

Preliminary Design

Requested by:

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Excel Grading System

NSG Software

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Excel Grading System

Requirements Specification

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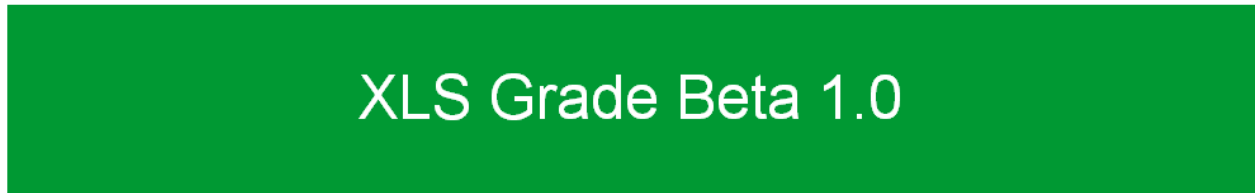
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Section 1: External Design Specifications

1.1: User Displays and Report Formats

Course Coordinator Main Page



My Account
[Logout](#)
[Change Password](#)

Tools
[Upload Grading Key](#)
[View Grading Summaries](#)
[Create Student Account](#)
[Edit Student Account](#)
[Create Instructor Account](#)
[Edit Instructor Account](#)

Welcome Ms. Cotler (Course Coordinator)

Account/Site News

Main Content

Choose an option from the Navigation Bar.

Course Coordinator Upload Key Page

XLS Grade Beta 1.0

My Account

[Logout](#)

[Change Password](#)

Tools

[Upload Grading Key](#)

[View Grading Summaries](#)

[Create Student Account](#)

[Edit Student Account](#)

[Create Instructor Account](#)

[Edit Instructor Account](#)

Welcome Ms. Cotler (Course Coordinator)

Account/Site News

Choose Key Files to Upload

Lab Template:

Grading Guide:

Lab Instructor Main Page

XLS Grade Beta 1.0

My Account

[Logout](#)

[Change Password](#)

Tools

[Grade Labs](#)

[View Grading Summaries](#)

[Edit Grades](#)

[View Student](#)

Welcome Dr. Hunter (Lab Instructor)

Account/Site News

Main Content

Choose an option from the Navigation Bar.

Lab Instructor Grading Page

XLS Grade Beta 1.0

My Account

[Logout](#)
[Change Password](#)

Tools

[Grade Labs](#)
[View Grading Summaries](#)
[Edit Grades](#)
[View Student](#)

Welcome Dr. Hunter (Lab Instructor)

[Account/Site News](#)

View/Grade Labs

Lab 1 ▲
Lab 2
Lab 3
Lab 4
Lab 5 ▼

[View Submitted Labs](#)

[Grade Labs](#)

Student Main Choose Lab

XLS Grade Beta 1.0

My Account

[Logout](#)
[Change Password](#)

Tools

[Upload Lab](#)
[View Grades](#)

Welcome John Doe (Student)

Account/Site News

Select Lab

Submit

Student Upload Lab

XLS Grade Beta 1.0

My Account

[Logout](#)
[Change Password](#)

Tools

[Upload Lab](#)
[View Grades](#)

Welcome John Doe (Student)

Account/Site News

Upload Lab Files - Lab 1

File 1:

File 2:

File 3:

Lab Summary Report

Lab #__ Summary (For Student)

Name: _____

Lab Time: _____

Lab Instructor: _____

Lecture Instructor: _____

Total Points Received: _____

Total Possible Points: _____

Percentage: _____%

What Questions Were Wrong:

(THIS SECTION IS SHOWN MORE THAN ONCE PENDING ON HOW MANY THE STUDENT GOT WRONG)

Question: _____

Your Answer: _____

Correct Answer: _____

1.1 Cont'd: Report Summary

Report Formats

Course Coordinator

- Logout – Logout of the XLS System.
- Change Password – User can change their password.
- Upload Grading Key – Choose the files to upload for the two part grading key.
- View Grading Summaries – Choose from several different grading summaries, organized as the user chooses.
- Create Student Account – Add a new student account.
- Edit Student Account – Change a student account.
- Create Instructor Account – Add a new instructor account.
- Edit Instructor Account – Change an instructor account.

