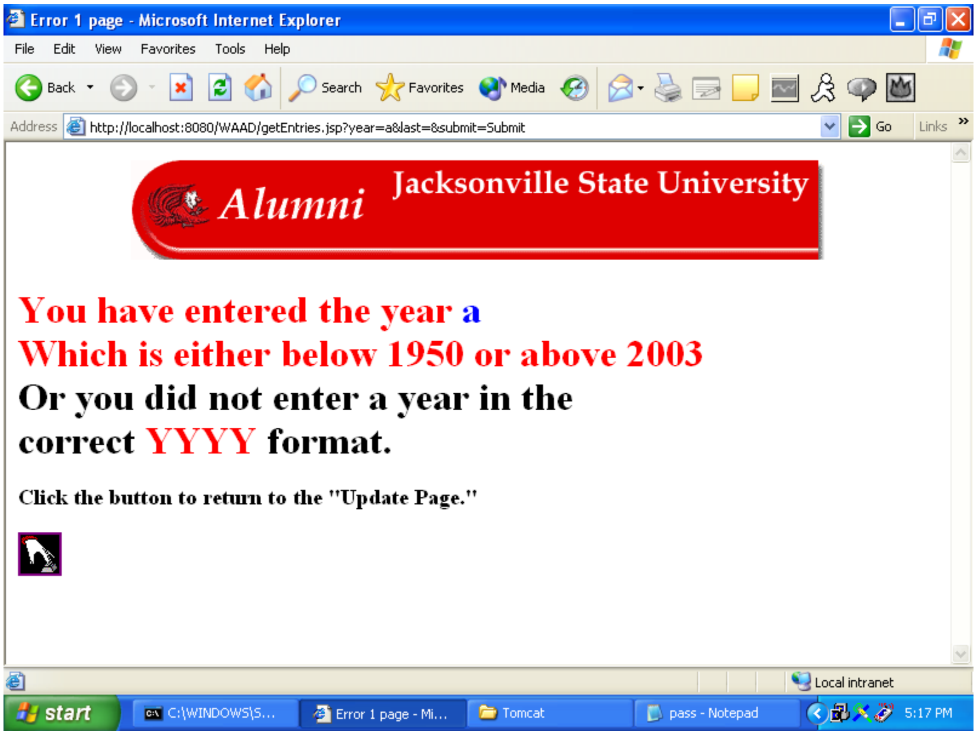
Please Click on the Submit button to send this

Enter the year (yyyy) of the Alumni you a

Enter your last name.

or click submit to view all graduates from this year.

