

Preliminary Design

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Automated Excel Grading System

Oasis Technologies

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Automated Excel Grading System Preliminary Design

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Preliminary Design

I. Product Overview and Summary

Siena College offers two courses in the Computer Science Department that utilize Microsoft Excel. These courses have a required lab where the students create spreadsheets, which then need to be graded by the lab instructor. There is also a pre-lab associated with each lab that the students are required to complete. There are a large number of students that take these courses thus creating a large amount of excel spreadsheets that requiring grading by the lab instructors. As a result of the high quantity of spreadsheets that need grading we have been tasked, by Dr. Scott Hunter and Ms Jami Cotler, with creating a system to grade these labs and pre-labs automatically and report back to the students and instructors the results. The students will have the ability to log in to a web based system and submit these labs and pre-labs and view their grades

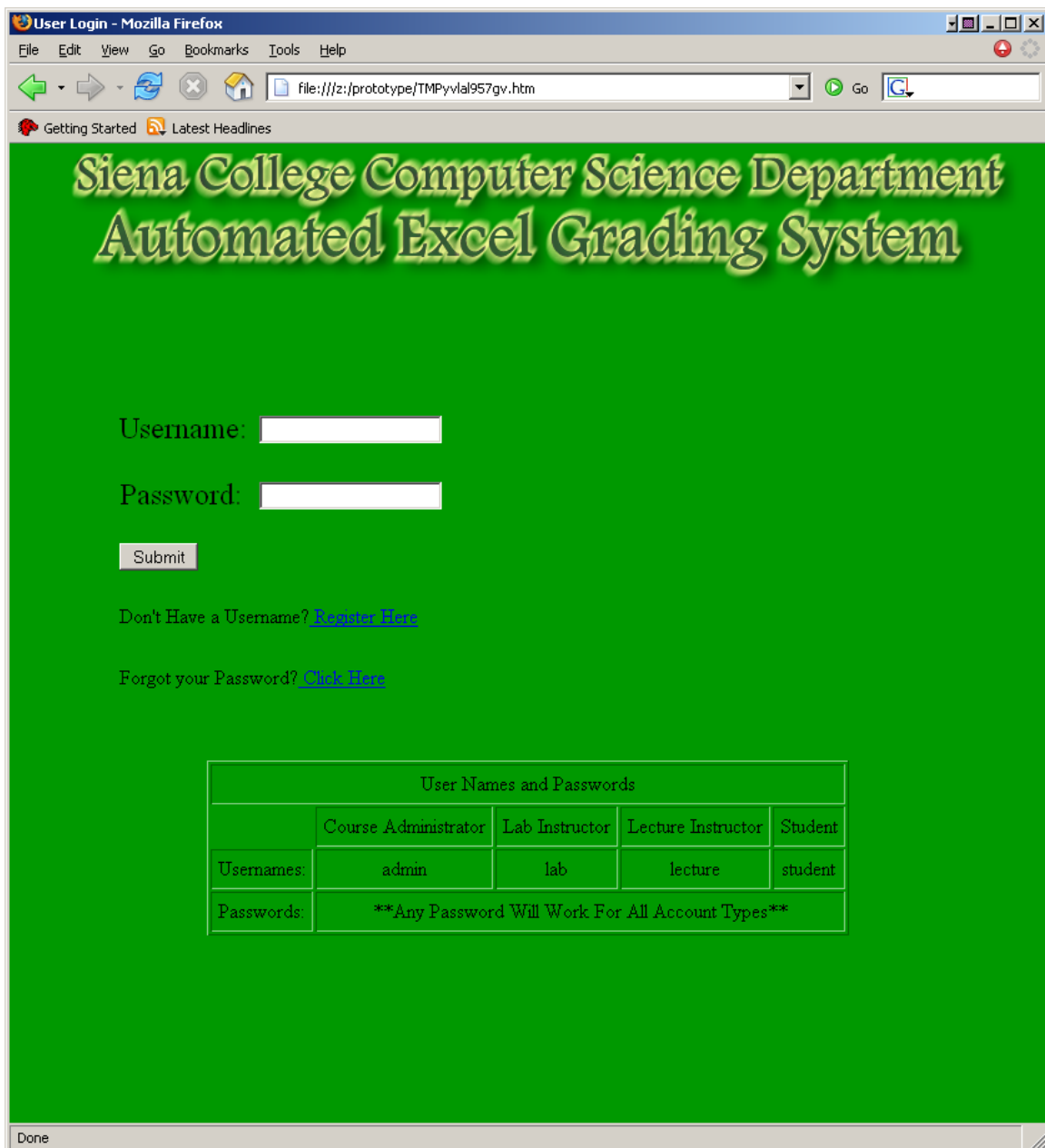
II. User Displays, Report Formats, and User Command Summaries

****Note:** All screens can be accessed as HTML pages by going to the following link:
http://oraserv.cs.siena.edu/~perm_oasis/prototype

Login Views

Login View:

This is a view that all users will see when first loading the website. It is where all users will enter their username and password. If student's have not already set up their account, they can click on the "Register Here" link which will take them to the Register View. They can also recover their password from here if they forgot it.



Username:

Password:

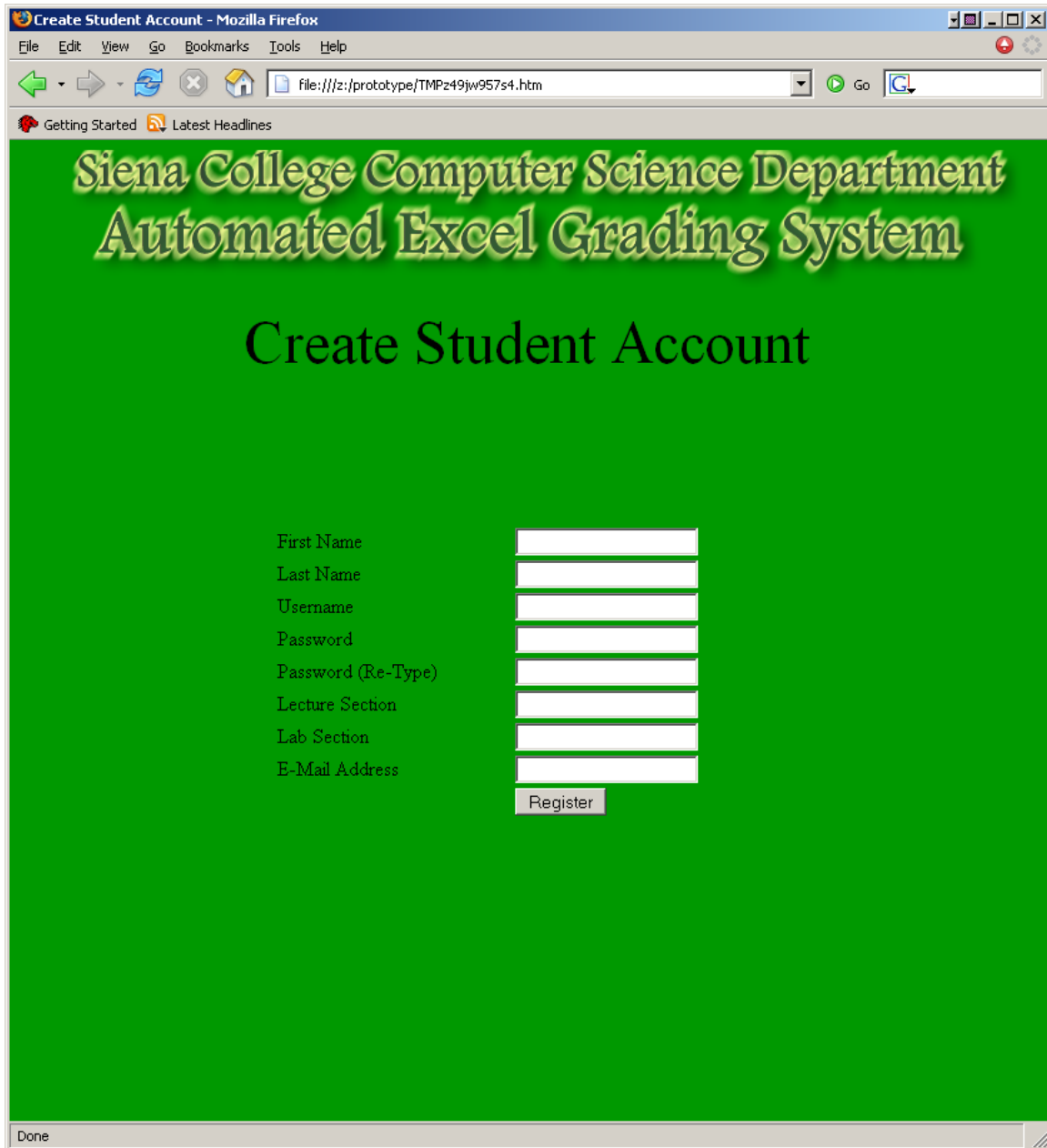
Don't Have a Username? [Register Here](#)

Forgot your Password? [Click Here](#)

User Names and Passwords				
	Course Administrator	Lab Instructor	Lecture Instructor	Student
Usernames:	admin	lab	lecture	student
Passwords:	**Any Password Will Work For All Account Types**			

Register View:

This is the view students will see when attempting to create an account. They will fill in their Name, Username, Password twice for verification, Lecture Section, and Lab Section and then click on a "Register" button to finish their registration.



The screenshot shows a Mozilla Firefox browser window titled "Create Student Account - Mozilla Firefox". The address bar displays "file:///z:/prototype/TMPz49jw957s4.htm". The page content is on a green background with the following text and form elements:

Siena College Computer Science Department Automated Excel Grading System

Create Student Account

First Name

Last Name

Username

Password

Password (Re-Type)

Lecture Section

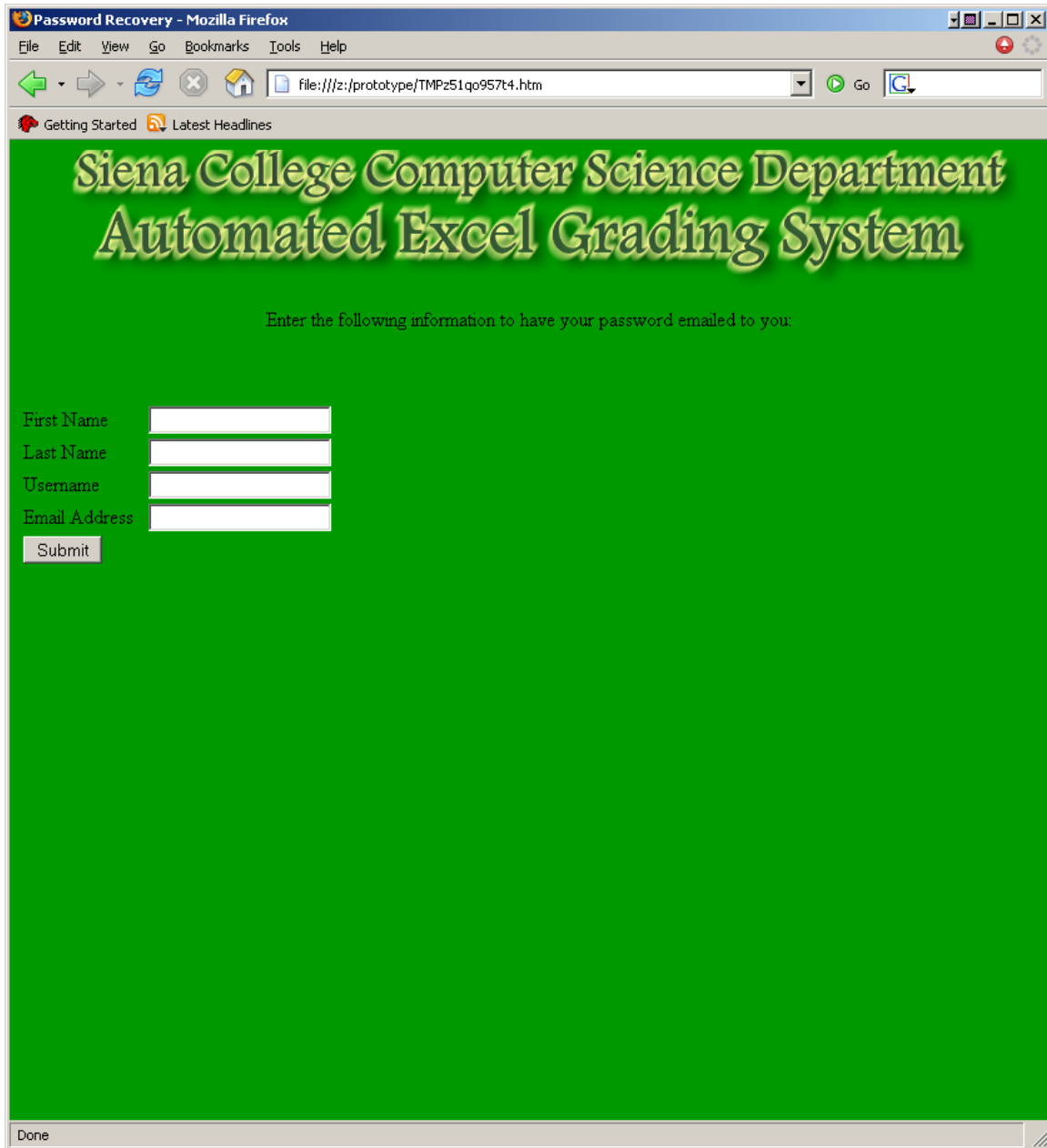
Lab Section

E-Mail Address

Done

Forgot Password View:

This screen is where you fill out you're: name, username, and e-mail address. Then an email will be sent to the user with their password.



The screenshot shows a Mozilla Firefox browser window titled "Password Recovery - Mozilla Firefox". The address bar contains the file path "file:///z:/prototype/TMPz51qo957t4.htm". The main content area has a green background with the text "Siena College Computer Science Department Automated Excel Grading System" in a stylized font. Below this, it says "Enter the following information to have your password emailed to you:". The form includes four input fields labeled "First Name", "Last Name", "Username", and "Email Address", each with a corresponding text box. A "Submit" button is located below the "Email Address" field. The browser's status bar at the bottom shows "Done".

Getting Started Latest Headlines

Siena College Computer Science Department Automated Excel Grading System

Enter the following information to have your password emailed to you:

First Name

Last Name

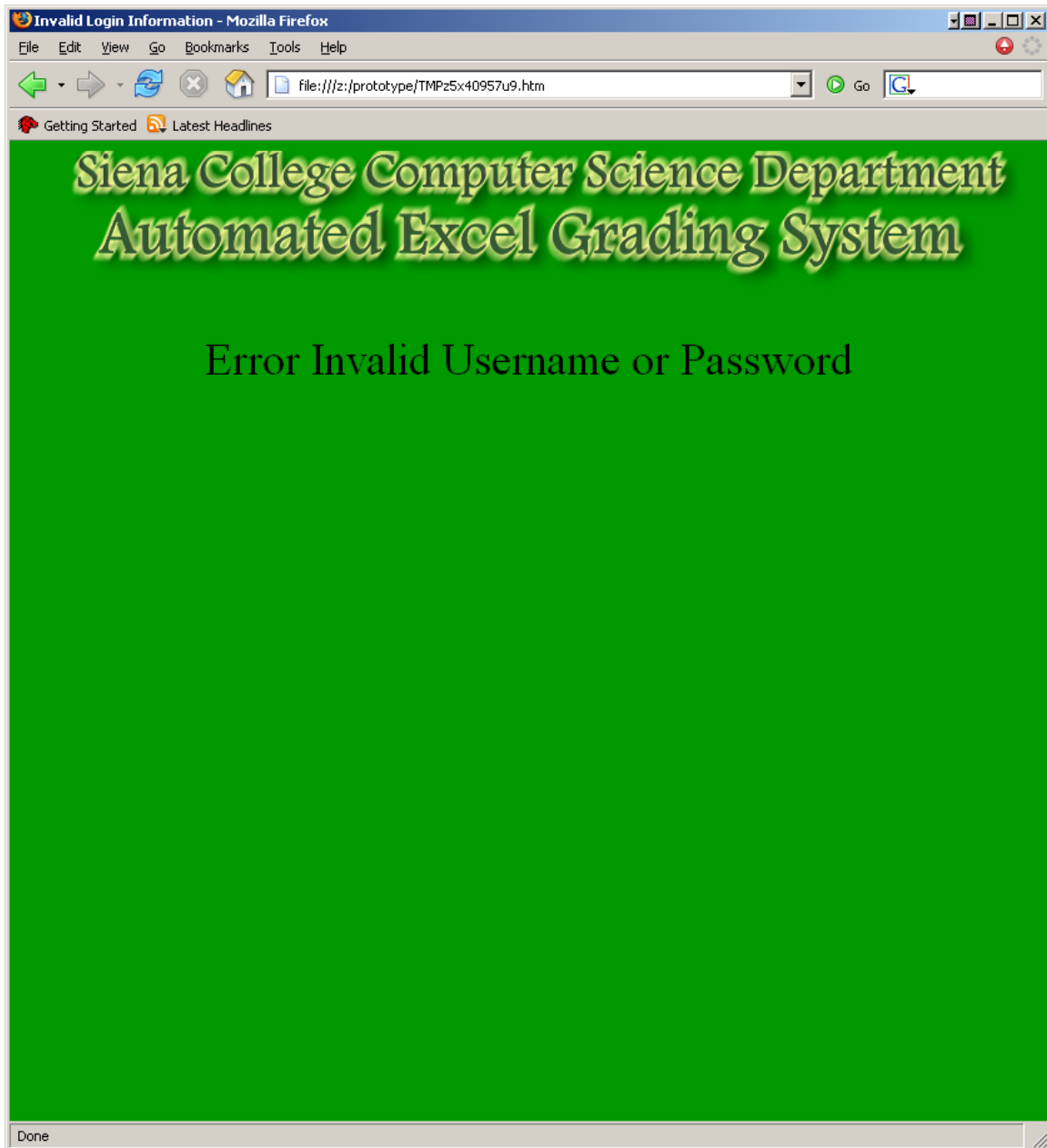
Username

Email Address

Done

Invalid Login View:

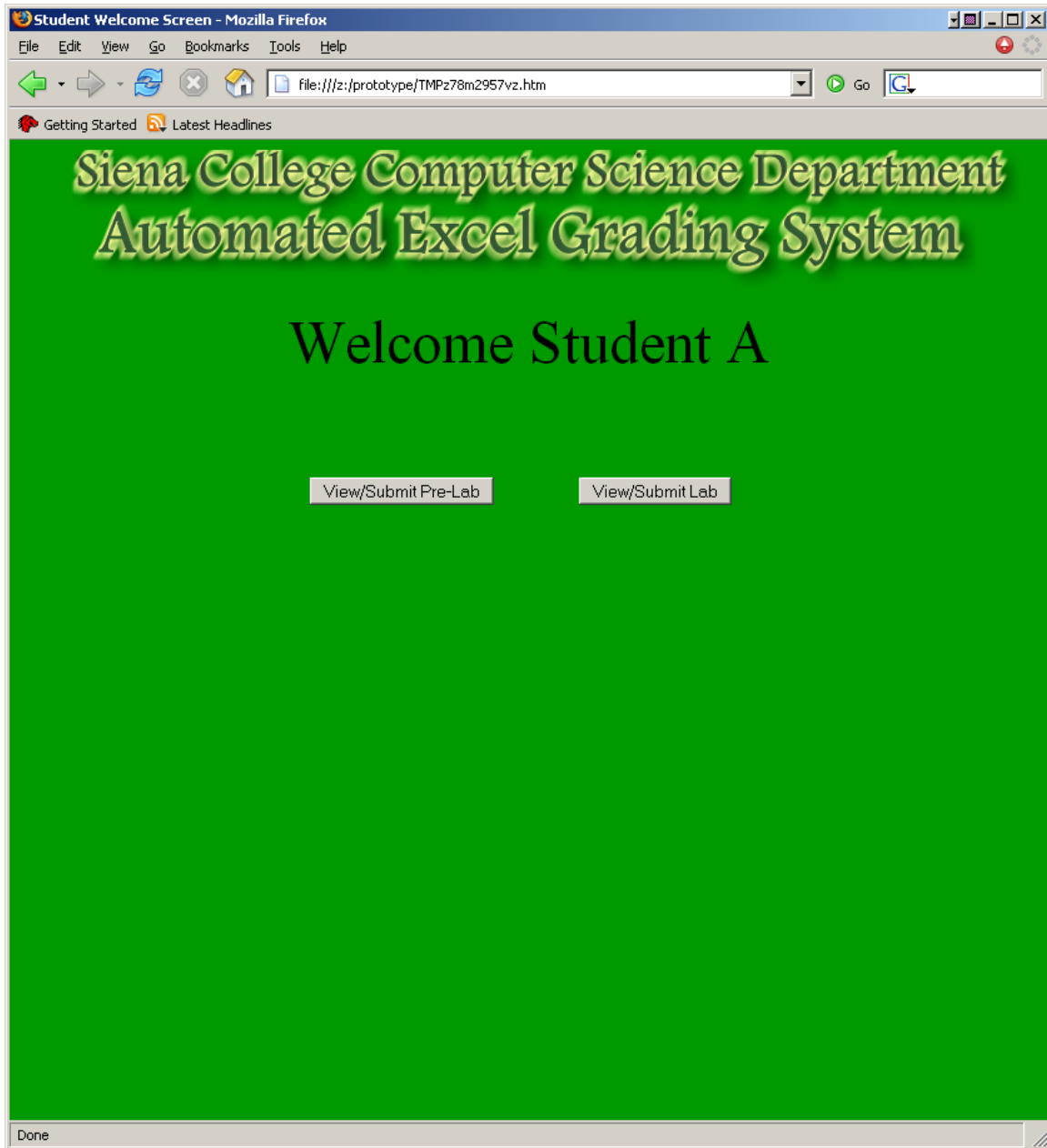
This screen is displayed when you enter an invalid username or password.