Lab Instructor

- Logout – Logout of the XLS System.
- Change Password – User can change their password.
- Grade Labs – Initiate the grading process for the user-selected lab.
- View Grading Summaries – Choose from several different grading summaries, organized as the user chooses.
- Edit Grades – Edit individual or class-wide grades.
- View Student – View the grades of a particular student.

Lecture Instructor

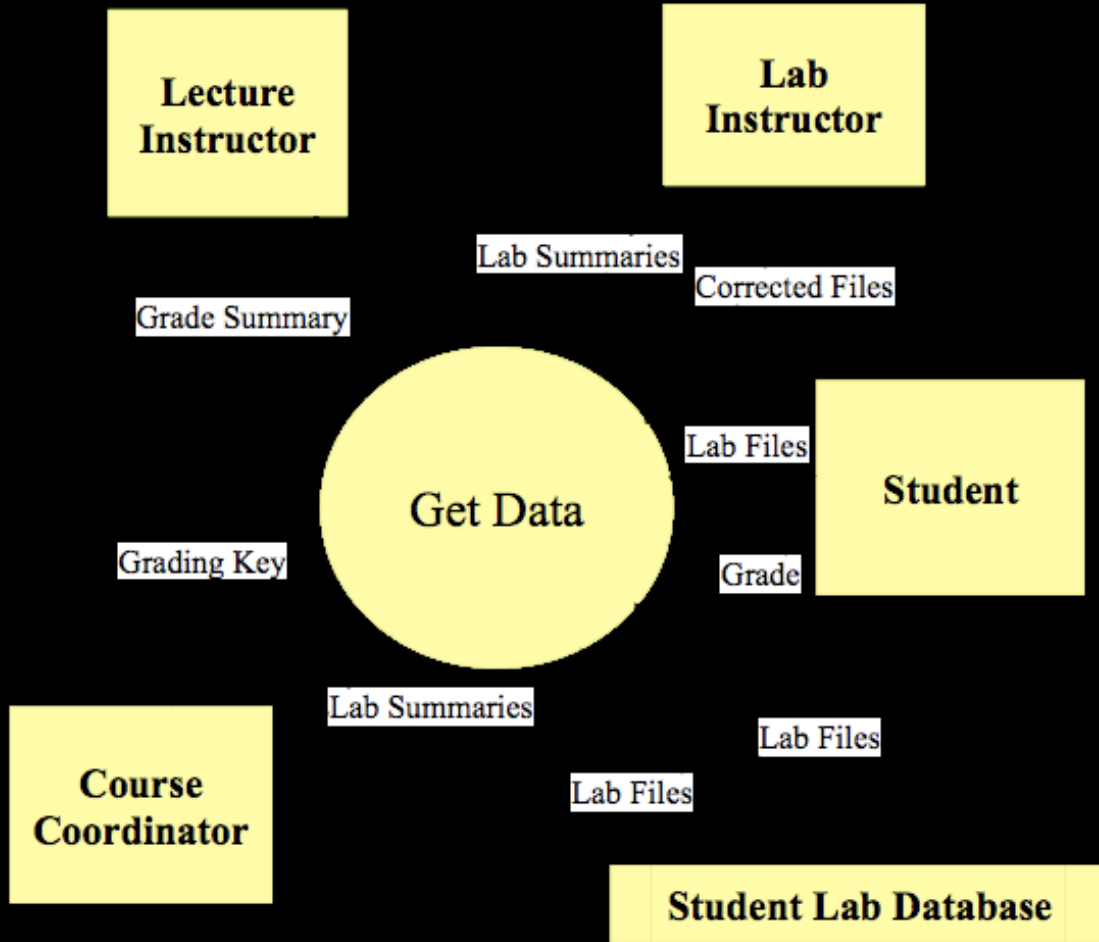
- Logout – Logout of the XLS System.
- Change Password – User can change their password.
- View Grading Summaries – Choose from several different grading summaries, organized as the user chooses.

Student

- Logout – Logout of the XLS System.
- Change Password – User can change their password.
- Upload Lab – Upload all of the necessary lab files for the selected lab.
- View Grades – Students can view their own grades.