Figure 20 Return used instead of Submit

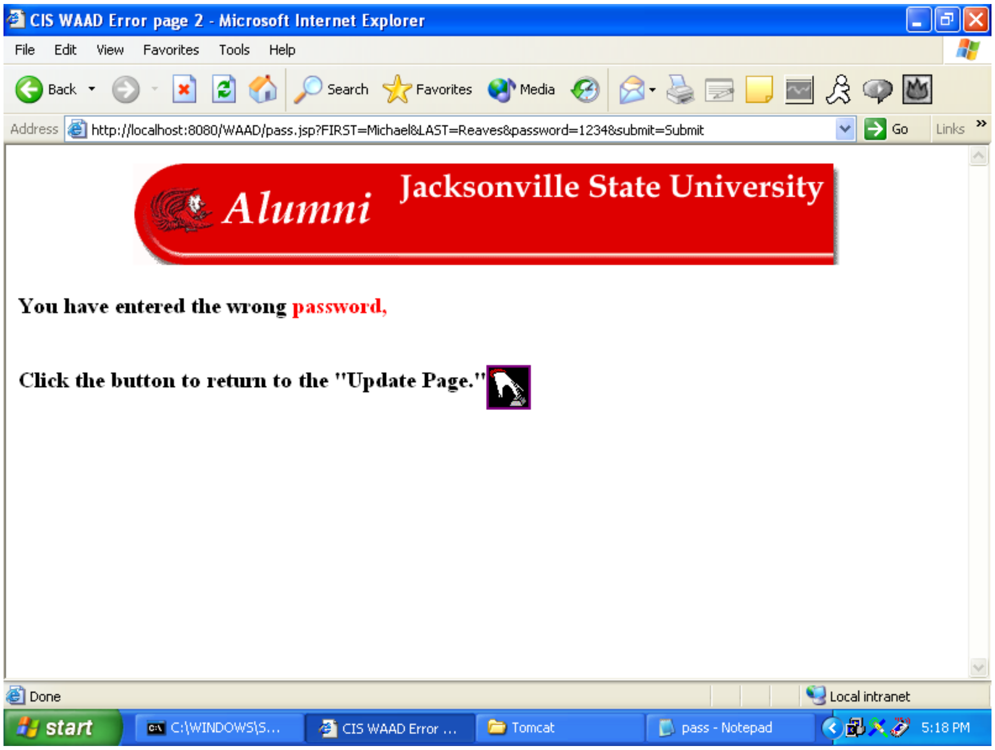

Error 1 page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Alumni Jacksonville State University
Local intranet
start C:\WINDOWS\S... Error 1 page - Mi... Tomcat pass - Notepad 5:17 PM

http://localhost:8080/WAAD/getEntries.jsp?year=a&last=&submit=Submit

You have entered the year a
Which is either below 1950 or above 2003
Or you did not enter a year in the
correct YYYY format.

Click the button to return to the "Update Page."

Figure 21 Incorrect year page

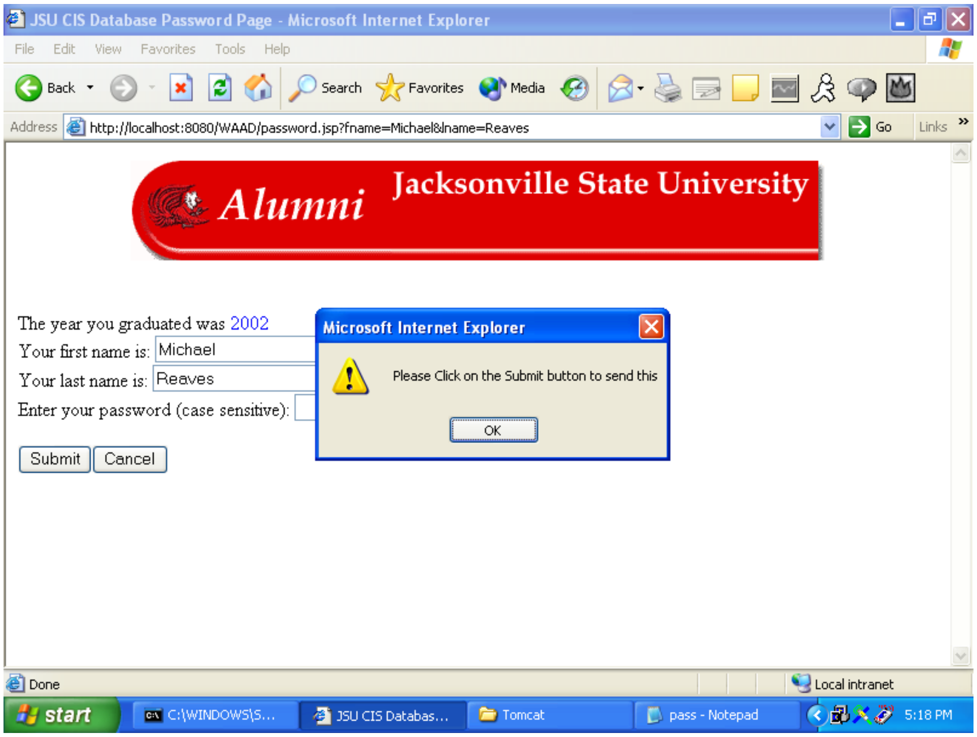

CIS WAAD Error page 2 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Alumni Jacksonville State University
Done
Local intranet
start C:\WINDOWS\S... CIS WAAD Error ... Tomcat pass - Notepad 5:18 PM

http://localhost:8080/WAAD/pass.jsp?FIRST=Michael&LAST=Reaves&password=1234&submit=Submit

You have entered the wrong password,

Click the button to return to the "Update Page."

Figure 22 Incorrect password page


JSU CIS Database Password Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address
Go Links
Alumni Jacksonville State University
Microsoft Internet Explorer
OK
Submit
Cancel
Done
Local intranet
start C:\WINDOWS\S... JSU CIS Databas... Tomcat pass - Notepad 5:18 PM

http://localhost:8080/WAAD/password.jsp?fname=Michael&lname=Reaves

The year you graduated was 2002

Your first name is: Michael

Your last name is: Reaves

Enter your password (case sensitive):

Please Click on the Submit button to send this

Figure 23 Return used instead of Submit

7.0. Help system design

At this time there is no help system needed or planned.

8.0. Index