Student Views

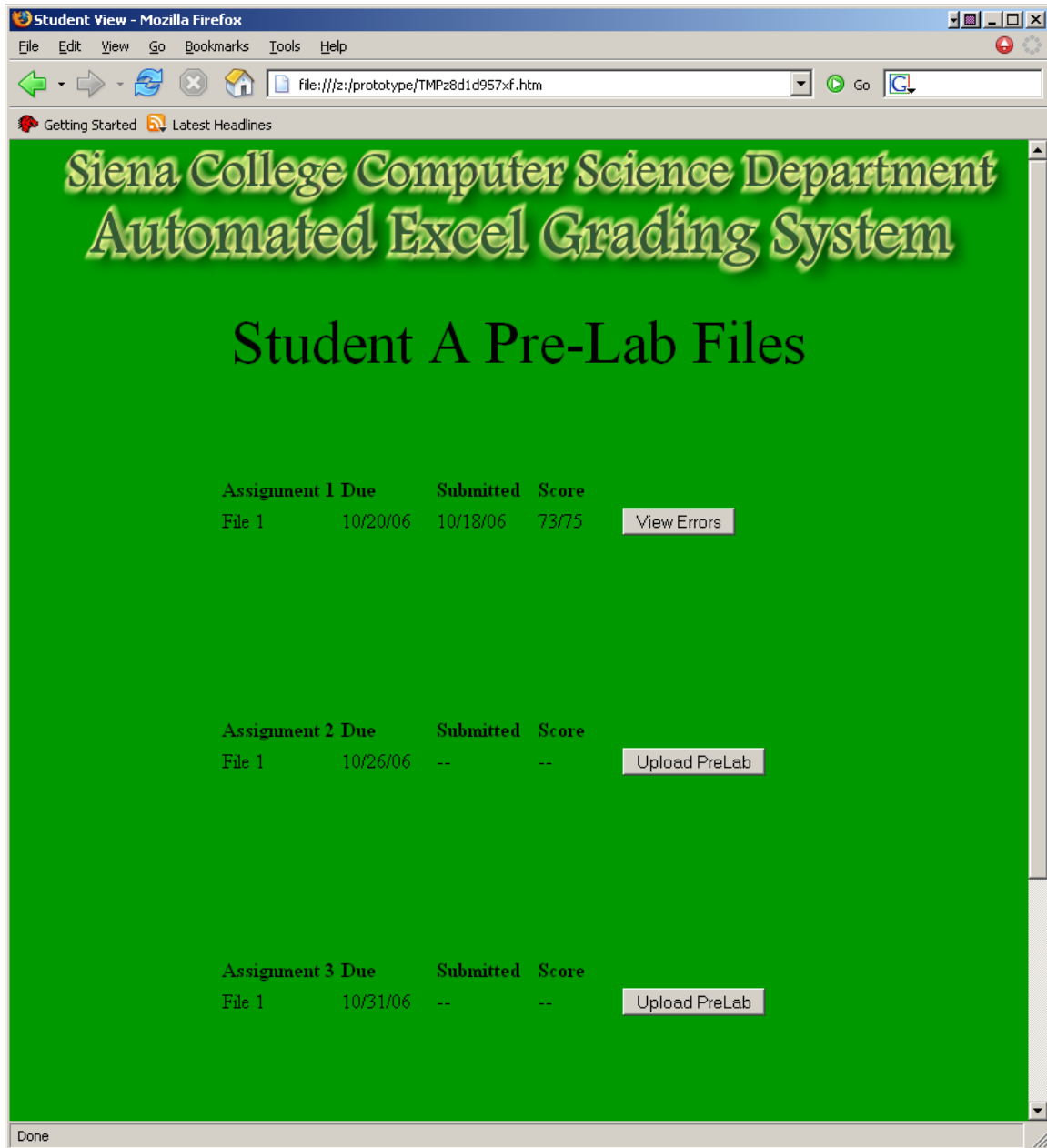
Student View:

This is a view of what the students will see when they log into the system. There are two buttons they can click. One will bring them to their pre-labs home page and the other to their labs home page.



Student View 1:

This screen is where the student views their pre-labs. It will display all pre-lab files associated with each lab and the corresponding grades. It will also display a button to upload new pre-labs and a button to view the errors from the lab.



The screenshot shows a Mozilla Firefox browser window displaying a web page with a green background. The page title is "Siena College Computer Science Department Automated Excel Grading System". Below the title, it says "Student A Pre-Lab Files". The page contains three sections, each with a table of pre-lab files and a button to view errors or upload a pre-lab.

Assignment 1 Due	Submitted	Score	
File 1	10/18/06	73/75	View Errors

Assignment 2 Due	Submitted	Score	
File 1	--	--	Upload PreLab

Assignment 3 Due	Submitted	Score	
File 1	--	--	Upload PreLab

Done

Student View 2:

This screen is where the student views their labs. It will display all lab files associated with each lab and the corresponding grades. It will also display a button to upload new labs and a button to view the errors from the lab.

**Siena College Computer Science Department
Automated Excel Grading System**

Student A Lab Files

Assignment 1	Due	Submitted	Score
File 1	10/20/06	10/18/06	23/25
File 2	10/20/06	10/18/06	24/25
File 3	10/20/06	10/18/06	23/25
Total			72/75

[View Errors](#)

Assignment 2	Due	Submitted	Score
File 1	10/26/06	--	--
File 2	10/26/06	--	--
File 3	10/26/06	--	--
Total			

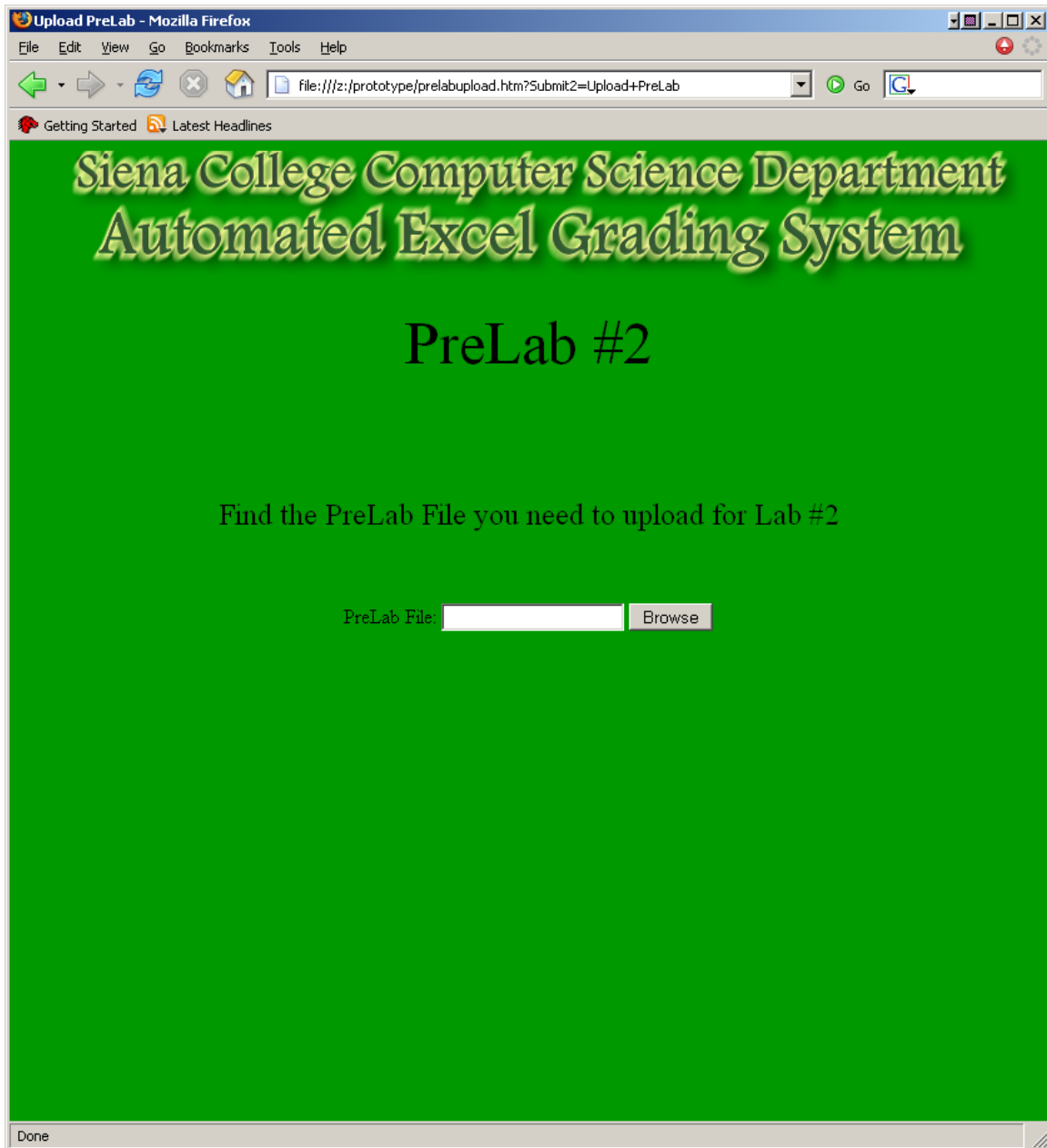
[Upload Lab](#)

Assignment 3	Due	Submitted	Score
File 1	10/31/06	--	--
File 2	10/31/06	--	--

Done

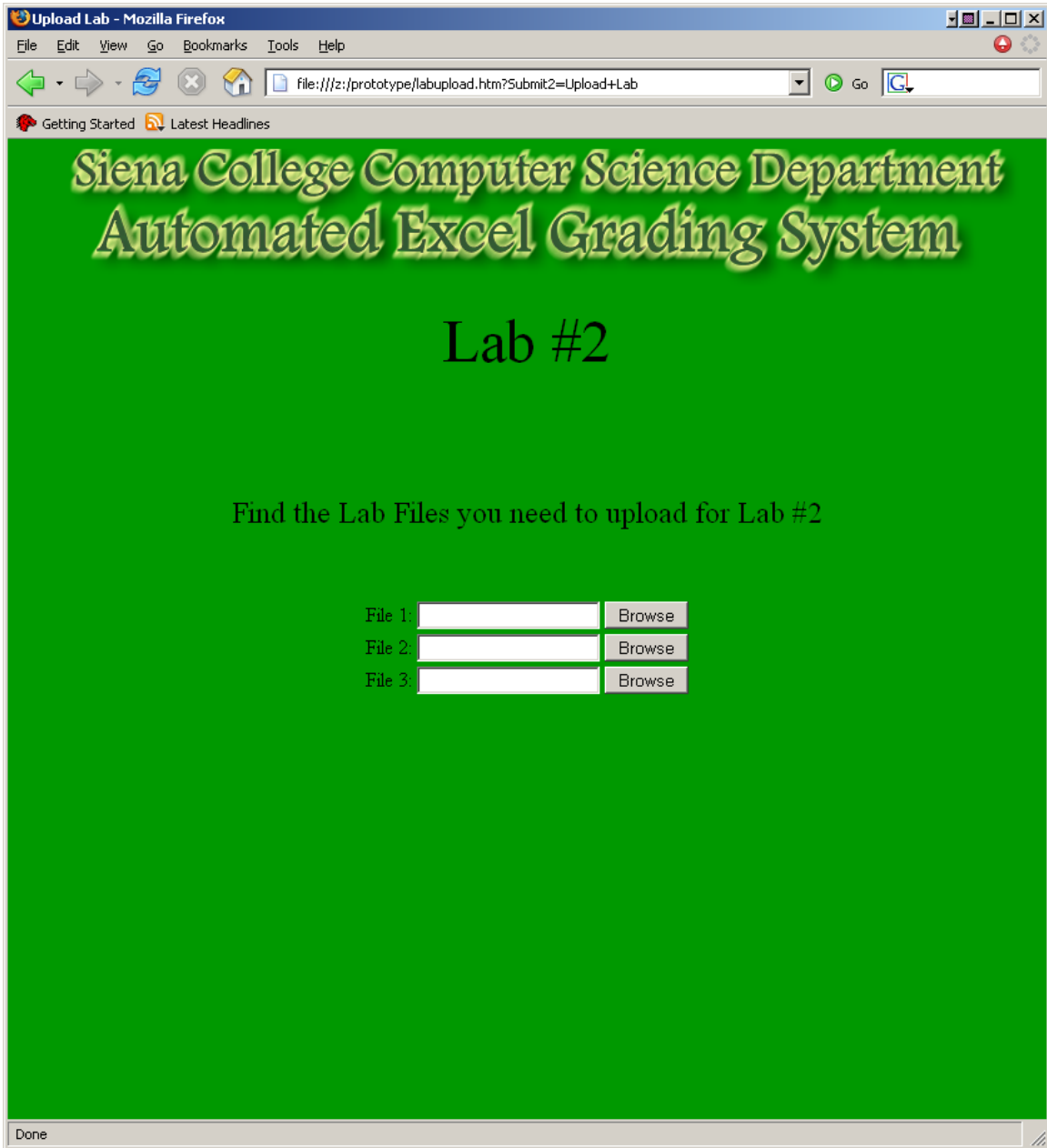
Student View 3:

This screen is where the students can upload their pre-lab files.



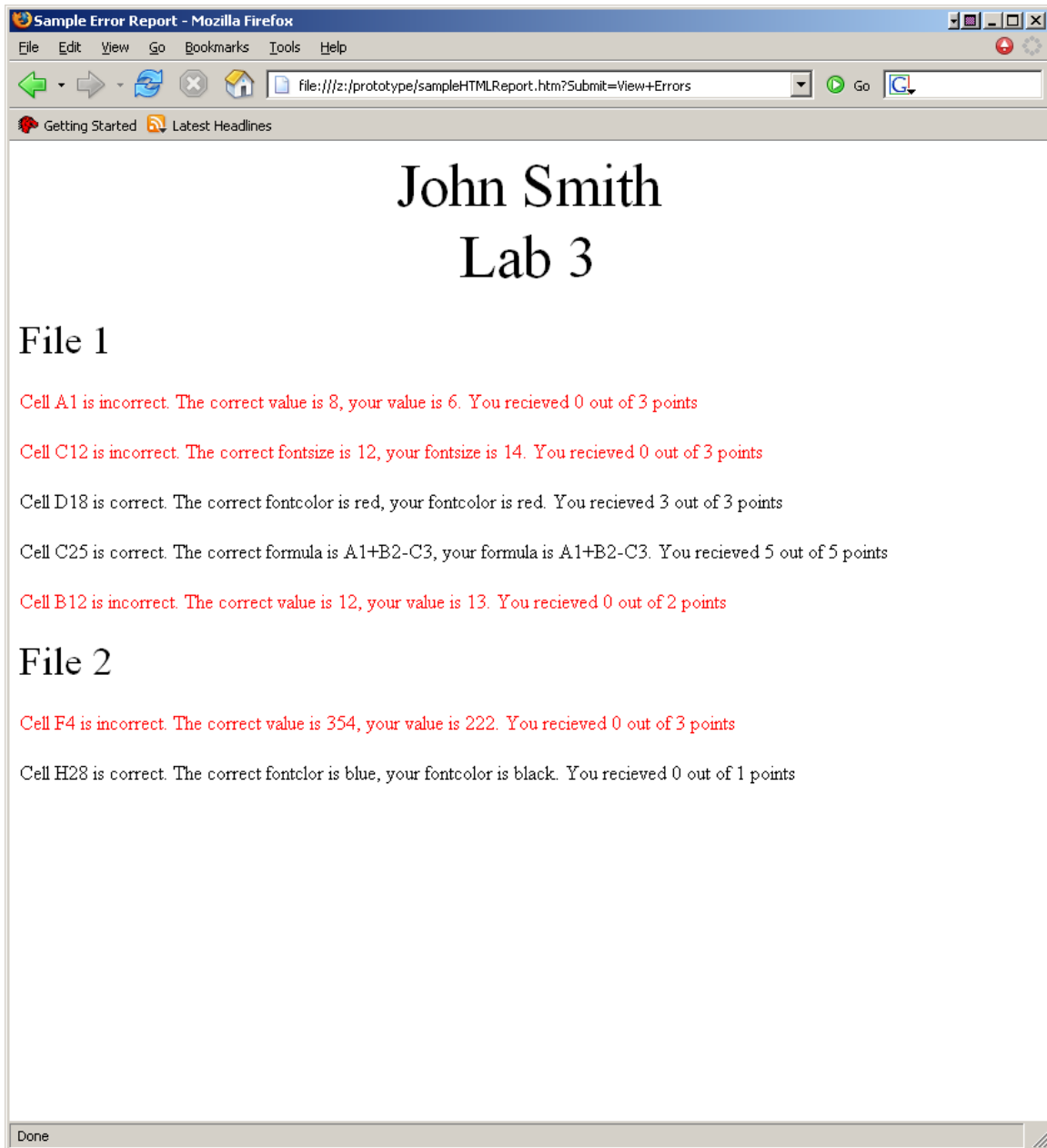
Student View 4:

This screen is where a student can upload their lab files.



Student View 5:

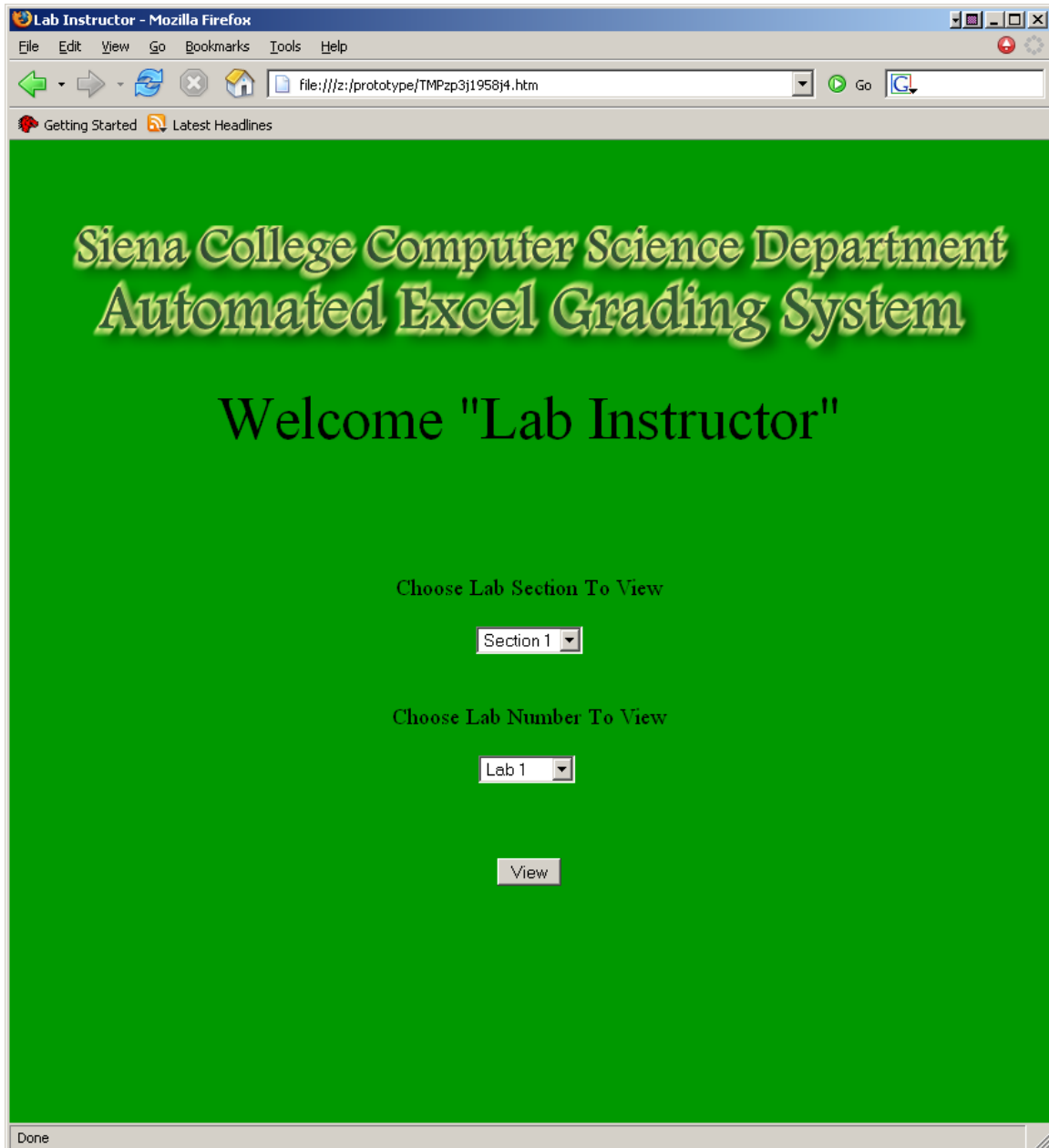
This is the screen of the HTML error report generated for the student.



Lab Instructor Views

Lab Instructor View 1:

This is the area where Lab Instructors will be able to decide which grades they want to view. They will first select which students they want to see: either a single lab section or all of their lab sections. Then they will select if they want to view all labs or a specific lab.



Lab Instructor View 2:

This is where the grades selected in Lab Instructor View 1 are displayed. This is where Lab Instructors can choose to view the graded files, approve the grades and also change the grade if necessary. This screen allows you to see the lab file in excel and also give the instructor and error report.