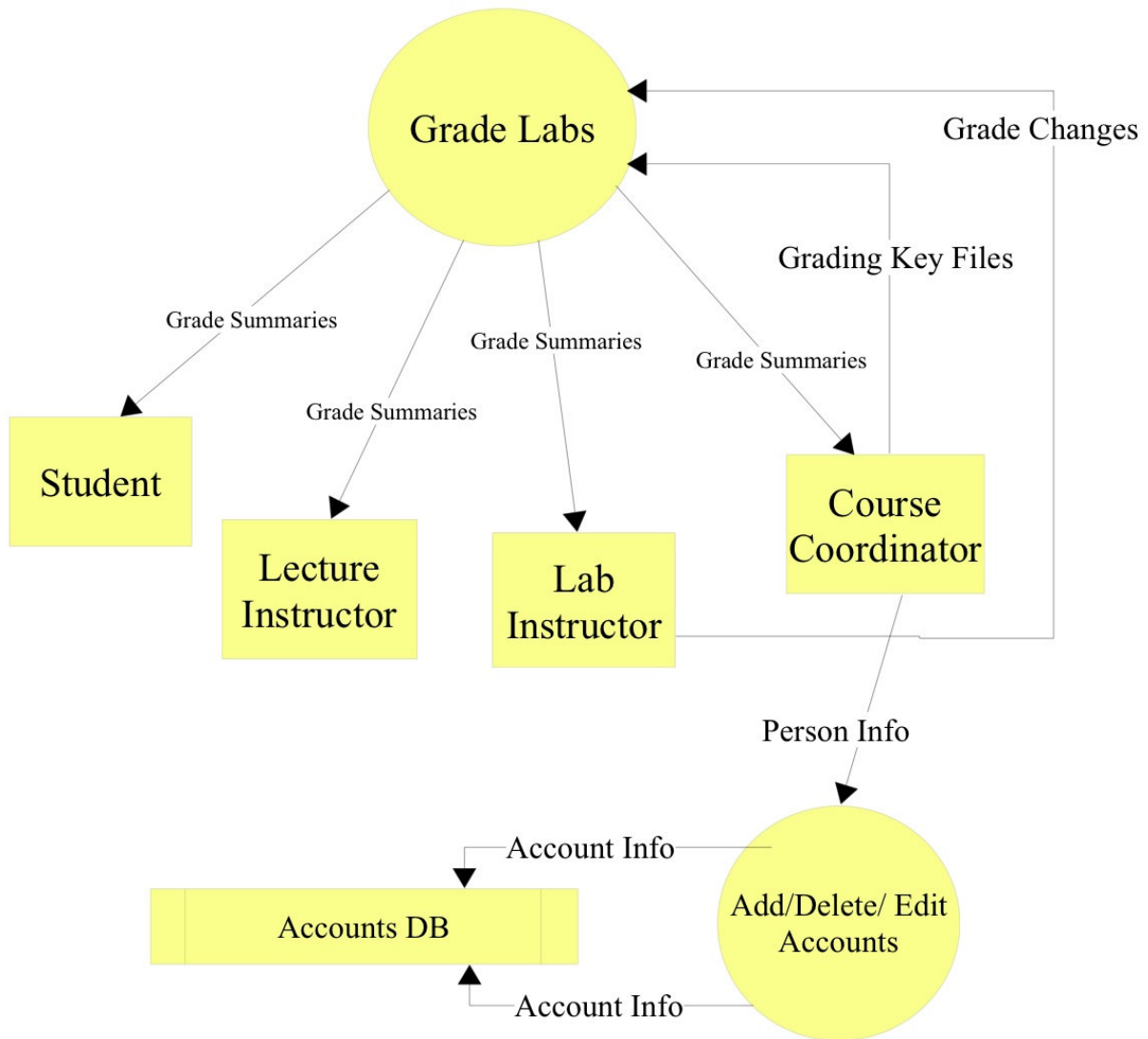
1.2: Detailed Data Flow Diagrams

Context Diagram

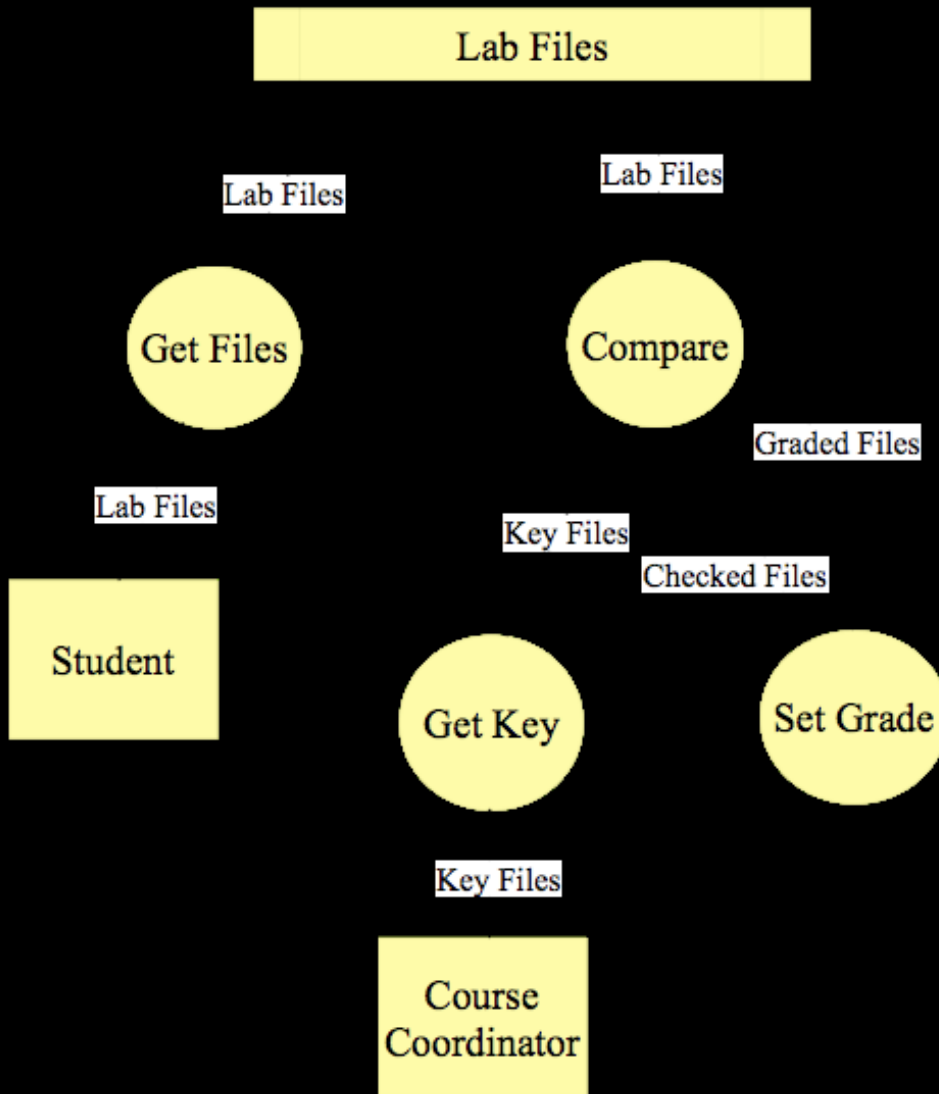