**Siena College Computer Science Department
Automated Excel Grading System**

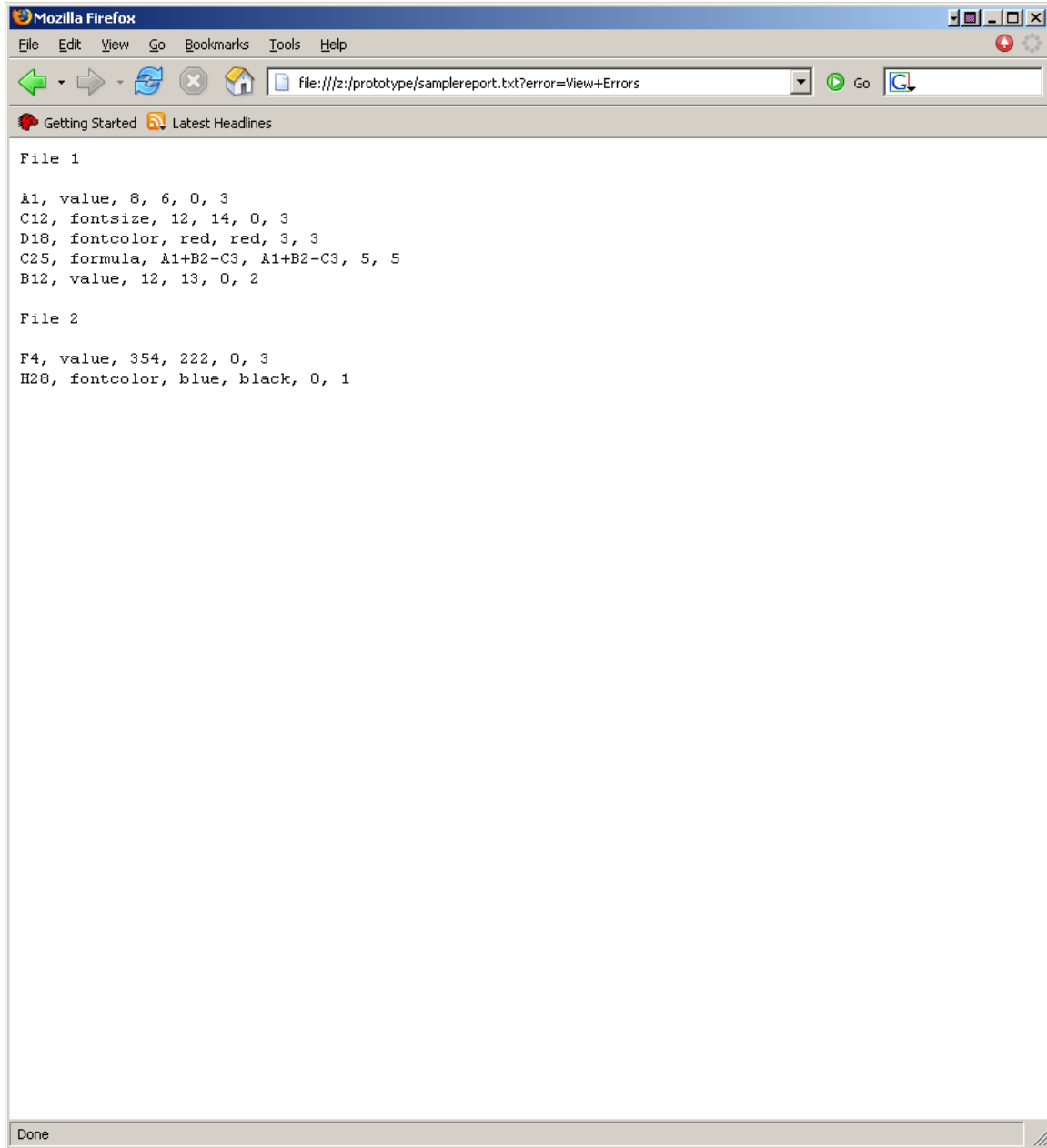
Lab Section #1

Name	Assignment	Total	File 1	File 2	File 3	Date Submitted	Approved
Student, A	Lab 1	72/75	23/25	24/25	25/25	10/18/06	<input type="checkbox"/>
Student, B	Lab 1	70/75	23/25	23/25	24/25	10/18/06	<input type="checkbox"/>

[View Submitted Lab](#) [View Errors](#) [Approve Lab\(s\)](#)

Lab Instructor View 3:

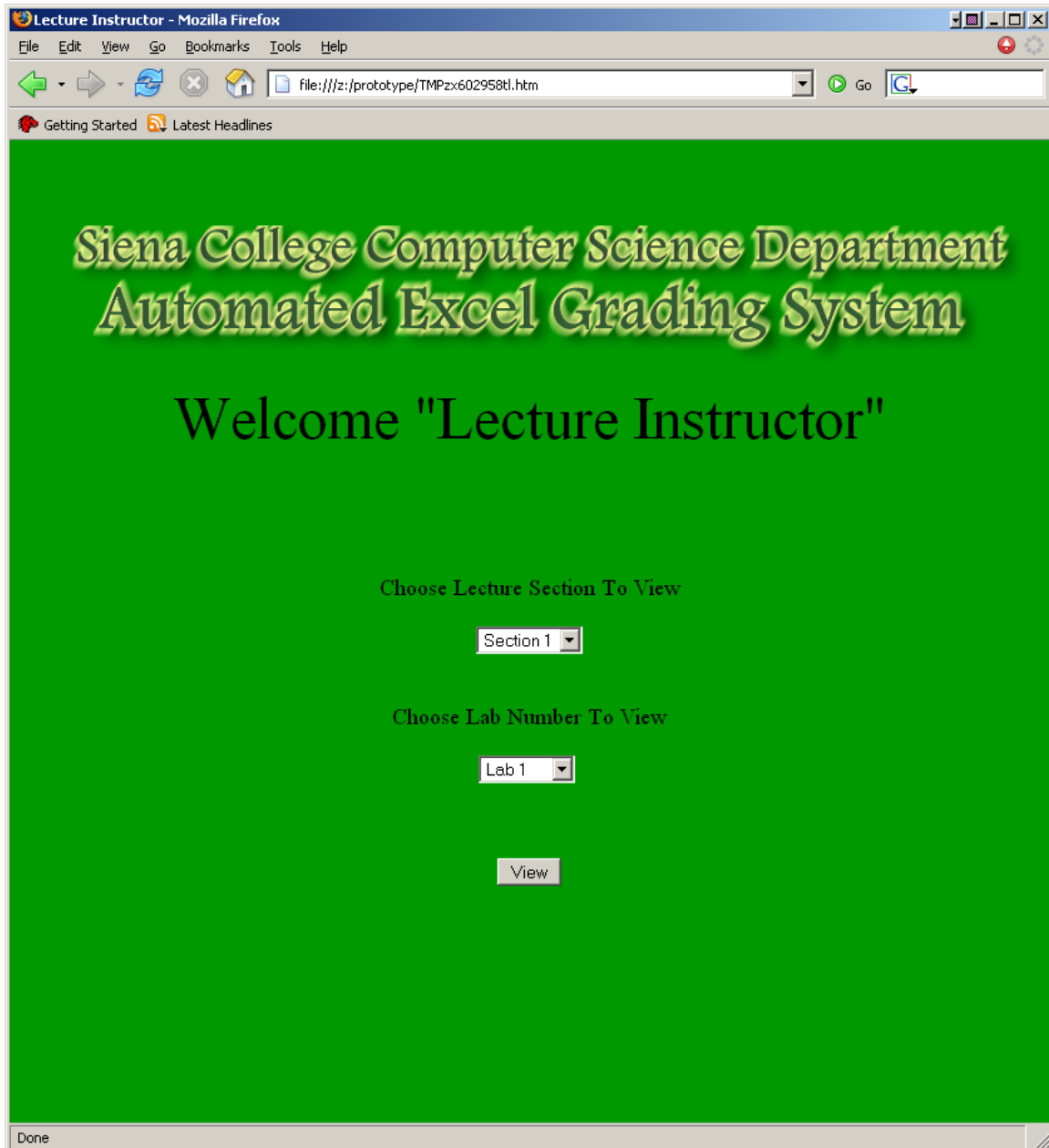
This is the error report that the lab instructor sees. It has everything that was marked incorrect from the excel file. They can edit this report to mark things correct that were marked incorrect by the system but deemed acceptable by the instructor.



Lecture Instructor Views

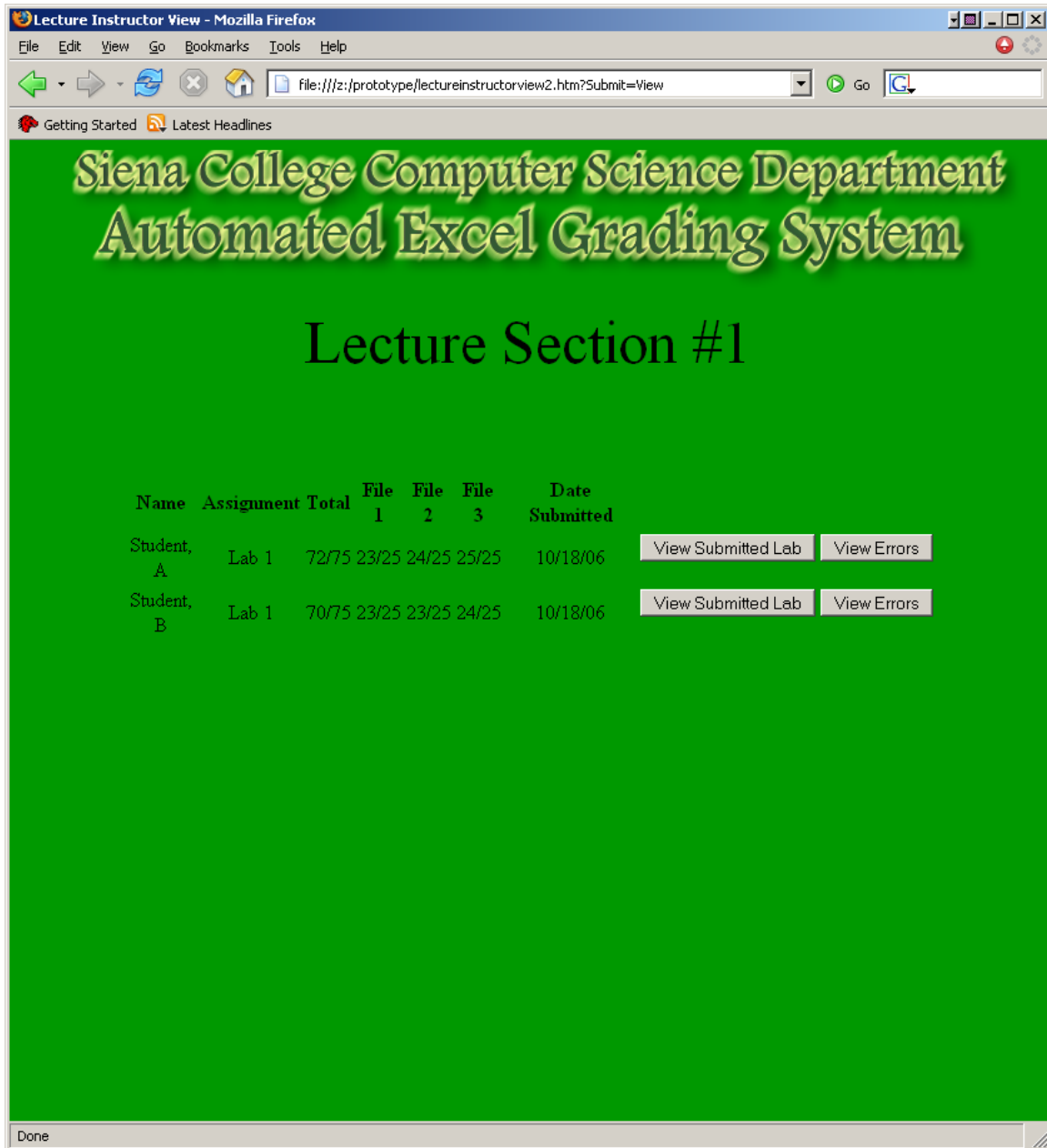
Lecture Instructor View 1:

This is the area where Lecture Instructors will be able to decide what they want to view. They will first select which students they want to see: either a single lecture section or all of their lecture sections. Then they will select if they want to view all labs or a specific lab.



Lecture Instructor View 2:

This is where the grades selected in Lecture Instructor View 1 are displayed. The lecture instructor can view the submitted lab in excel and can also view the error report to the corresponding lab on an HTML page.



Siena College Computer Science Department
Automated Excel Grading System

Lecture Section #1

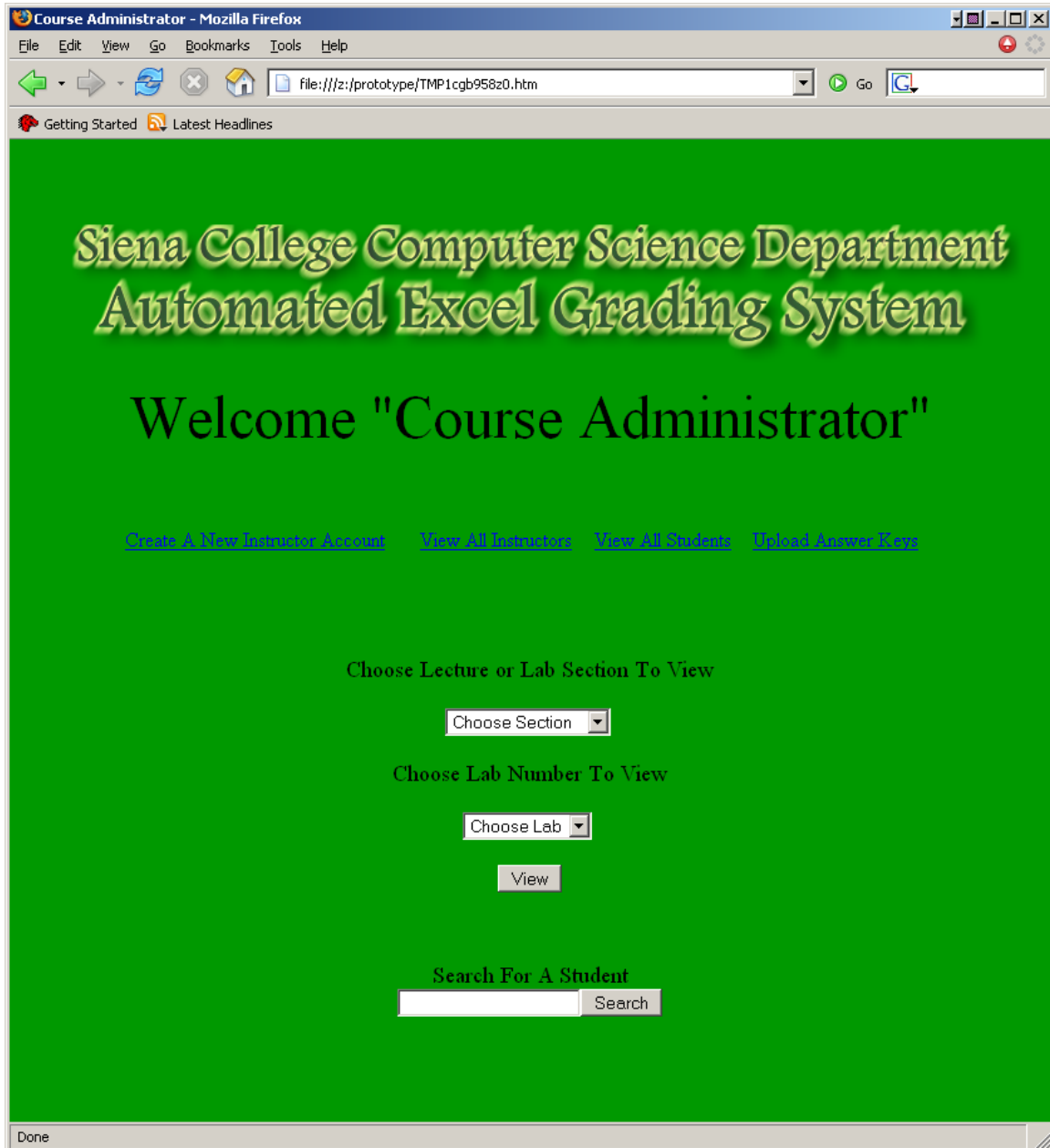
Name	Assignment	Total	File 1	File 2	File 3	Date Submitted		
Student, A	Lab 1	72/75	23/25	24/25	25/25	10/18/06	View Submitted Lab	View Errors
Student, B	Lab 1	70/75	23/25	23/25	24/25	10/18/06	View Submitted Lab	View Errors

Done

Course Administrator Views

Course Administrator View 1:

This is the area where the Course Administrator will be able to decide what they want to view. They will first select which students they want to see: a single lab section, a single lecture session, or all students. Then they will select if they want to view all labs or a specific lab. They can also edit/delete instructors or register new ones. They have the option of searching for a student by name. They can also view all students or all instructors. Finally, they have the option of uploading answer keys on this page.



Course Administrator View 2:

This is where the grades selected in Course Administrator View 1 are displayed. From this screen they will also be able to launch the excel file or view the error reports. Also they have the option of approving the grades as well.

**Siena College Computer Science Department
Automated Excel Grading System
Course Administrator**

Lab Section 1

Name	Assignment	Total	File 1	File 2	File 3	Date Submitted	Approved
Student, A	Lab 1	72/75	23/25	24/25	25/25	10/18/06	<input type="checkbox"/>
Student, B	Lab 1	70/75	23/25	23/25	24/25	10/18/06	<input type="checkbox"/>

[View Submitted Lab](#) [View Errors](#) [Approve Lab\(s\)](#)

Lab Section 2

Name	Assignment	Total	File 1	File 2	File 3	Date Submitted	Approved
Student, A	Lab 1	72/75	23/25	24/25	25/25	10/18/06	<input type="checkbox"/>
Student, B	Lab 1	70/75	23/25	23/25	24/25	10/18/06	<input type="checkbox"/>

[View Submitted Lab](#) [View Errors](#) [Approve Lab\(s\)](#)

Done

Course Administrator View 3:

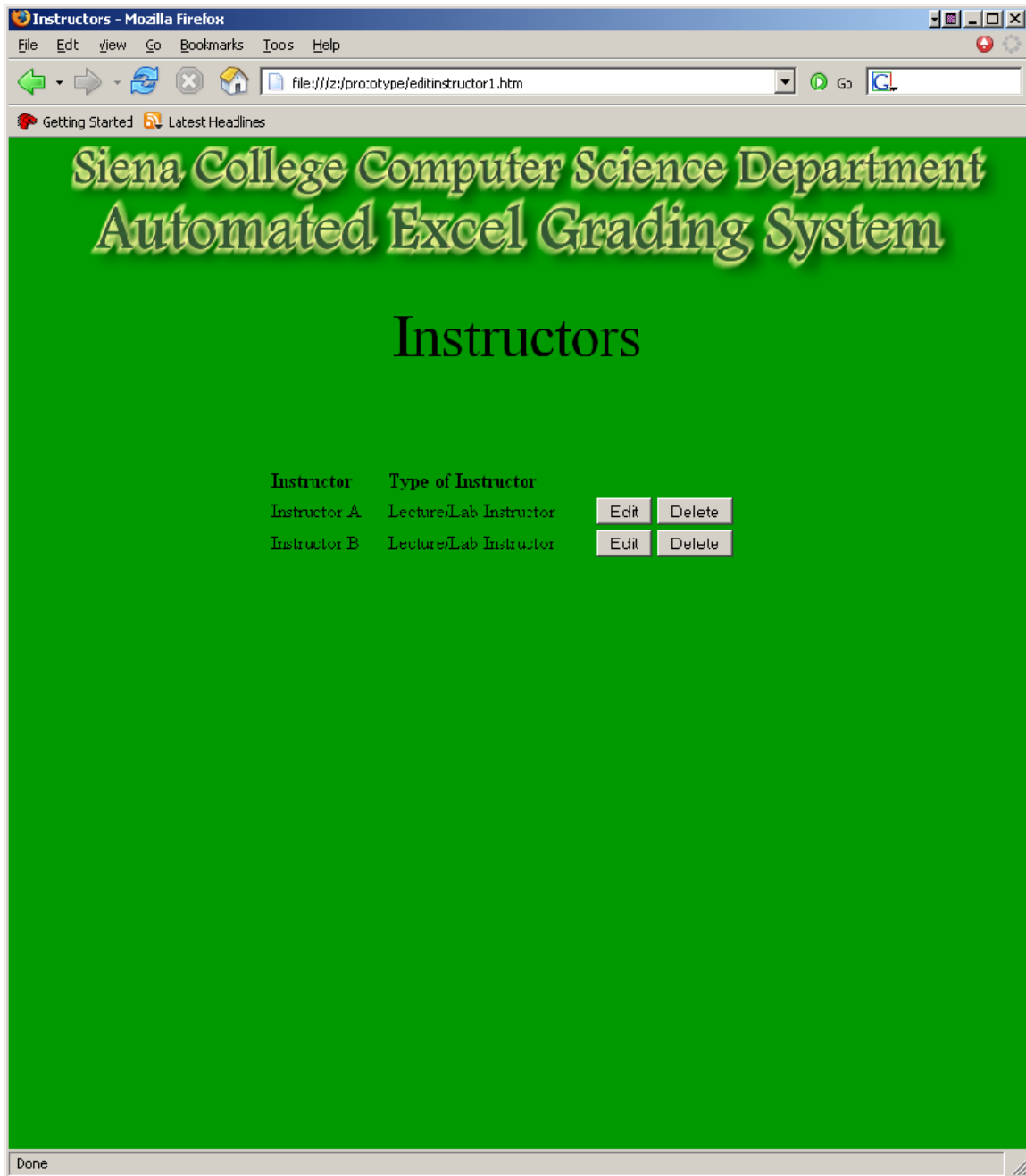
This screen is where the Course Administrator can create a new instructor account. You are able to select which type of instructor they are as well as the corresponding sections they teach.

The screenshot shows a web browser window with the following content:

- Browser title bar: file:///z:/prototype/createaccount.htm
- Page header: Siena College Computer Science Department Automated Excel Grading System
- Section header: Create An Instructor Account
- Form fields:
 - First Name:
 - Last Name:
 - Type Of Instructor:
 - Username:
 - Password:
 - Password (Re-Type):
 - E-Mail Address:
 - Lecture Section(s):
 - Lab Section(s):
- Register button:

Course Administrator View 4:

This screen is where you are able to view all of the instructors. This screen gives you the option of editing or deleting an instructor. (editing screen is in view 5)



Course Administrator View 5:

This screen allows you to change the instructor's information including the type of instructor and the lecture/lab sections.

**Siena College Computer Science Department
Automated Excel Grading System**

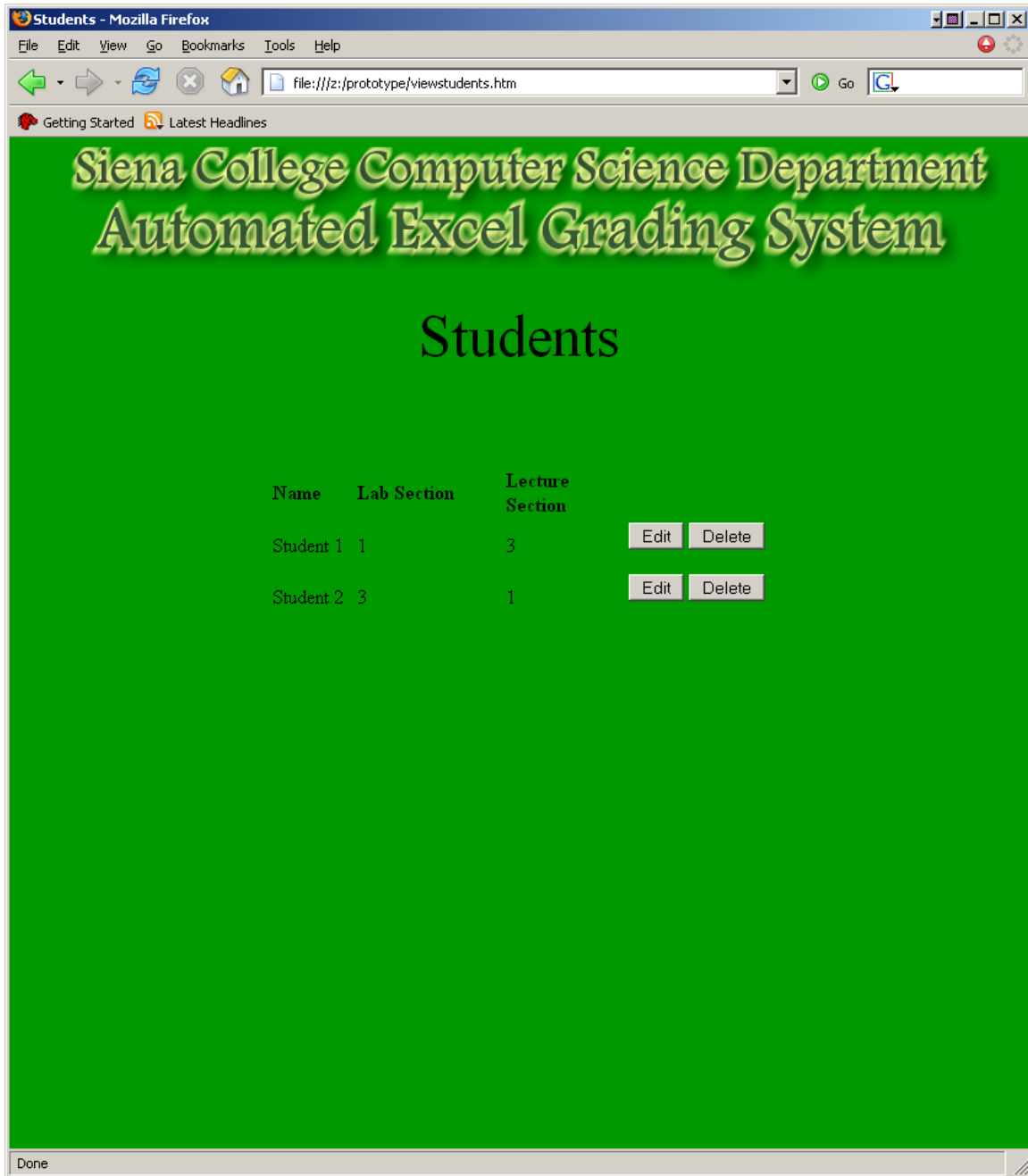
Edit Instructor Account

First Name	<input type="text" value="Scott"/>
Last Name	<input type="text" value="Hunter"/>
Type Of Instructor	<input type="text" value="Both"/>
Username	<input type="text"/>
Password	<input type="password"/>
Password (Re-Type)	<input type="password"/>
E-Mail Address	<input type="text" value="shunter@siena.edu"/>
Lecture Section(s)	<input type="text" value="section 1"/> <input type="text"/> <input type="text"/> <input type="text"/>
Lab Section(s) Your	<input type="text" value="section 1"/> <input type="text"/> <input type="text"/> <input type="text"/>

Done

Course Administrator View 6:

This screen allows you to view all the students taking your class. This screen gives you the option of editing their information or deleting their account.(editing screen in view 7)



The screenshot shows a Mozilla Firefox browser window displaying a web page. The page title is "Students - Mozilla Firefox". The address bar shows the file path: file:///z:/prototype/viewstudents.htm. The page content is on a green background and features the following text:

Siena College Computer Science Department Automated Excel Grading System

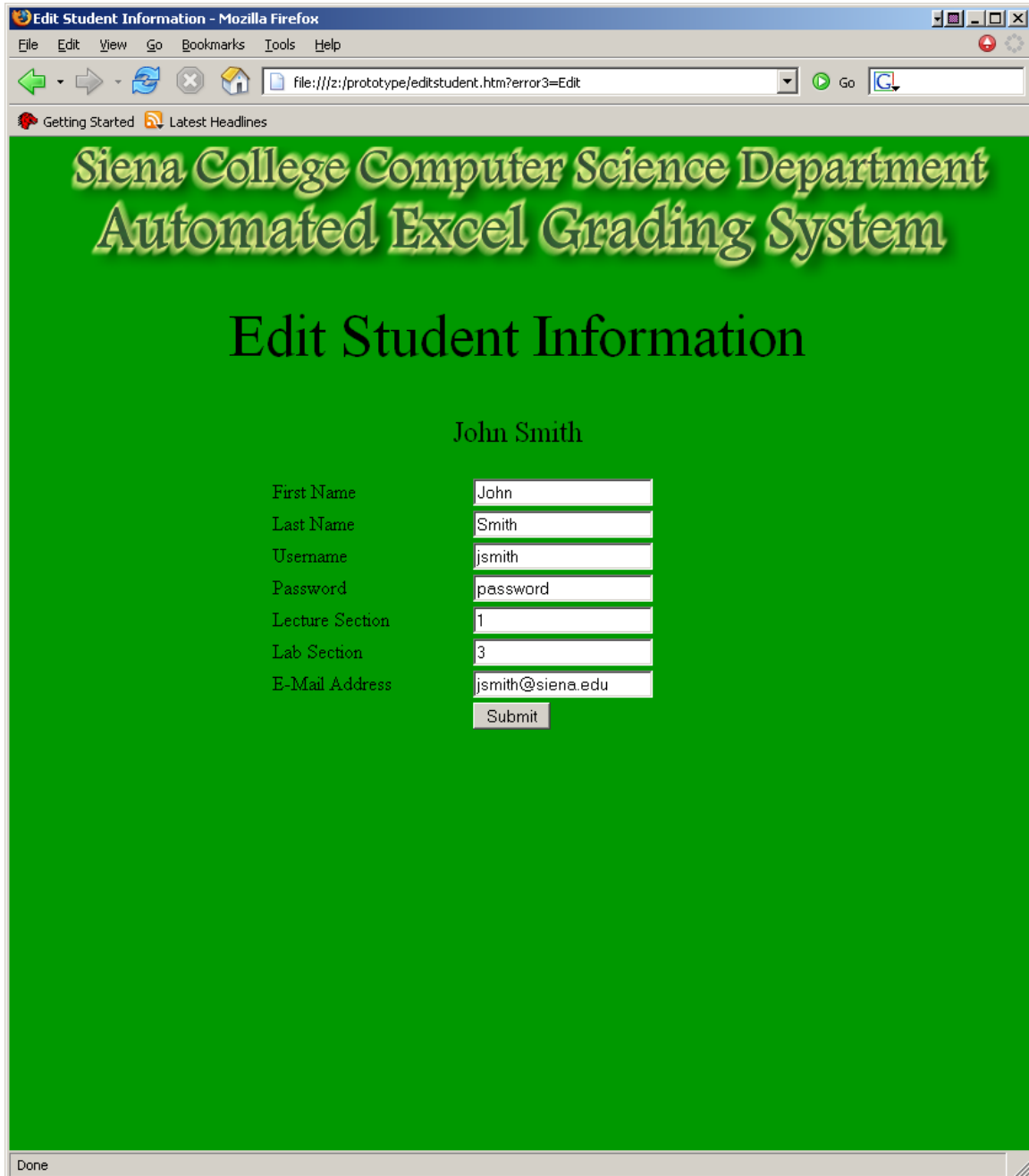
Students

Name	Lab Section	Lecture Section	
Student 1	1	3	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
Student 2	3	1	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

The browser status bar at the bottom shows "Done".

Course Administrator View 7:

When the Course Administrator chooses view all students then clicks the edit button, this screen will show everything stored on this particular students account in separate fields. The Course Administrator will be able to change any of these fields. These fields include name, username, password, lecture section, and lab section.



The screenshot shows a Mozilla Firefox browser window titled "Edit Student Information - Mozilla Firefox". The address bar displays "file:///z:/prototype/editstudent.htm?error3=Edit". The page content is on a green background with the following text and form:

**Siena College Computer Science Department
Automated Excel Grading System**

Edit Student Information

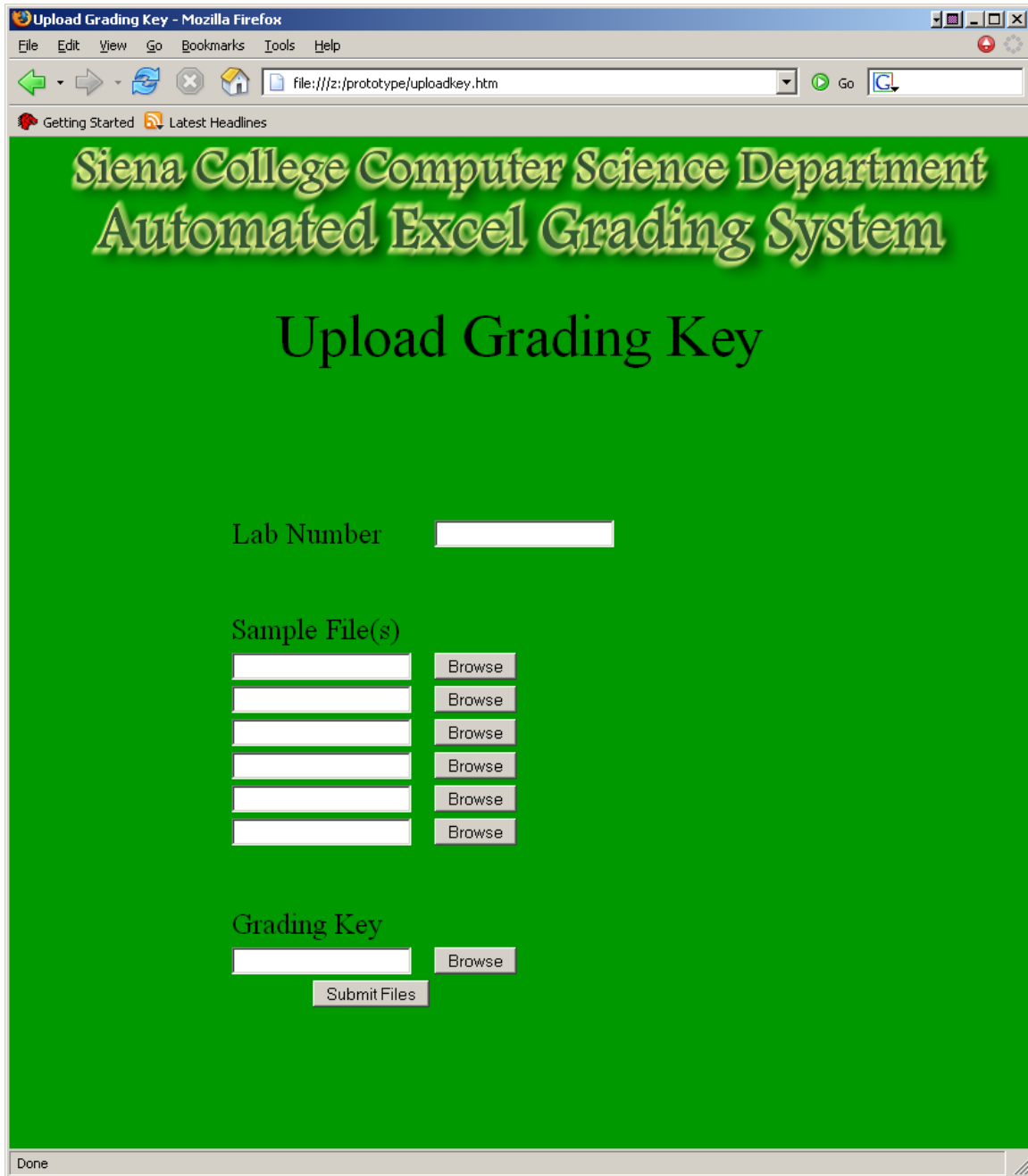
John Smith

First Name	<input type="text" value="John"/>
Last Name	<input type="text" value="Smith"/>
Username	<input type="text" value="jsmith"/>
Password	<input type="text" value="password"/>
Lecture Section	<input type="text" value="1"/>
Lab Section	<input type="text" value="3"/>
E-Mail Address	<input type="text" value="jsmith@siena.edu"/>

Done

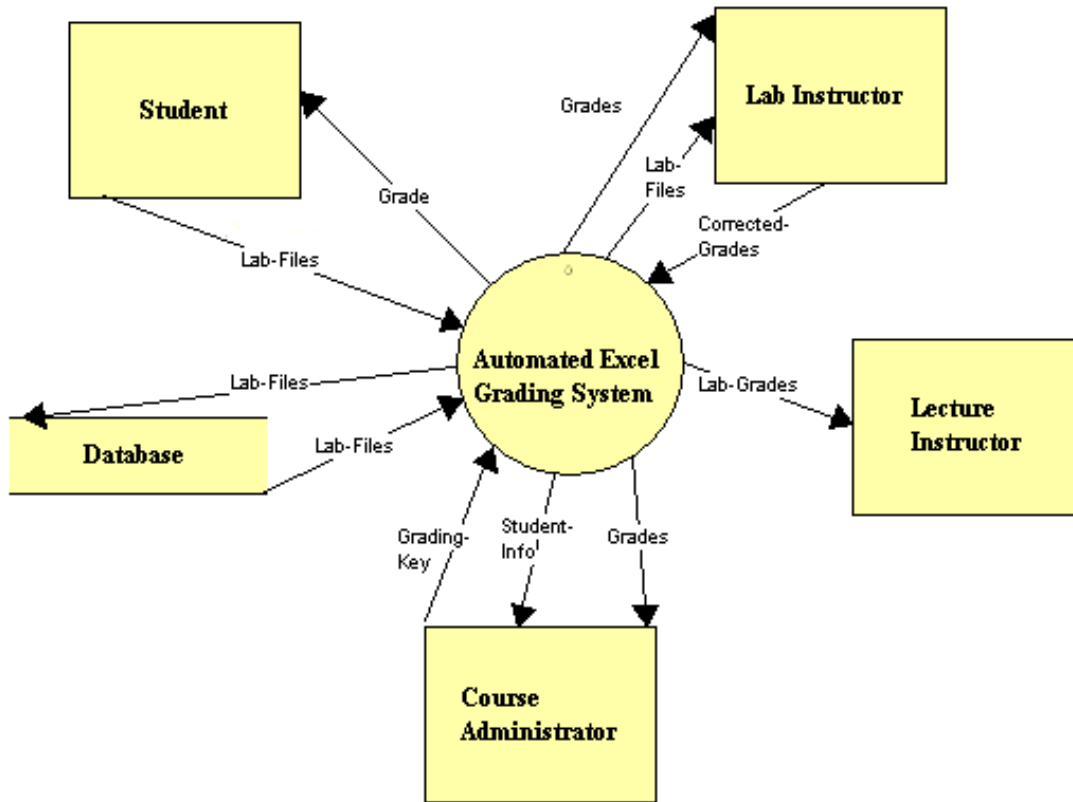
Course Administrator View 8:

This screen is where the Course Administrator can upload their answer keys for the labs. Also this screen allows the Course Administrator to upload sample lab files.

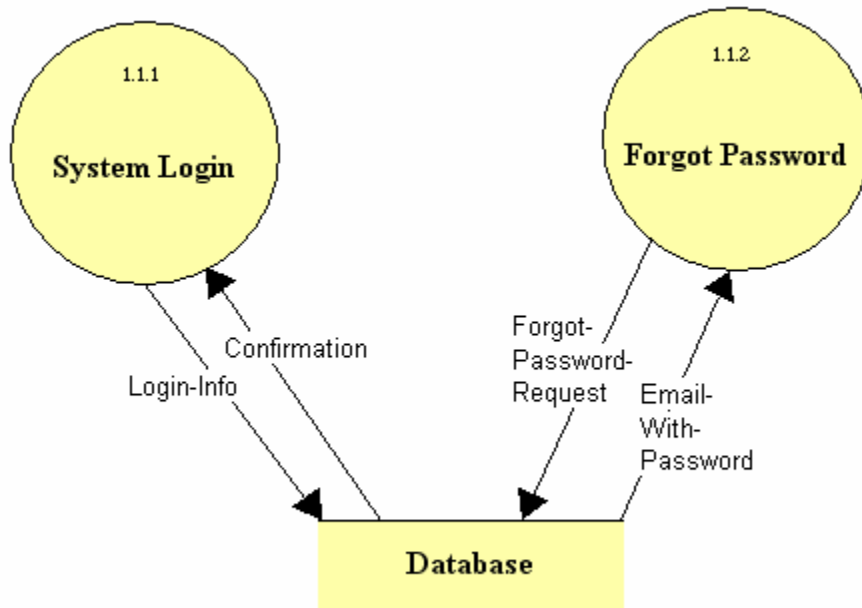
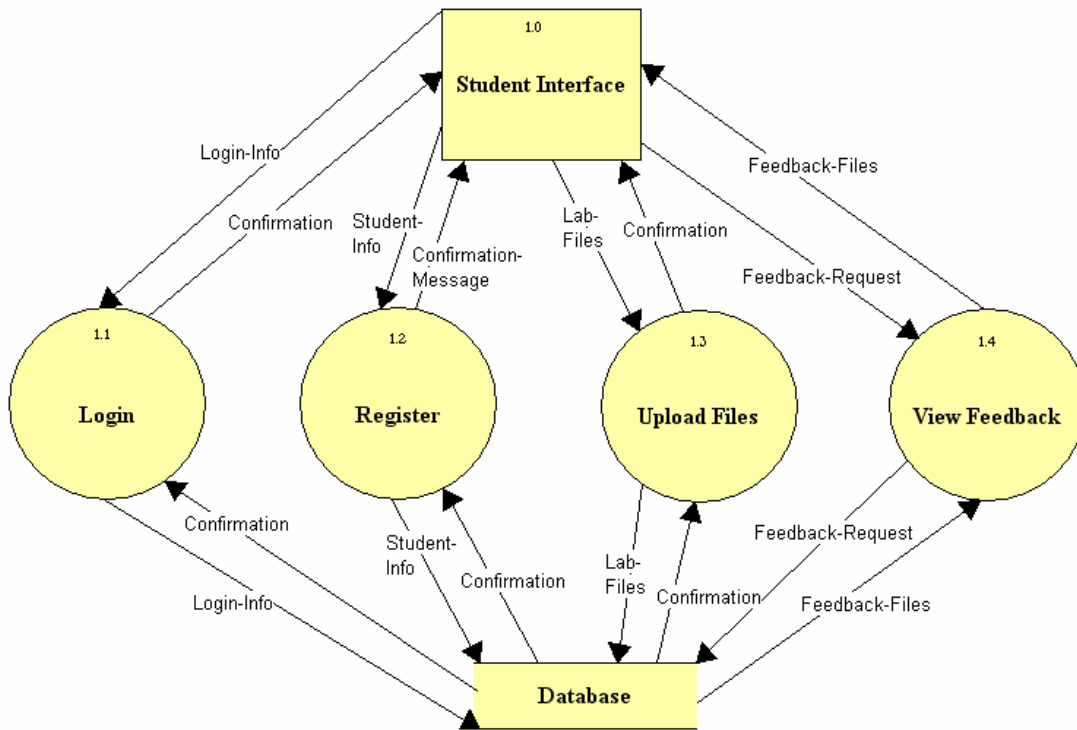