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LEVEL 0

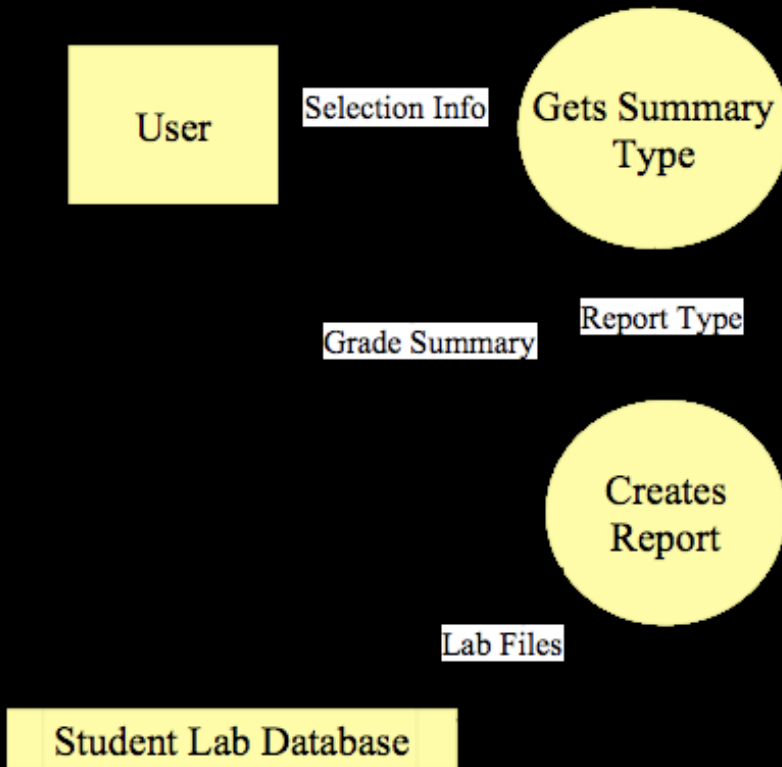


Level 1 (Grade Labs)