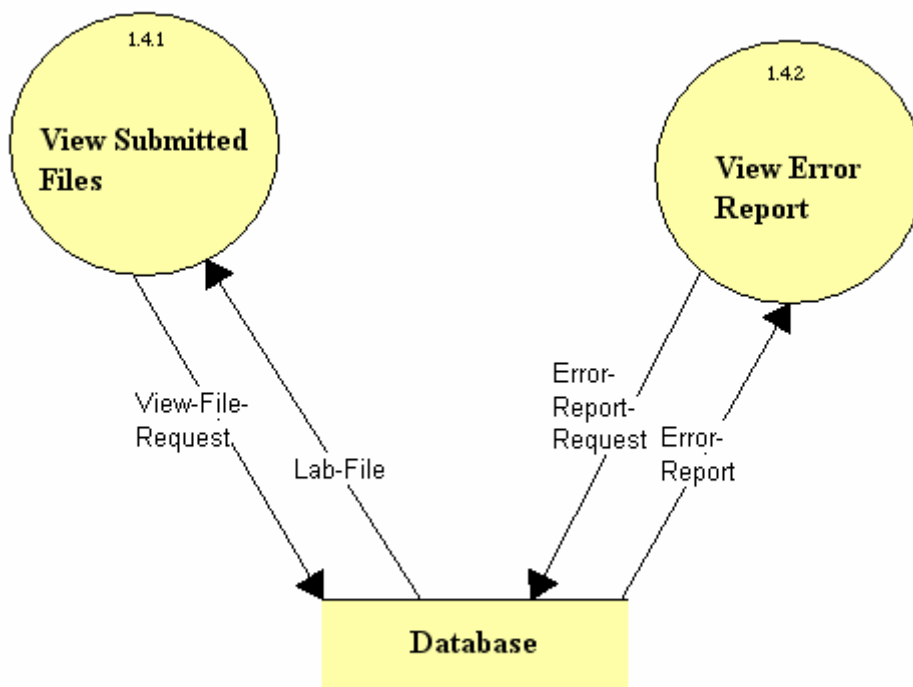
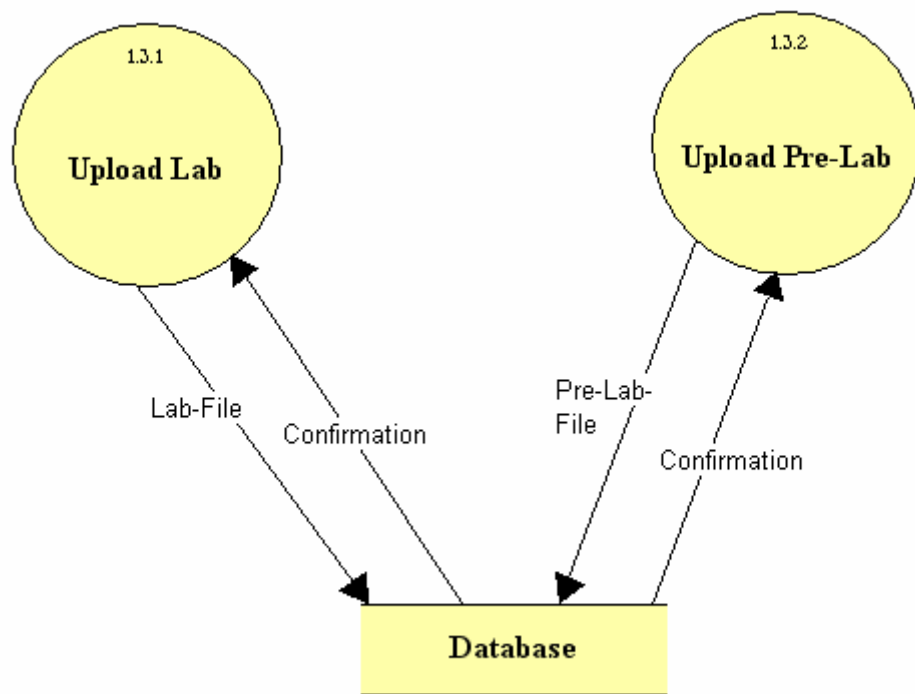
III. Detailed Data Flow Diagrams

Level 0: Context Diagram

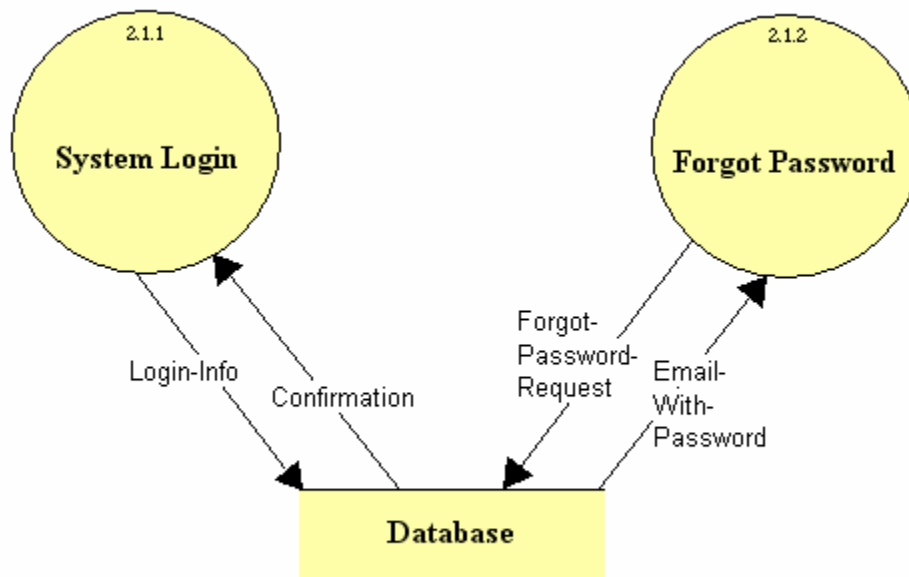
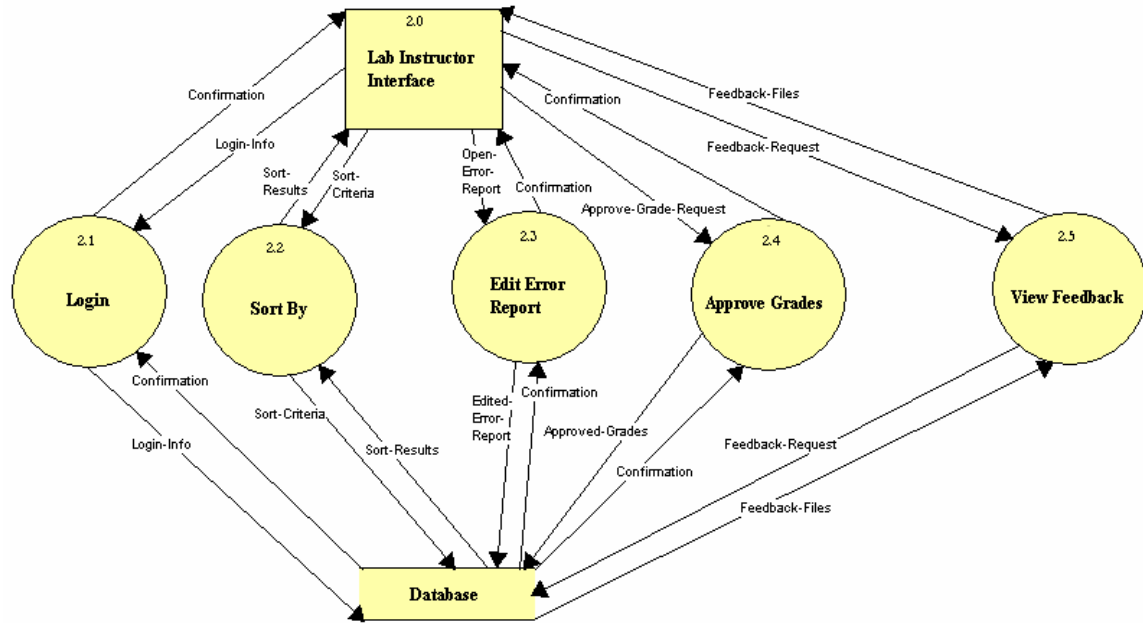


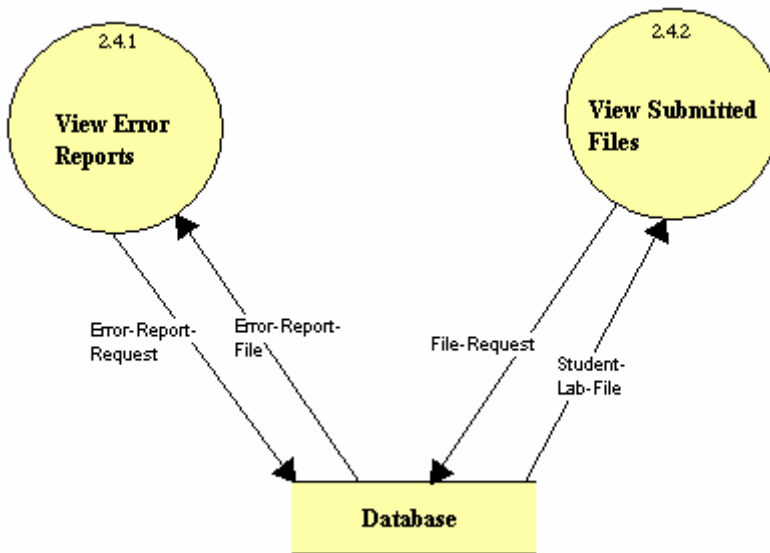
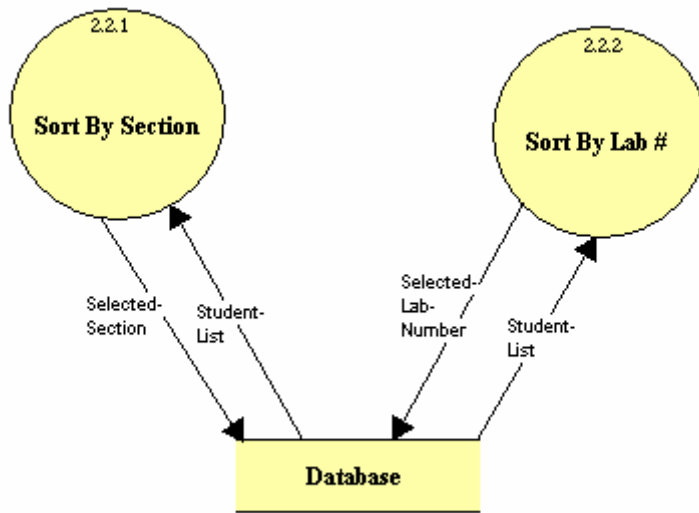
Level 1: Student



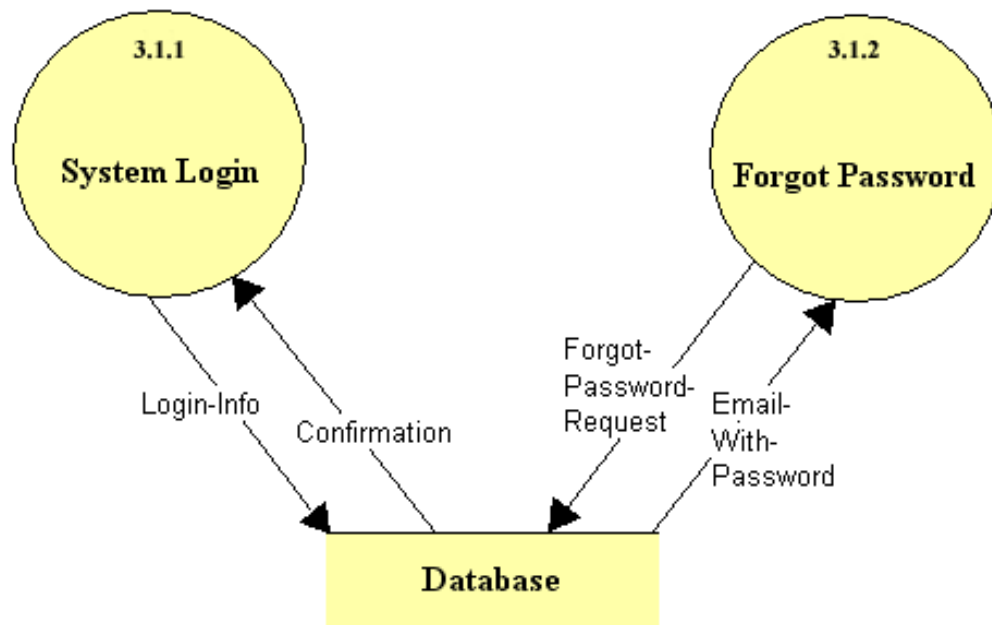
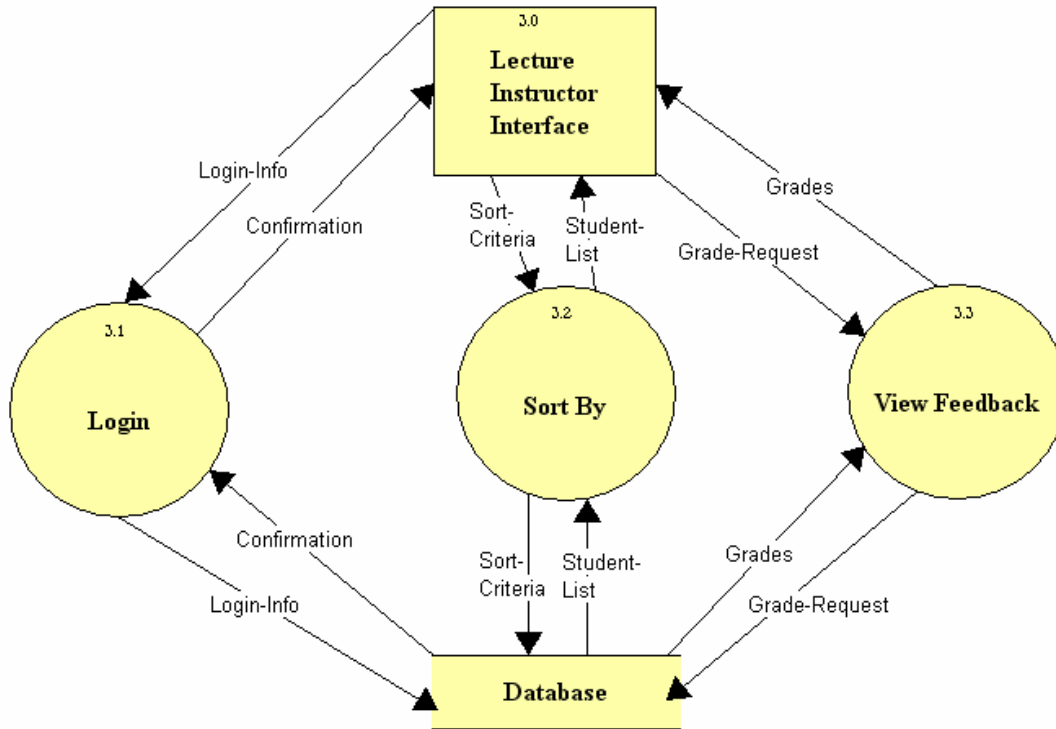


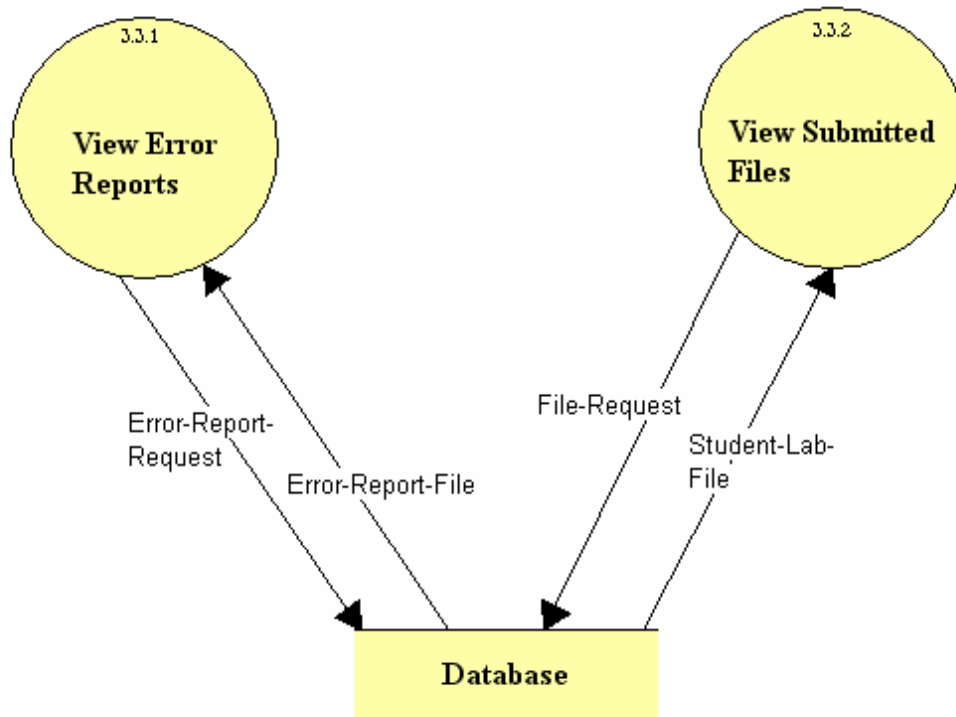
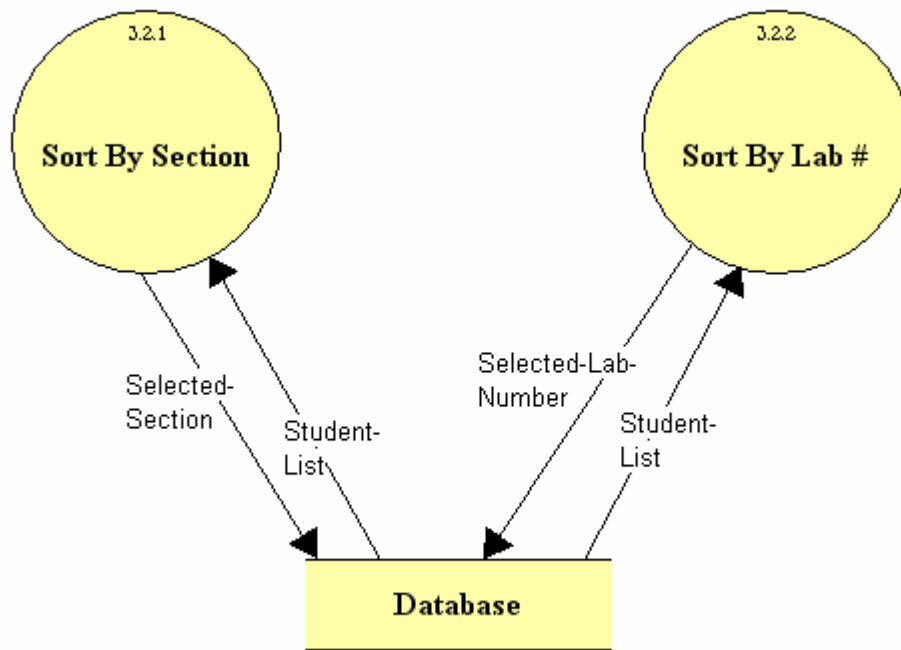
Level 2: Lab Instructor



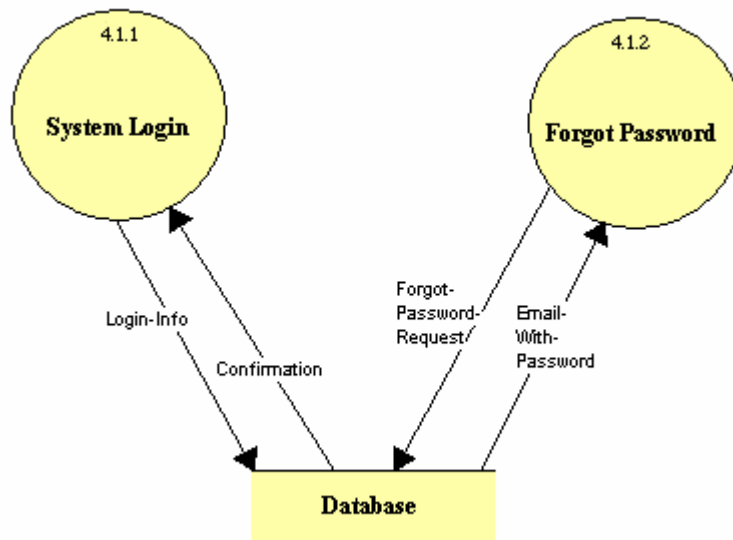
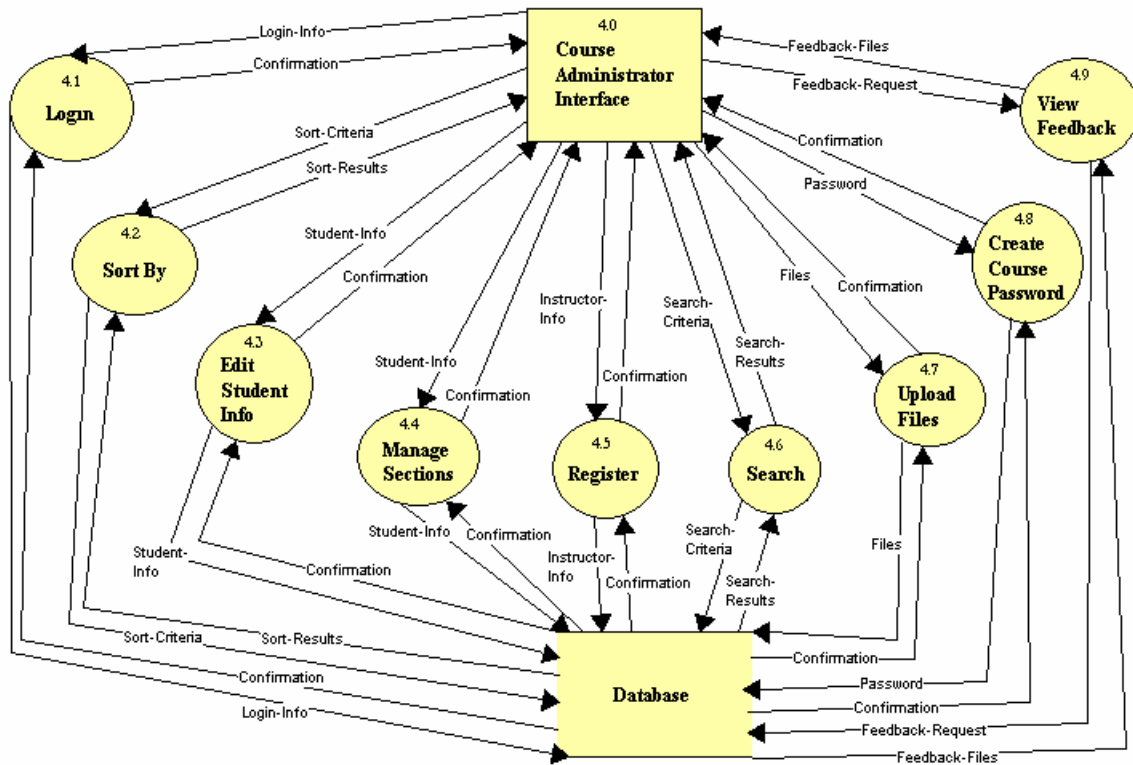


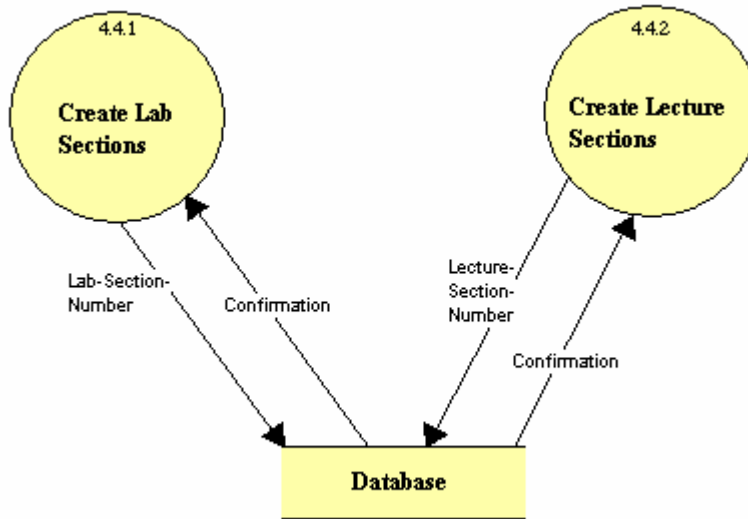
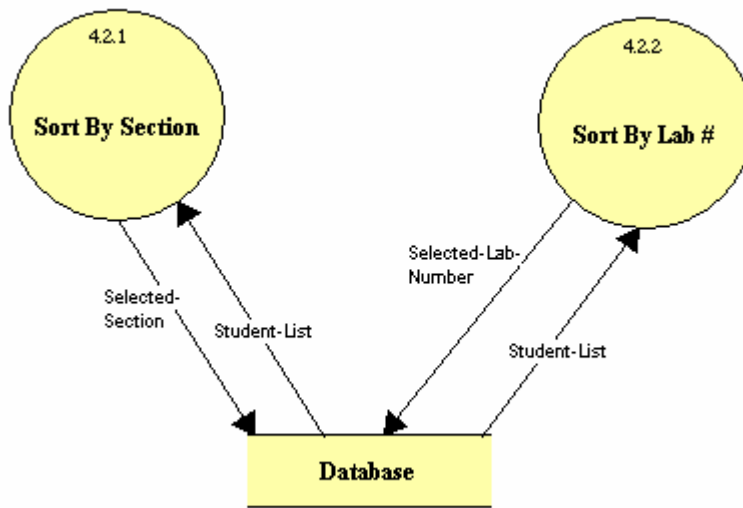
Level 3: Lecture Instructor

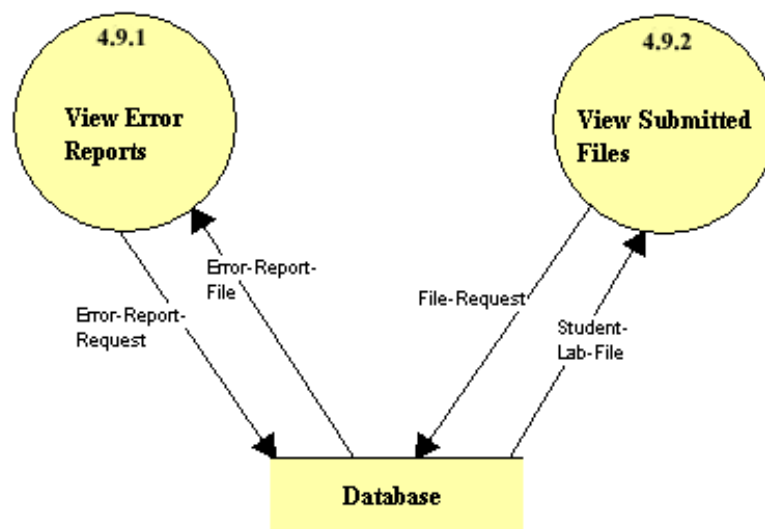
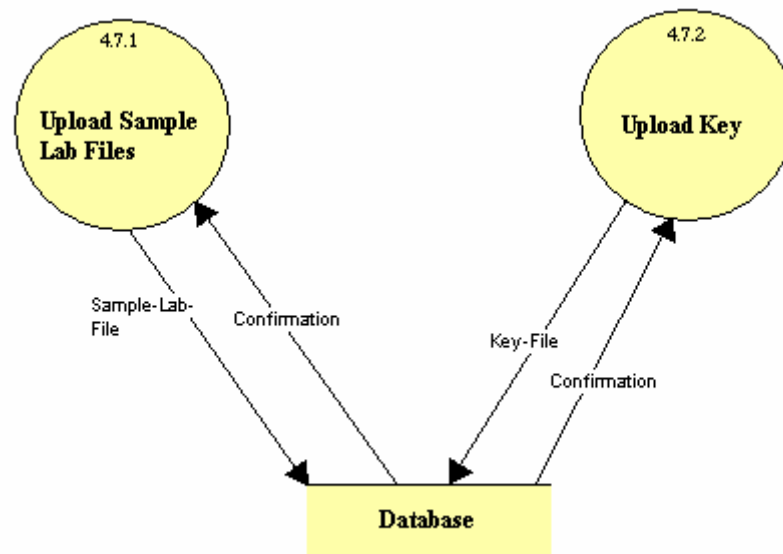
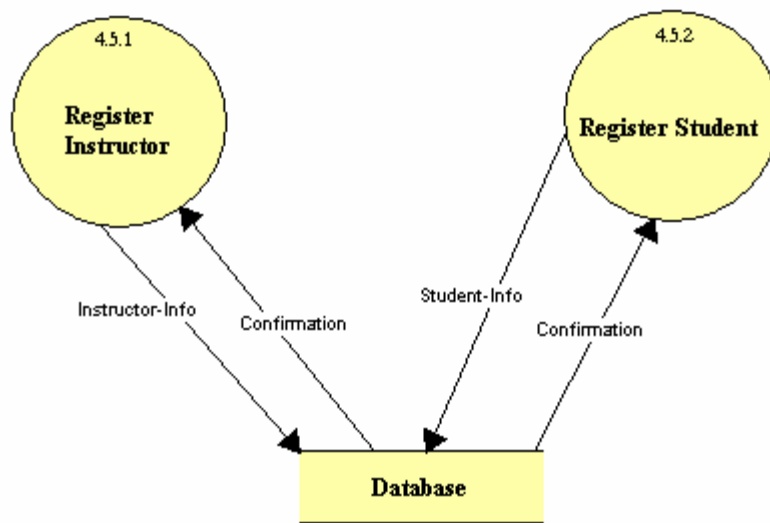




Level 4: Course Administrator







IV. Logical Data Dictionary

Level 0: Context Diagram

Lab Files Data Flow

Source: Student

Destination: Automated Excel Grading System

Description: Lab files will be submitted to the system.

Grade Data Flow

Source: Automated Excel Grading System

Destination: Student

Description: The grades of the lab or pre-labs will be viewed by the student.

Corrected Grades Data Flow

Source: Lab Instructor

Destination: Automated Excel Grading System

Description: The lab instructor will send the verified or corrected grades to the system.

Grades Data Flow

Source: Automated Excel Grading System

Destination: Lab Instructor

Description: The unverified grades will be viewed by the lab instructor.

Lab Files Data Flow

Source: Automated Excel Grading System

Destination: Lab Instructor

Description: The lab instructor will be able to view the student's submitted files.

Lab Grades Data Flow

Source: Automated Excel Grading System

Destination: Lecture Instructor

Description: The lecture instructor can view the student's lab grades.

Grading Key Data Flow

Source: Course Administrator

Destination: Automated Excel Grading System

Description: The course administrator will submit the key for grading.

Student Info Data Flow

Source: Automated Excel Grading System

Destination: Course Administrator

Description: The course administrator can view each student's information.

Grades Data Flow

Source: Automated Excel Grading System

Destination: Course Administrator

Description: The course administrator can view each student's grades.

Lab Files Data Flow

Source: Database

Destination: Automated Excel Grading System

Description: The system will retrieve each student's submitted files from the database.

Lab Files Data Flow

Source: Automated Excel Grading System

Destination: Database

Description: The system will send all the student's files to the database when submitted.

Student Source/Sink

Input Flows: Grade

Output Flows: Lab Files

Description: Student that is enrolled in a lab section.

Lab Instructor Source/Sink

Input Flows: Grade, Lab Files

Output Flows: Corrected Grades

Description: Instructor of one or multiple lab sections. Must verify/correct all grades, and can view each student's submitted files.

Lecture Instructor Source/Sink

Input Flows: Lab Grades

Description: Instructor of one or multiple lecture sections. Can view each student's grades for labs.

Course Administrator Source/Sink

Input Flows: Student Info, Grades

Output Flows: Grading Key

Description: The administrator of the Excel Course. Can submit the grading key and view student information and grades.

Database Data Store

Input Flows: Lab Files

Output Flows: Lab Files

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Level 1: Student

Login Info Data Flow

Source: Student Interface

Destination: Login

Description: Username and password for student.

Confirmation Data Flow

Source: Login

Destination: Student Interface

Description: Acceptance or rejection of login info.

Student Info Data Flow

Source: Student Interface

Destination: Register

Description: Student's registration information.

Confirmation Message Data Flow

Source: Register

Destination: Student Interface

Description: Confirmation sent to the student to confirm registration.

Lab Files Data Flow

Source: Student Interface

Destination: Upload Files

Description: Student's completed lab file.

Confirmation Data Flow

Source: Upload Files

Destination: Student Interface

Description: Confirmation that lab file has been submitted successfully.

Feedback Request Data Flow

Source: Student Interface

Destination: View Feedback

Description: Request for feedback on the submitted lab files.

Feedback Files Data Flow

Source: View Feedback

Destination: Student Interface

Description: Feedback on lab files after grading system completion and lab instructor verification.

Login Info Data Flow

Source: Login

Destination: Database

Description: Username and password for student.

Confirmation Data Flow

Source: Database

Destination: Login

Description: Acceptance or rejection of login info.

Student Info Data Flow

Source: Register

Destination: Database

Description: Student's registration information.

Confirmation Message Data Flow

Source: Database

Destination: Register

Description: Confirmation of successful registration.

Lab Files Data Flow

Source: Upload Files

Destination: Database

Description: Student's completed lab file.

Confirmation Data Flow

Source: Database

Destination: Upload Files

Description: Confirmation that lab file has been submitted successfully.

Feedback Request Data Flow

Source: View Feedback

Destination: Database

Description: Request for feedback on the submitted lab files.

Feedback Files Data Flow

Source: Database

Destination: View Feedback

Description: Feedback on lab files after grading system completion and lab instructor verification.

Student Interface Source/Sink

Input Flows: Confirmation, Confirmation Message, Confirmation, Feedback Files

Output Flows: Login Info, Student Info, Lab Files, Feedback Request

Description: Student's web interface with which they will be able to login, register, upload files, and view feedback.

Login Process

Input Flows: Login Info, Confirmation

Output Flows: Confirmation, Login Info

Description: This process will check the login info against the database and determine whether it is correct or incorrect.

Register Process

Input Flows: Student Info, Confirmation

Output Flows: Confirmation Message, Student Info

Description: The student's will register themselves into the grading system.

Upload Files Process

Input Flows: Lab Files, Confirmation

Output Flows: Confirmation, Lab Files

Description: Student's will upload their completed lab files into the system for grading.

View Feedback Process

Input Flows: Feedback Request, Feedback Files

Output Flows: Feedback Files, Feedback Request

Description: Displays student's feedback on submitted lab files.

Database Data Store

Input Flows: Login Info, Student Info, Lab Files, Feedback Request

Output Flows: Confirmation, Confirmation, Confirmation, Feedback Files

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Student – Login – Level 1.1

Login Info Data Flow

Source: System Login

Destination: Database

Description: Sends student's login info to database.

Confirmation Data Flow

Source: Database

Destination: System Login

Description: Acceptance or rejection of login info.

Forgot Password Request Data Flow

Source: Forgot Password

Destination: Database

Description: Request for email containing password.

Email With Password Data Flow

Source: Database

Destination: Forgot Password

Description: Email containing student's password.

System Login Process

Input Flows: Confirmation

Output Flows: Login Info

Description: Confirms or rejects user's attempt to login with username and password.

Forgot Password Process

Input Flows: Email with password

Output Flows: Forgot Password Request

Description: Sends user an email containing password.

Database Data Store

Input Flows: Login Info, Forgot Password Request

Output Flows: Confirmation, Email With Password

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Student – Upload Files – Level 1.3

Lab File Data Flow

Source: Upload Lab

Destination: Database

Description: Student's completed lab file.

Confirmation Data Flow

Source: Database

Destination: Upload Lab

Description: Confirmation that lab file has been submitted successfully.

Pre Lab File Data Flow

Source: Upload Pre Lab

Destination: Database

Description: Student's completed pre lab file.

Confirmation Data Flow

Source: Database

Destination: Upload Pre Lab

Description: Confirmation that pre lab file has been submitted successfully.

Upload Lab Process

Input Flows: Confirmation

Output Flows: Lab File

Description: Student uploads completed lab file to system for grading.

Upload Pre Lab Process

Input Flows: Confirmation

Output Flows: Pre Lab File

Description: Student uploads completed pre lab file to system for grading.

Database Data Store

Input Flows: Lab File, Pre Lab File

Output Flows: Confirmation, Confirmation

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Student – View Feedback – Level 1.4

View File Request Data Flow

Source: View Submitted Files

Destination: Database

Description: Student's request view previously submitted lab files.

Lab File Data Flow

Source: Database

Destination: View Submitted Files

Description: Student's previously submitted lab files.

Error Report Request Data Flow

Source: View Error Report

Destination: Database

Description: Request to view error report generated by grading system.

Error Report Data Flow

Source: Database

Destination: View Error Report

Description: Error Report generated by grading system.

View Submitted Files Process

Input Flows: Lab File

Output Flows: View File Request

Description: Displays student's submitted lab file from database.

View Error Report Process

Input Flows: Error Report

Output Flows: Error Report Request

Description: Displays student's error report generated by grading system.

Database Data Store

Input Flows: View File Request

Output Flows: Error Report Request

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Level 2: Lab Instructor

Login Info Data Flow

Source: Lab Instructor Interface

Destination: Login

Description: Username and password for lab instructor.

Confirmation Data Flow

Source: Login

Destination: Lab Instructor Interface

Description: Acceptance or rejection of login info.

Sort Criteria Data Flow

Source: Lab Instructor Interface

Destination: Sort by

Description: The method which the lab instructor would like to sort students by.

Sort Results Data Flow

Source: Sort by

Destination: Lab Instructor Interface

Description: The resulting list of students determined by the selected sort criteria.

Open Error Report Data Flow

Source: Lab Instructor Interface

Destination: Edit Error Report

Description: Request to open error report generated by the system.

Confirmation Data Flow

Source: Edit Error Report

Destination: Lab Instructor Interface

Description: Confirmation that edited error report has been successfully submitted.

Approve Grade Request Data Flow

Source: Lab Instructor Interface

Destination: Approve Grades

Description: Request to approve grades generated by the system.

Confirmation Data Flow

Source: Approve Grades

Destination: Lab Instructor Interface

Description: Confirmation that approved grades have been successfully submitted.

Feedback Request Data Flow

Source: View Feedback

Destination: Lab Instructor Interface

Description: Request to view feedback generated by grading system.

Feedback Files Data Flow

Source: View Feedback

Destination: Lab Instructor Interface

Description: Feedback generated by the grading system.

Login Info Data Flow

Source: Login

Destination: Database

Description: Username and password for lab instructor.

Confirmation Data Flow

Source: Database

Destination: Login

Description: Acceptance or rejection of login info.

Sort Criteria Data Flow

Source: Sort By

Destination: Database

Description: The method which the lab instructor would like to sort students by.

Sort Results Data Flow

Source: Database

Destination: Sort By

Description: The resulting list of students determined by the selected sort criteria.

Edited Error Report Data Flow

Source: Edit Error Report

Destination: Database

Description: Error report that has been edited by lab instructor.

Confirmation Data Flow

Source: Database

Destination: Edit Error Report

Description: Confirmation that edited error report has been submitted successfully.

Approved Grades Data Flow

Source: Approve Grades

Destination: Database

Description: Grades that have been approved by Lab Instructor.

Confirmation Data Flow

Source: Database

Destination: Approve Grades

Description: Confirmation that approved grades have been submitted successfully.

Feedback Request Data Flow

Source: View Feedback

Destination: Database

Description: Request to view feedback generated by grading system.

Feedback Files Data Flow

Source: View Feedback

Destination: Database

Description: Feedback files that have been generated by grading system.

Lab Instructor Interface Source/Sink

Input Flows: Confirmation, Sort Results, Confirmation, Confirmation, Feedback Files

Output Flows: Login Info, Sort Criteria, Open Error Report, Approve Grade Request, Feedback Request

Description: Lab instructors web interface with which they will be able to login, sort students, edit error reports, approve student grades, and view feedback generated by the grading system.

Login Process

Input Flows: Login Info, Confirmation

Output Flows: Confirmation, Login Info

Description: This process will check the login info against the database and determine whether it is correct or incorrect.

Sort By Process

Input Flows: Sort Criteria, Sort Results

Output Flows: Sort Results, Sort Criteria

Description: This process will send the sort criteria to the database and take the resulting student list and send it to the lab instructor interface.

Edit Error Report Process

Input Flows: Open Error Report, Confirmation

Output Flows: Edited Error Report, Confirmation

Description: This process is where the lab instructor will be able to edit the error report generated by the grading system.

Approve Grades Process

Input Flows: Approve Grade Request, Confirmation

Output Flows: Confirmation, Approved Grades

Description: This process is where the lab instructor will approve the grades generated by the grading system.

View Feedback Process

Input Flows: Feedback Request, Feedback Files

Output Flows: Feedback Files, Feedback Request

Description: Displays the feedback generated by the grading system to the lab instructor.

Database Data Store

Input Flows: Login Info, Sort Criteria, Edited Error Report, Approved Grades, Feedback Request

Output Flows: Confirmation, Sort Results, Confirmation, Confirmation, Feedback Files

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Lab Instructor – Login – Level 2.1

Login Info Data Flow

Source: System Login

Destination: Database

Description: Sends lab instructor's login info to database.

Confirmation Data Flow

Source: Database

Destination: System Login

Description: Acceptance or rejection of login info.

Forgot Password Request Data Flow

Source: Forgot Password

Destination: Database

Description: Request for email containing password.

Email With Password Data Flow

Source: Database

Destination: Forgot Password

Description: Email containing lab instructor's password.

System Login Process

Input Flows: Confirmation

Output Flows: Login Info

Description: Confirms or rejects user's attempt to login with username and password.

Forgot Password Process

Input Flows: Email with password

Output Flows: Forgot Password Request

Description: Sends user an email containing password.

Database Data Store

Input Flows: Login Info, Forgot Password Request

Output Flows: Confirmation, Email With Password

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Lab Instructor – Sort By – Level 2.2

Selected Section Data Flow

Source: Sort By Section

Destination: Database

Description: Selection that lab instructor would like to sort by section.

Student List Data Flow

Source: Database

Destination: Sort By Section

Description: Resulting student list when sorted by section.

Selected Lab Number Data Flow

Source: Sort By Lab #

Destination: Database

Description: Selection that lab instructor would like to sort by lab number.

Student List Data Flow

Source: Database

Destination: Sort By Lab #

Description: Resulting student list when sorted by lab #.

Sort By Section Process

Input Flows: Student List

Output Flows: Selected Section

Description: Sorts all students by their assigned section.

Sort By Lab # Process

Input Flows: Student List

Output Flows: Selected Lab Number

Description: Sorts all students by each assigned lab number.

Database Data Store

Input Flows: Selected Section, Selected Lab Number

Output Flows: Student List, Student List

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Lab Instructor – View Feedback – Level 2.5

Error Report Request Data Flow

Source: View Error Reports

Destination: Database

Description: Lab Instructor's request to view student's error report.

Error Report File Data Flow

Source: Database

Destination: View Error Reports

Description: Student's error report after grading by the system.

File Request Data Flow

Source: View Submitted Files

Destination: Database

Description: Lab Instructor's request to view student's lab files.

Student Lab File Data Flow

Source: Database

Destination: View Submitted Files

Description: Student's original lab files that were submitted to the system.

View Error Reports Process

Input Flows: Error Report File

Output Flows: Error Report Request

Description: Displays student's error reports to the lab instructor.

View Submitted Files Process

Input Flows: Student Lab File

Output Flows: File Request

Description: Displays student's original lab files that were submitted to the system.

Database Data Store

Input Flows: Error Report Request, File Request

Output Flows: Error Report File, Student Lab File

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Level 3: Lecture Instructor

Login Info Data Flow

Source: Lecture Instructor Interface

Destination: Login

Description: Username and password for lecture instructor.

Confirmation Data Flow

Source: Login

Destination: Lecture Instructor Interface

Description: Acceptance or rejection of login info.

Sort Criteria Data Flow

Source: Lecture Instructor Interface

Destination: Sort by

Description: The method which the lecture instructor would like to sort students by.

Student List Data Flow

Source: Sort by

Destination: Lecture Instructor Interface

Description: The resulting list of students determined by the selected sort criteria.

Grade Request Data Flow

Source: Lecture Instructor Interface

Destination: View Feedback

Description: The request to view student's grades generated by the system.

Grades Data Flow

Source: View Feedback

Destination: Lecture Instructor Interface

Description: The grades generated by the system for viewing by the lecture instructor.

Grade Request Data Flow

Source: View Feedback

Destination: Database

Description: The request to retrieve student's grades generated by the system.

Grades Data Flow

Source: Database

Destination: View Feedback

Description: The grades generated by the system for viewing by the lecture instructor.

Sort Criteria Data Flow

Source: Sort by

Destination: Database

Description: The method which the lecture instructor would like to sort students by.

Student List Data Flow

Source: Database

Destination: Sort by

Description: The resulting list of students determined by the selected sort criteria.

Login Info Data Flow

Source: Login

Destination: Database

Description: Username and password for lecture instructor.

Confirmation Data Flow

Source: Database

Destination: Login

Description: Acceptance or rejection of login info.

Lecture Instructor Interface Source/Sink

Input Flows: Grades, Confirmation, Student List

Output Flows: Grade Request, Login Info, Sort Criteria

Description: Lecture instructors web interface with which they will be able to login, view student's grades, and sort students.

Login Process

Input Flows: Login Info, Confirmation

Output Flows: Confirmation, Login Info

Description: This process will check the login info against the database and determine whether it is correct or incorrect.

Sort By Process

Input Flows: Sort Criteria, Student List

Output Flows: Student List, Sort Criteria

Description: This process will send the sort criteria to the database and take the

resulting student list and send it to the lecture instructor interface.

View Feedback Process

Input Flows: Grade Request, Grades

Output Flows: Grades, Grade Request

Description: This process will get the requested student grades from the database and send them to the lecture instructor interface.

Database Data Store

Input Flows: Login Info, Sort Criteria, Grade Request

Output Flows: Confirmation, Student List, Grades

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Lecture Instructor – Login – Level 3.1

Login Info Data Flow

Source: System Login

Destination: Database

Description: Sends lecture instructor's login info to database.

Confirmation Data Flow

Source: Database

Destination: System Login

Description: Acceptance or rejection of login info.

Forgot Password Request Data Flow

Source: Forgot Password

Destination: Database

Description: Request for email containing password.

Email With Password Data Flow

Source: Database

Destination: Forgot Password

Description: Email containing lecture instructor's password.

System Login Process

Input Flows: Confirmation

Output Flows: Login Info

Description: Confirms or rejects user's attempt to login with username and password.

Forgot Password Process

Input Flows: Email with password

Output Flows: Forgot Password Request

Description: Sends user an email containing password.

Database Data Store

Input Flows: Login Info, Forgot Password Request

Output Flows: Confirmation, Email With Password

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Lecture Instructor – Sort By – Level 3.2

Selected Section Data Flow

Source: Sort By Section

Destination: Database

Description: Selection that lecture instructor would like to sort by section.

Student List Data Flow

Source: Database

Destination: Sort By Section

Description: Resulting student list when sorted by section.

Selected Lab Number Data Flow

Source: Sort By Lab #

Destination: Database

Description: Selection that lecture instructor would like to sort by lab number.

Student List Data Flow

Source: Database

Destination: Sort By Lab #

Description: Resulting student list when sorted by lab #.

Sort By Section Process

Input Flows: Student List

Output Flows: Selected Section

Description: Sorts all students by their assigned section.

Sort By Lab # Process

Input Flows: Student List

Output Flows: Selected Lab Number

Description: Sorts all students by each assigned lab number.

Database Data Store

Input Flows: Selected Section, Selected Lab Number

Output Flows: Student List, Student List

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Lecture Instructor – View Feedback – Level 3.3

Error Report Request Data Flow

Source: View Error Reports

Destination: Database

Description: Lecture Instructor's request to view student's error report.

Error Report File Data Flow

Source: Database

Destination: View Error Reports

Description: Student's error report after grading by the system.

File Request Data Flow

Source: View Submitted Files

Destination: Database

Description: Lecture Instructor's request to view student's lab files.

Student Lab File Data Flow

Source: Database

Destination: View Submitted Files

Description: Student's original lab files that were submitted to the system.

View Error Reports Process

Input Flows: Error Report File

Output Flows: Error Report Request

Description: Displays student's error reports to the lecture instructor.

View Submitted Files Process

Input Flows: Student Lab File

Output Flows: File Request

Description: Displays student's original lab files that were submitted to the system.

Database Data Store

Input Flows: Error Report Request, File Request

Output Flows: Error Report File, Student Lab File

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Level 4: Course Administrator

Login Info Data Flow

Source: Course Administrator Interface

Destination: Login

Description: Username and password for course administrator.

Confirmation Data Flow

Source: Login

Destination: Course Administrator Interface

Description: Acceptance or rejection of login info.

Sort Criteria Data Flow

Source: Course Administrator Interface

Destination: Sort by

Description: The method which the course administrator would like to sort students by.

Sort Results Data Flow

Source: Sort by

Destination: Course Administrator Interface

Description: The resulting list of students determined by the selected sort criteria.

Student Info Data Flow

Source: Course Administrator Interface

Destination: Edit Student Info

Description: Student's edited information.

Confirmation Data Flow

Source: Edit Student Info

Destination: Course Administrator Interface

Description: Confirmation that the student's information has been submitted successfully.

Student Info Data Flow

Source: Course Administrator Interface

Destination: Manage Sections

Description: Student's edited section information.

Confirmation Data Flow

Source: Manage Sections

Destination: Course Administrator Interface

Description: Confirmation that student's edited section information has been submitted successfully.

Instructor Info Data Flow

Source: Course Administrator Interface

Destination: Register
Description: Instructor's information for registration as an instructor.

Confirmation Data Flow
Source: Register
Destination: Course Administrator Interface
Description: Confirmation that the instructor has been successfully registered.

Search Criteria Data Flow
Source: Course Administrator Interface
Destination: Search
Description: Criteria that course administrator would like to search for.

Search Results Data Flow
Source: Search
Destination: Course Administrator Interface
Description: Results after search is processed using search criteria.

Key Files Data Flow
Source: Course Administrator Interface
Destination: Upload Files
Description: Key file which will be used for grading by the system.

Confirmation Data Flow
Source: Upload Files
Destination: Course Administrator Interface
Description: Confirmation that key file has been successfully submitted.

Password Data Flow
Source: Course Administrator Interface
Destination: Create Course Password
Description: Password which will be used to register students for the course.

Confirmation Data Flow
Source: Create Course Password
Destination: Course Administrator Interface
Description: Confirmation that password has been successfully created.

Feedback Request Data Flow
Source: Course Administrator Interface
Destination: View Feedback
Description: Request to view feedback generated by the grading system.

Feedback Files Data Flow
Source: View Feedback
Destination: Course Administrator Interface
Description: Feedback generated by the grading system.

Login Info Data Flow
Source: Login
Destination: Database
Description: Username and password for course administrator.

Confirmation Data Flow

Source: Database

Destination: Login

Description: Acceptance or rejection of login info.

Sort Criteria Data Flow

Source: Sort By

Destination: Database

Description: The method which the course instructor would like to sort students by.

Sort Results Data Flow

Source: Database

Destination: Sort By

Description: The resulting list of students determined by the selected sort criteria.

Student Info Data Flow

Source: Edit Student Info

Destination: Database

Description: Student's edited information.

Confirmation Data Flow

Source: Database

Destination: Edit Student Info

Description: Confirmation that the student's information has been submitted successfully.

Student Info Data Flow

Source: Manage Sections

Destination: Database

Description: Student's edited section information.

Confirmation Data Flow

Source: Database

Destination: Manage Sections

Description: Confirmation that student's edited section information has been submitted successfully.

Instructor Info Data Flow

Source: Register

Destination: Database

Description: Instructor's information for registration as an instructor.

Confirmation Data Flow

Source: Database

Destination: Register

Description: Confirmation that the instructor has been successfully registered.

Search Criteria Data Flow

Source: Search

Destination: Database
Description: Criteria that course administrator would like to search for.

Search Results Data Flow
Source: Database
Destination: Register
Description: Results after search is processed using search criteria.

Key Files Data Flow
Source: Upload Files
Destination: Database
Description: Key file which will be used for grading by the system.

Confirmation Data Flow
Source: Database
Destination: Upload Files
Description: Confirmation that key file has been successfully submitted.

Password Data Flow
Source: Create Course Password
Destination: Database
Description: Password which will be used to register students for the course.

Confirmation Data Flow
Source: Database
Destination: Create Course Password
Description: Confirmation that password has been successfully created.

Feedback Request Data Flow
Source: View Feedback
Destination: Database
Description: Request to view feedback generated by the grading system.

Feedback Files Data Flow
Source: Database
Destination: View Feedback
Description: Feedback generated by the grading system.

Course Administrator Interface Source/Sink
Input Flows: Confirmation, Sort Results, Confirmation, Confirmation, Confirmation, Search Results, Confirmation, Confirmation, Feedback Files
Output Flows: Login Info, Sort Criteria, Student Info, Student Info, Instructor Info, Search Criteria, Key Files, Password, Feedback Request
Description: Course Administrator's web interface with which they will be able to login, sort students, edit student information, manage sections, register instructors, search, upload files, create the course password, and view the feedback generated by the grading system.

Login Process
Input Flows: Login Info, Confirmation
Output Flows: Confirmation, Login Info

Description: This process will check the login info against the database and determine whether it is correct or incorrect.

Sort By Process

Input Flows: Sort Criteria, Sort Results

Output Flows: Sort Results, Sort Criteria

Description: This process will send the sort criteria to the database and take the resulting student list and send it to the course administrator interface.

Edit Student Info Process

Input Flows: Student Info, Confirmation

Output Flows: Confirmation, Student Info

Description: This is how the course administrator will edit any student info that is incorrect.

Manage Sections Process

Input Flows: Student Info, Confirmation

Output Flows: Confirmation, Student Info

Description: This is how the course administrator will change any student's section in the system if they switch sections

Register Process

Input Flows: Instructor Info, Confirmation

Output Flows: Confirmation, Instructor Info

Description: This is how the course administrator will register the different instructors for the course at the beginning of the semester.

Search Process

Input Flows: Search Criteria, Search Results

Output Flows: Search Results, Search Criteria

Description: The course administrator can search for a student if they are not sure where to quickly find a specific student.

Upload Files Process

Input Flows: Key Files, Confirmation

Output Flows: Confirmation, Key Files

Description: The course administrator will upload the files used by the grading system to grade and provide feedback on the students labs and pre labs.

Create Course Password Process

Input Flows: Password, Confirmation

Output Flows: Confirmation, Password

Description: The course administrator will create the password used by the students when they register for a course so that no students can register that are not enrolled in the course.

View Feedback Process

Input Flows: Feedback Request, Feedback Files

Output Flows: Feedback Files, Feedback Request

Description: The course administrator will be able to view the feedback generated by the grading system.

Database Data Store

Input Flows: Login Info, Sort Criteria, Student Info, Student Info, Instructor Info, Search Criteria, Key Files, Password, Feedback Request

Output Flows: Confirmation, Sort Results, Confirmation, Confirmation, Confirmation, Search Results, Confirmation, Confirmation, Feedback Files

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Course Administrator – Login – Level 4.1

Login Info Data Flow

Source: System Login

Destination: Database

Description: Sends course administrator's login info to database.

Confirmation Data Flow

Source: Database

Destination: System Login

Description: Acceptance or rejection of login info.

Forgot Password Request Data Flow

Source: Forgot Password

Destination: Database

Description: Request for email containing password.

Email With Password Data Flow

Source: Database

Destination: Forgot Password

Description: Email containing course administrator's password.

System Login Process

Input Flows: Confirmation

Output Flows: Login Info

Description: Confirms or rejects user's attempt to login with username and password.

Forgot Password Process

Input Flows: Email with password

Output Flows: Forgot Password Request

Description: Sends user an email containing password.

Database Data Store

Input Flows: Login Info, Forgot Password Request

Output Flows: Confirmation, Email With Password

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Course Administrator – Sort By – Level 4.2

Selected Section Data Flow

Source: Sort By Section

Destination: Database

Description: Selection that course administrator would like to sort by section.

Student List Data Flow

Source: Database

Destination: Sort By Section

Description: Resulting student list when sorted by section.

Selected Lab Number Data Flow

Source: Sort By Lab #

Destination: Database

Description: Selection that course administrator would like to sort by lab number.

Student List Data Flow

Source: Database

Destination: Sort By Lab #

Description: Resulting student list when sorted by lab #.

Sort By Section Process

Input Flows: Student List

Output Flows: Selected Section

Description: Sorts all students by their assigned section.

Sort By Lab # Process

Input Flows: Student List

Output Flows: Selected Lab Number

Description: Sorts all students by each assigned lab number.

Database Data Store

Input Flows: Selected Section, Selected Lab Number

Output Flows: Student List, Student List

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Course Administrator – Manage Sections – Level 4.4

Lab Section Number Data Flow

Source: Create Lab Sections

Destination: Database

Description: Lab section numbers for the semester.

Confirmation Data Flow

Source: Database

Destination: Create Lab Sections

Description: Confirmation that lab sections have been created successfully.

Lecture Section Number

Source: Create Lecture Sections

Destination: Database

Description: Lecture section numbers for the semester.

Confirmation Data Flow

Source: Database

Destination: Create Lecture Sections

Description: Confirmation that lecture sections have been successfully created.

Create Lab Sections Process

Input Flows: Confirmation

Output Flows: Lab Section Number

Description: Creates lab sections for the semester.

Create Lecture Sections Process

Input Flows: Confirmation

Output Flows: Lecture Section Number

Description: Creates lecture sections for the semester.

Database Data Store

Input Flows: Lab Section Number, Lecture Section Number

Output Flows: Confirmation, Confirmation

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Course Administrator – Register – Level 4.5

Instructor Info Data Flow

Source: Register Instructor

Destination: Database

Description: Information for instructor of a lecture or lab section for the semester.

Confirmation Data Flow

Source: Database

Destination: Register Instructor

Description: Confirmation that lecture instructor has been registered successfully.

Student Info Data Flow

Source: Register Student

Destination: Database

Description: Information for student needed for registration.

Confirmation Data Flow

Source: Database

Destination: Register Student

Description: Confirmation that student has been registered successfully.

Register Instructor Process

Input Flows: Confirmation

Output Flows: Instructor Info

Description: Registers an instructor in the grading system for the semester.

Register Student Process

Input Flows: Confirmation

Output Flows: Student Info

Description: Registers a student in the grading system.

Database Data Store

Input Flows: Instructor Info, Student Info

Output Flows: Confirmation, Confirmation

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Course Administrator – Upload Files – Level 4.7

Sample Lab File Data Flow

Source: Upload Sample Lab Files

Destination: Database

Description: Sample lab file used for grading by the system.

Confirmation Data Flow

Source: Database

Destination: Upload Sample Lab Files

Description: Confirmation that sample lab files have been uploaded to the system successfully.

Key File Data Flow

Source: Upload Key

Destination: Database

Description: Key file used for grading by the system.

Confirmation Data Flow

Source: Upload Key

Destination: Database

Description: Confirmation that key file has been uploaded to the key successfully.

Upload Sample Lab Files Process

Input Files: Confirmation

Output Files: Sample Lab File

Description: Uploads sample lab files to the system which are used for grading.

Upload Key Process

Input Files: Confirmation

Output Files: Key File

Description: Uploads key file to the system which is used for grading.

Database Data Store

Input Files: Sample Lab File, Key File

Output Files: Confirmation, Confirmation

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

Location – Course Administrator – View Feedback – Level 4.9

Error Report Request Data Flow

Source: View Error Reports

Destination: Database

Description: Course administrator's request to view student's error report.

Error Report File Data Flow

Source: Database

Destination: View Error Reports

Description: Student's error report after grading by the system.

File Request Data Flow

Source: View Submitted Files

Destination: Database

Description: Course administrator's request to view student's lab files.

Student Lab File Data Flow

Source: Database

Destination: View Submitted Files

Description: Student's original lab files that were submitted to the system.

View Error Reports Process

Input Flows: Error Report File

Output Flows: Error Report Request

Description: Displays student's error reports to the course administrator.

View Submitted Files Process

Input Flows: Student Lab File

Output Flows: File Request

Description: Displays student's original lab files that were submitted to the system.

Database Data Store

Input Flows: Error Report Request, File Request

Output Flows: Error Report File, Student Lab File

Description: Database containing usernames, passwords, submitted lab files, graded lab files, grading key, and the grading template.

V. Logical Data Stores

Table Name: PERSONAL_INFORMATION

username

Type: varchar

Description: The person's username for the system

Key: yes

Required: yes

Length: 20

first_name

Type: varchar

Description: Persons first name

Key: no

Required: yes

Length: 20

last_name

Type: varchar

Description: Persons last name

Key: no

Required: yes

Length: 20

email

Type: varchar

Description: Persons email address

Key: no

Required: yes

Length: 40

password

Type: varchar

Description: Persons password for the system

Key: no

Required: yes

Length: 20

account_type

Type: varchar

Description: the account type that they are assigned (ex. student, admin, lab and/or lecture instructor)

Key: no

Required: yes

Length: 10

Table Name: STUDENT_FILES

username

Type: varchar
Description: The person's username for the system
Key: yes
Required: yes
Length: 20

lab_num

Type: int
Description: the lab number that corresponds to the submitted file
Key: no
Required: yes
Length: 2

file_path

Type: varchar
Description: the location where the file is stored
Key: no
Required: yes
Length: 50

file_name

Type: varchar
Description: the name of the file submitted
Key: no
Required: yes
Length: 20

file_type

Type: varchar
Description: The type of file- can be lab, prelab or error report
Key: no
Required: yes
Length: 10

date_submitted

Type: Date
Description: the date the file was submitted to the system
Key: no
Required: yes
Length: 20

grade

Type: int
Description: the grade the student was given for this file
Key: no
Required: no
Length: 3

Table Name: SECTIONS

section_number

Type: varchar

Description: the section number that is assigned to this lab/ lecture

Key: yes

Required: yes

Length: 10

section_type

Type: varchar

Description: lab or lecture

Key: no

Required: yes

Length: 10

instructor

Type: varchar

Description: the username of the instructor teaching this section

Key: no

Required: yes

Length: 20

semester

Type: varchar

Description: the semester the section is being taught

Key: no

Required: yes

Length: 10

Table Name: GRADING_KEY_FILES

file_name

Type: varchar

Description: the name of the file submitted

Key: yes

Required: yes

Length: 20

lab_num

Type: int

Description: the lab number that corresponds with the submitted file

Key: no

Required: yes

Length: 2

due_date

Type: Date

Description: the date the file is due to be submitted by the student

Key: no

Required: yes

Length: 20

file_type

Type: varchar

Description: type of file that was submitted- Key file or sample Excel file

Key: no

Required: yes

Length: 10

file_path

Type: varchar

Description: location where the file is stored

Key: no

Required: yes

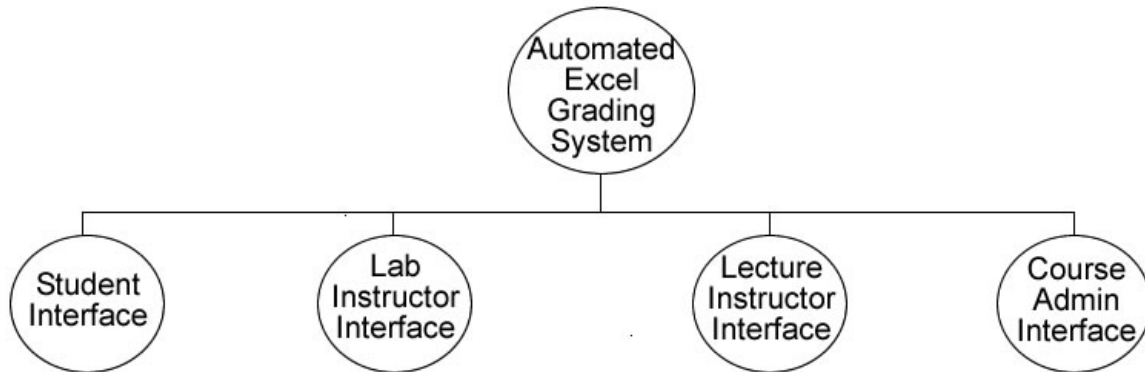
Length: 50

VI. Logical Format of Data Files and Databases

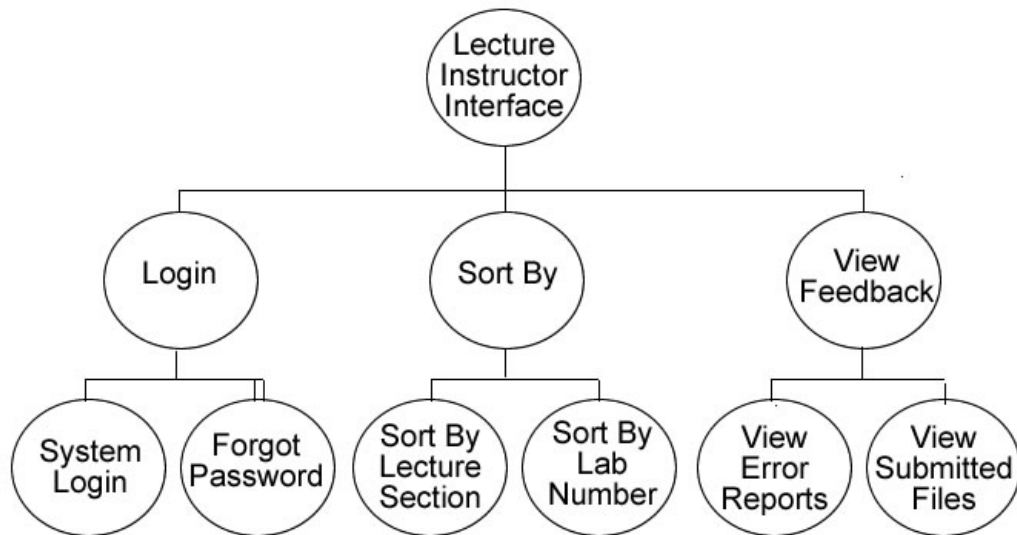
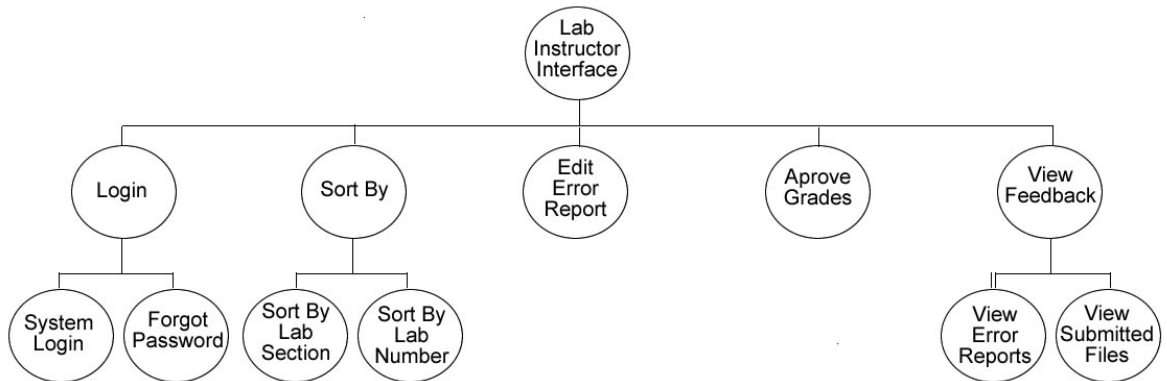
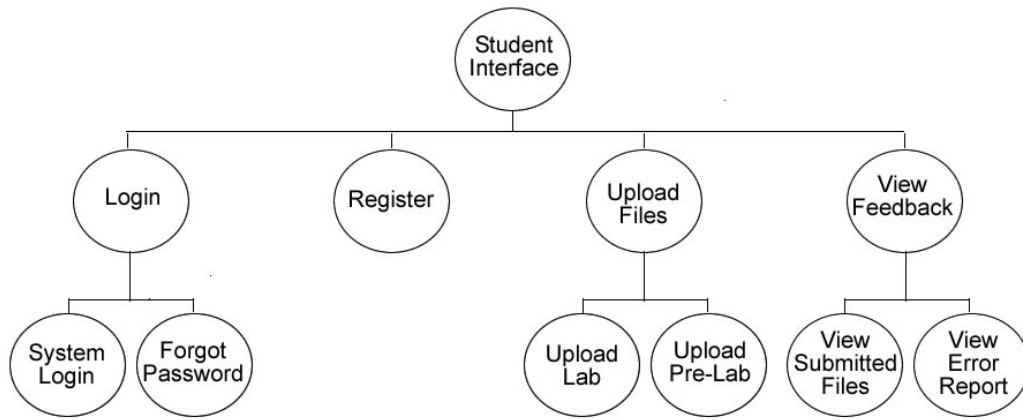
We will be using either Oracle DBMS or mySQL for our data storage. The files submitted to the system will not be stored in the tables, instead they will be stored in a separate directory and the path to the files will be stored in the database. We will be storing the following types of fields in our database: varchar, Date and int. Each field will have a maximum size as specified in our Logical Data Stores.

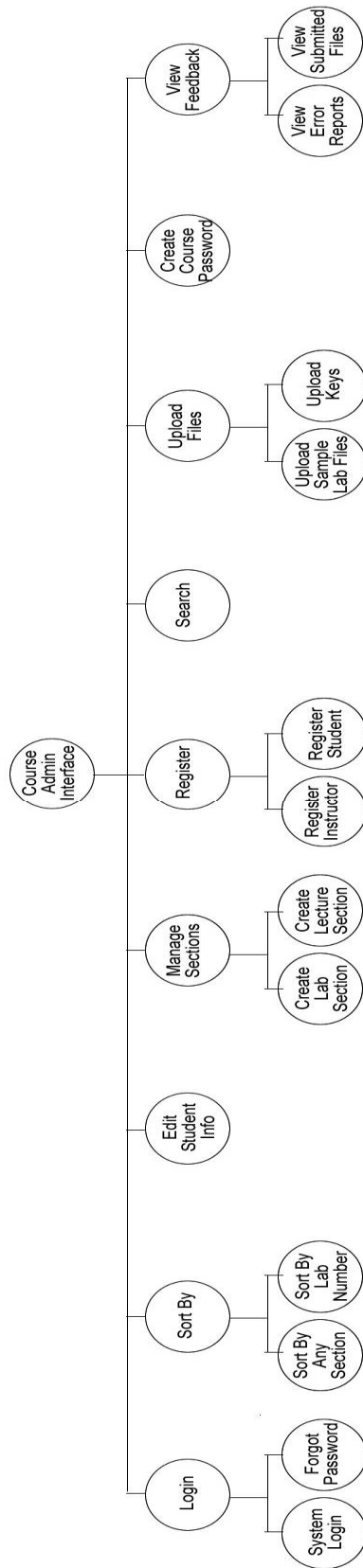
VII. Structure Diagrams

This structure diagram is a graphical representation of the structure of the Automated Excel Grading System. The first diagram displays the system itself broken down into each user type's interface:



Each of the user interfaces is broken down into the tasks that can be performed by each user:





VIII. Use Case Narrative

Student

The Student user will have the ability to login to the system through the website with a username and password, if they do not have an account they must create one. When creating an account the Student will be required to select their lab and lecture section from a drop down menu. Once the Student logs in they will be able to upload their pre-labs and have the system grade them. After the pre-lab is graded it will provide a report to the Student with all of their errors. The students will also be able to submit their labs, which will be graded, and the grade will be displayed to the Student after it is approved by the instructor. The Student can also view their submitted labs.

Lab Instructor

The Lab Instructor will have the ability to log into the system through the website with a username and password. Their account will be created by the Course Administrator. They will be given an initial password by the course administrator which they can change at anytime. Once the system grades the labs it will provide a report to the Lab Instructor telling them what was wrong on the lab. The lab instructors will have the ability to view the errors on each lab and override the grade in the system if what the system classified as an error is deemed acceptable by the instructor. Once they finalize the grades they can be viewed by the Student User. The lab instructors will also be able to sort students by the lab and lecture section that the student attends and the lab number that they wish to view

Lecture Instructor

Lecture Instructors will have the ability to log into the system through the website with a username and password. Their accounts will be created by the Course Administrator. They will be given an initial password which they can change at anytime. Lecture Instructors will have the ability to view student's lab grades in the system that the lab instructor has approved. They can sort students by their lab and lecture section.

Course Administrator

The Course Administrator will log on to the system using the username and password provided by the developers. Once logged into the system they can create other user accounts, upload grading keys and sample lab files, and edit and delete user accounts. The Course Administrator also needs to be able to set up the lab and lecture sections on the system, so the student user can pick the correct lab and lecture section when creating their account. Since the Course Administrator could also be a lecture and lab instructor they will have the same privileges when it comes to changing the grade on a lab and viewing the student's lab grades.

IX. Functional Requirements

Course Administrator

- Login
 - The first time the Administrator logs into the system they will use the username and password given to them by the developers.
- Create Accounts
 - The Administrator will create the Lab Instructor and Lecture instructor accounts. When they create these accounts they will specify what user account is being created.
 - They will have the option to create student accounts if needed.
- Edit Accounts
 - If any account needs to be changed for any reason the Course Administrator can do so, including changing a students lab section or lecture section.
- Create Password for Student User
 - The Administrator creates the initial password so the Student user can log into the system for the first time.
- Delete Accounts
 - The Administrator can delete accounts from semester to semester with Student Users leaving the course and Lab and Lecture Instructors not teaching the course.
- Upload Grading Key and Sample Files
 - The Administrator will upload one grading key per lab and pre-lab along with multiple sample files per lab and pre-lab.
 - The grading key specifies what sections of the lab files to grade.
- View Reports
 - Course Instructor can view students lab grades based on lab or lecture section.
- Change Password
 - At any time the Course Administrator can change their password.

Student User

- Login
 - The first time the student logs into the system, he or she will create a username and use the specific password given to them in class by the lecture instructor.
- Upload Labs and Pre-labs
 - When the student wants to submit a file they will be able to in their student view after they log into the system. The submit button will bring them to a new screen where they will upload each individual file with a browse button that searches the directories on the computer their on.
- Viewing Pre-Lab Error Reports
 - The student will click on the view Pre-Lab Button on the student view page to view the report
- Viewing Lab Grades, Files and Report
 - The student can view their graded labs and see what sections they got wrong by clicking on the view Lab Button on the student view page.
 - They can only view these documents once the grades are approved and released by the Lab Instructor.
- Change Password
 - At any time the Student User can change their password.

Lab Instructor

- Login
 - The first time the Lab Instructor logs into the system they will use the username and password created by the Course Administrator.
- Review Lab Grades from System
 - Override any mistakes that the system made after viewing the report generated by the system showing what the student got wrong.
- Approve Grades For Student User's View
- Viewing Student Grades
 - They will be able to view the lab grades based on what lab section they want including all their lab sections.
 - They can also view the grades based on lab number, including all labs.
- Change Password
 - At any time the Lab Instructor can change their password.

Lecture Instructor

- Login
 - The first time the Lecture Instructor logs into the system they will use the username and password created by the Course Administrator.
- Viewing Lab Grades
 - Once the Lab Instructor has checked to make sure the lab was graded correctly by the system the Lecture Instructor can view the lab grades.
 - They will be able to view the lab grades based on what lecture section they want including all their lecture sections.
 - They can also view the grades based on lab number, including all labs.
- Change Password
 - At any time the Lecture Instructor can change their password.

X. Unit Tests

**Note: All screens can be accessed as HTML pages by going to the following link:
http://oraserv.cs.siena.edu/~perm_oasis/miscdocs

These are a few examples of what our Unit Test will look like. The first is a table of contents that breaks up the test into each screen and each of those screens is then broken down into internal tests. For a whole screen to pass, all of its internal tests must also pass.

0. Unit Test Contents

Pass/ Fail	Screen Number	Internal Tests	Name
	1		Login Screen
		1.1	Load Page
		1.2	Inadequate Login Attempt
		1.3	Incorrect Login Attempt - Unregistered Account
		1.4	Incorrect Login Attempt - Incorrect Password
		1.5	Correct Student Login
		1.6	Correct Lab Instructor Login
		1.7	Correct Lecture Instructor Login
		1.8	Correct Lab/Lecture Instructor Login
		1.9	Correct Course Administrator Login
		1.10	Forgot Password
		1.11	Register
	2		Student Homepage
		2.1	- Load Page
		2.2	- Generate Lab Grades Table
		2.2.1	- - Correct Labs Displayed in Table
		2.2.2	- - Correct Unsubmitted Labs Information in Table
		2.2.3	- - Correct Submitted Pre-Labs Information in Table
		2.2.4	- - Correct Submitted, Ungraded Labs Information in Table
		2.2.5	- - Correct Graded Labs Information in Table
		2.3	- Submit Lab
		2.4	- View Error Report
	3		Lab Instructor Homepage
		3.1	- Load Page
		3.2	- Lab Section Dropdown
		3.3	- Lab Number Dropdown
		3.4	- View
	4		Lecture Instructor Homepage
		4.1	- Load Page
		4.2	- Lecture Section Dropdown
		4.3	- Lab Number Dropdown
		4.4	- View

1. Login Screen

Num	Name	Description	State Before Test	State After Test	Input	Steps to be Executed	Expected Output	Comments	Pass/Fail
1.1	Load Page	Page loads properly	Any other webpage	Index.php	None	Load login screen.	Login screen displays all information properly in web browser		
1.2	Inadequate Login Attempt	Login button is clicked w/o all required login information	Index.php	Error1.php	None	Redirect to error page.	Error page loads telling user they did not supply adequate login information		
1.3	Incorrect Login Attempt - Unregistered Account	Login button is clicked with incorrect username	Index.php	Error2.php	Username: unregistered Password: anything	Determine username is not registered. Redirect to error page	Error page loads telling user they did not supply a valid username or password.		
1.4	Incorrect Login Attempt - Incorrect Password	Login button is clicked with incorrect password	Index.php	Error2.php	Username: student_test Password incorrect_pword	Determine that password is incorrect for this user. Redirect to error page.	Error page loads telling user they did not supply a valid username or password.		
1.5	Correct Student Login	Login button is clicked with correct Student Username and password	Index.php	home.php	Username: student_test Password: oasis_s	Determine login is for Student User Generate Student homepage	Student User homepage is generated.		

Num	Name	Description	State Before Test	State After Test	Input	Steps to be Executed	Expected Output	Comments	Pass/Fail
1.6	Correct Lab Instructor Login	Login button is clicked with correct Lab Instructor username and password	Index.php	home.php	Username: lab_instructor_test Password: oasis_lab	Determine login is for Lab Instructor User Generate Lab Instructor homepage	Lab Instructor homepage is generated		
1.7	Correct Lecture Instructor Login	Login button is clicked with correct Lecture Instructor username and password	Index.php	home.php	Username: lecture_instructor_test Password: oasis_lec	Determine login is for Lecture Instructor User Generate Lecture Instructor homepage	Lecture Instructor homepage is generated		
1.8	Correct Lab/Lecture Instructor Login	Login button is clicked with correct Lab/Lecture Instructor username and password	Index.php	home.php	Username: lab_lecture_test Password: oasis_lablec	Determine login is for Lab/Lecture Instructor User Generate Lab/Lecture Instructor homepage	Lab/Lecture homepage is generated.		
1.9	Correct Course Administrator Login	Login button is clicked with correct Course Administrator username and password.	Index.php	home.php	Username: course_admin_test Password: oasis_ca	Determine login is for Course Administrator User Generate Course Administrator homepage	Course Administrator homepage is generated		

Num	Name	Description	State Before Test	State After Test	Input	Steps to be Executed	Expected Output	Comments	Pass/Fail
1.10	Forgot Password	Forgot Password link is clicked	Index.php	forgot_pword.html	None	Load Forgot Password webpage	Forgot Password screen is displayed.		
1.11	Register	Register link is clicked	Index.php	register.php	None	Load Registration webpage	Registration screen is displayed		

2. Student Homepage

Num	Name	Description	State Before Test	State After Test	Input	Steps to be Executed	Expected Output	Comments	Pass/Fail
2.1	Load Page	Page loads properly	index.php	home.php	username: student_test Password: oasis_s	Determine that username is a student User Generate the student homepage	Homepage screen displays student homepage		
2.2	Generate Lab Grades Table	Table containing this students Lab grades is generated when page is displayed	index.php	home.php	username: student_test Password: oasis_s	Determine that username is a student User Generate a table of this students Lab grades from the database	Table of students Lab grades displayed in correct format with all grades and information displayed Requires tests 2.2.1-2.2.5 To pass completely		
2.2.1	Correct Labs Displayed in Table	Table contains correct Labs	index.php	home.php	username: student_test Password: oasis_s	Determine what Labs need to be displayed Display these Labs and their information in table	Lab's with key associated for both Lab and Pre-Lab are displayed		
2.2.2	Correct Unsubmitted Labs Information in Table	Table contains correct information about unsubmitted Labs	index.php	home.php	username: student_test Password: oasis_s	Determine which Labs and Pre-Labs are ready for submission but have not yet been submitted Display these Labs and Pre-Labs correctly in table	Unsubmitted Labs and Pre-Labs with key associated display empty rows and Submit link for both Lab and Pre-Lab		

Num	Name	Description	State Before Test	State After Test	Input	Steps to be Executed	Expected Output	Comments	Pass/Fail
2.2.3	Correct Submitted Pre-Labs Information in Table	Table contains correct information about submitted Pre-Labs	index.php	home.php	username: student_test Password: oasis_s	Determine which Pre-Labs have been submitted Display these Pre-Labs correctly in table	Pre-Labs that have been submitted display Submission Date Display View Error Report link		
2.2.4	Correct Submitted, Ungraded Labs Information in Table	Table contains correct information about Submitted, Ungraded Labs	index.php	home.php	username: student_test Password: oasis_s	Determine which Labs have been submitted, but not yet graded Display correct information about these Labs	Submitted Labs displayed with Submission Date Submit Lab link is now gone		
2.2.5	Correct Graded Labs Information in Table	Table contains correct information about Graded Labs	index.php	home.php	username: student_test Password: oasis_s	Determine which Labs have been graded Display correct information about these Labs	Graded Labs displayed with Lab Grades and View Error Report link Labs that were not submitted, but graded, will receive a 0 grade		
2.3	Submit Lab	Submit Lab link is clicked	home.php	submit_Lab.php	None	Determine which Lab is to be submitted Generate Submit Lab page based on this Lab's criteria	Submit Lab page generated		
2.4	View Error Report	View Error Report link is clicked	home.php	Lab*_report.csv OR preLab*_report.csv * - Fill in number	None	Determine which Lab or Pre-Lab Error Report is to be viewed Displays error report for this Lab or Pre-Lab	Error Report page displayed		

3. Lab Instructor Homepage

Num	Name	Description	State Before Test	State After Test	Input	Steps to be Executed	Expected Output	Comments	Pass/Fail
3.1	Load Page	Page loads properly	index.php	home.php	Username: lab_instructor_test Password: oasis_lab	Determine that Username is a Lab Instructor User Generate the Lab Instructor homepage	Homepage screen displays Lab instructor homepage		
3.2	Lab Section Dropdown	Choose Lab Section dropdown menu displays	index.php	home.php	Username: lab_instructor_test Password: oasis_lab	Determine that Username is a Lab Instructor User Generate a dropdown menu for choosing from all current Lab Sections	A dropdown menu with all current Lab Sections along with an "All Lab Sections" item is displayed for choosing Lab Section to view		
3.3	Lab Number Dropdown	Choose Lab Number dropdown menu displays	index.php	home.php	Username: lab_instructor_test Password: oasis_lab	Determine that Username is a Lab Instructor User Generate a dropdown menu for choosing all eligible Labs for viewing	A dropdown menu with all viewable Lab Numbers along with an "All Labs" item is displayed for choosing Lab Number to view		
3.4	View	View Button is clicked	home.php	lab_view.php	Item in Lab Section dropdown is selected and Item in Lab Number dropdown is selected	Determine the Lab Section and Lab Number criteria Generate Lab Instructor View Labs page	Lab Instructor View Labs page is displayed		

4. Lecture Instructor Homepage

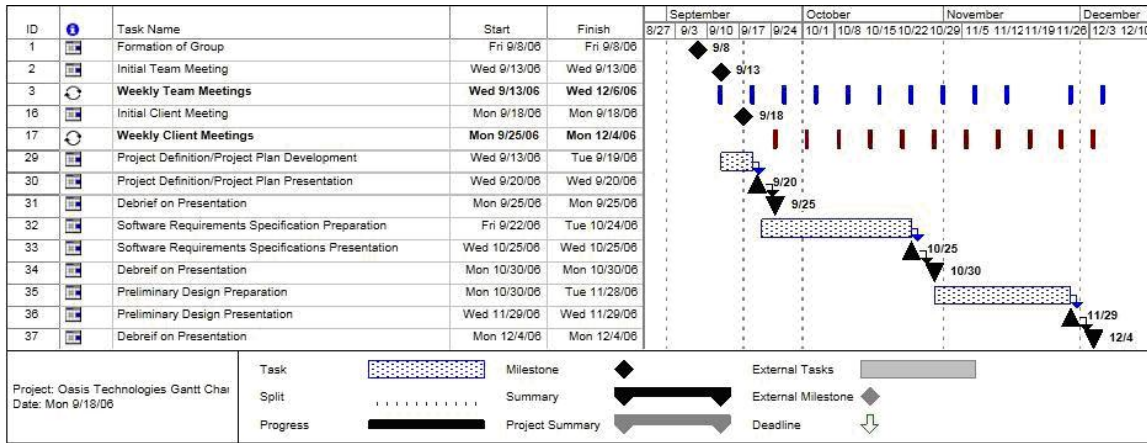
Num	Name	Description	State Before Test	State After Test	Input	Steps to be Executed	Expected Output	Comments	Pass/Fail
4.1	Load Page	Page loads properly	index.php	home.php	Username: lecture_instructor_test Password: oasis_Lab	Determine that username is a Lecture Instructor User Generate the Lecture Instructor homepage	Homepage screen displays Lecture Instructor homepage		
4.2	Lecture Section Dropdown	Choose Lecture Section dropdown menu displays	index.php	home.php	Username: lecture_instructor_test Password: oasis_Lab	Determine that username is a Lecture Instructor User Generate a dropdown menu for choosing from all current Lab Sections	A dropdown menu with all current Lecture Sections along with an "All Lecture Sections" item is displayed for choosing Lab Section to view		
4.3	Lab Number Dropdown	Choose Lab Number dropdown menu displays	index.php	home.php	Username: lecture_instructor_test Password: oasis_Lab	Determine that username is a Lecture Instructor User Generate a dropdown menu for choosing all eligible Labs for viewing	A dropdown menu with all viewable Lab Numbers along with an "All Labs" item is displayed for choosing Lab Number to view		
4.4	View	View Button is clicked	home.php	lec_view.php	Item in Lecture Section dropdown is selected and Item in Lab Number dropdown is selected	Determine the Lecture Section and Lab Number criteria Generate Lecture Instructor View Labs page	Lecture Instructor View Labs page is displayed		

Appendices

I. Sources of Information

The information in this document was gathered from meetings with our clients, Ms. Jami Cotler and Dr. Scott Hunter, knowledge learned from Dr. Lederman's Software Engineering lectures, the class textbook Software Engineering: A Practitioner's Approach by Roger S. Pressman, and team websites from previous years located at: <http://www.cs.siena.edu/~lederman/csis410/csis410.html>

II. Gantt Chart



III. Glossary of Terms

Gantt Chart: A popular type of bar chart that illustrates a project schedule including start and finish dates, tasks, and events that are to occur to complete the project

HTML: Hypertext Markup Language (HTML) is programming language used in the creation of Web pages.

Java: A programming language used for developing object oriented programs.

JavaScript: Javascript is a scripting language developed by Netscape that can interact with HTML source code, enabling Web authors to spice up their sites with dynamic content.

MySQL: An open source relational database management system (RDBMS) that uses Structured Query Language (SQL), the most popular language for adding, accessing, and processing data in a database.

PHP: PHP Hypertext Preprocessor is a widely-used, open-source, general-purpose scripting language that is especially suited for web development.

Structure Diagrams: graphical representation of the structure of the Automated Excel Grading System

Student User/Account: The most basic user of this software. Will be able to create their own accounts and use them to upload lab's and pre-lab's and also view their grades

Use Case Narrative: The basic functionality that the system will have for each of the users