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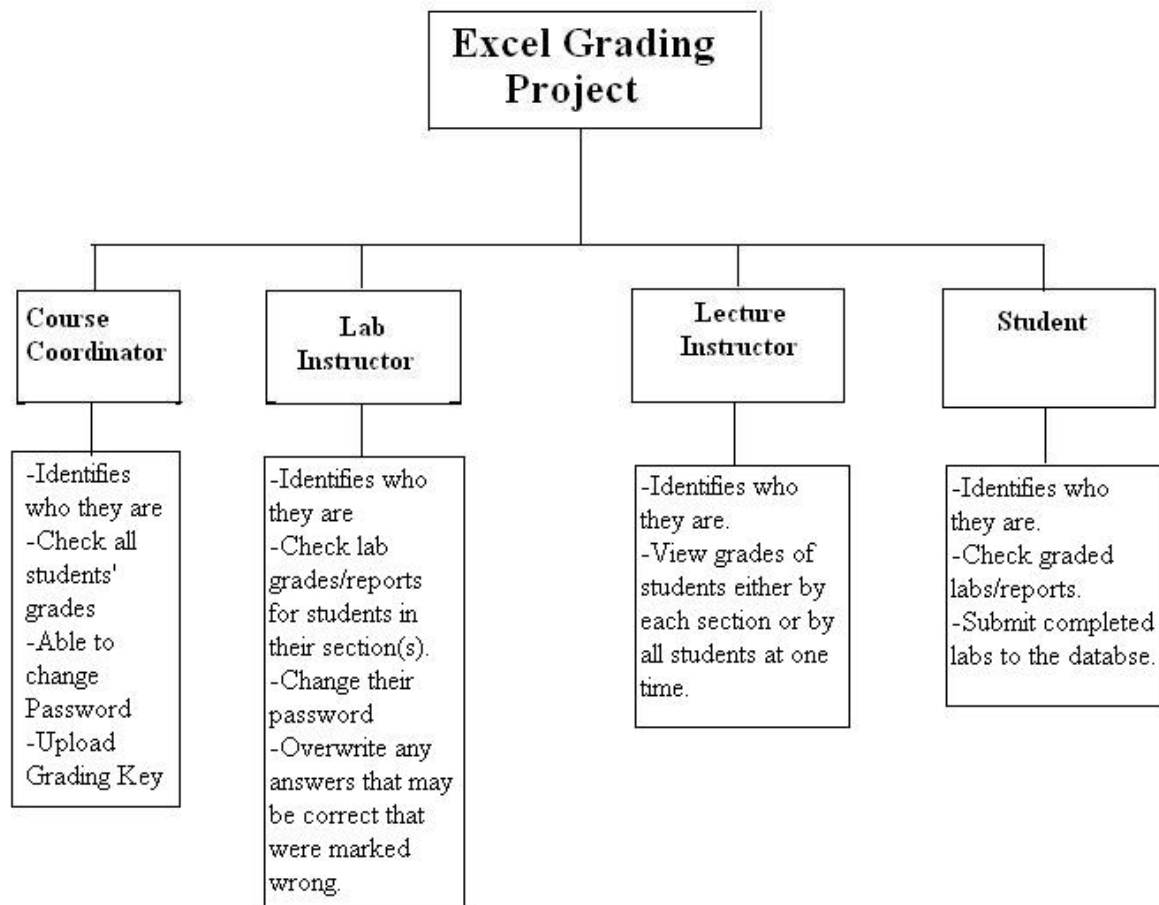
Level 2 (Create Summaries)



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Section 2: Architectural Design Specification

2.1: Structure Diagram



2.2: Use Cases

A use-case describes how the system responds to the requests of different actors. These actors are the course coordinator, the student, the lab instructor and the lecture instructor. Each story, or narrative, demonstrates the users capabilities and privileges. The use-cases for our four actors are below.

Use-Case for the Course Coordinator (Administrator):

1. The Course Coordinator logs into the same web interface as all other users of the system. Upon visiting the webGUI and attempting a login, an authentication method will be in place to assure the validity of the username and password. In addition, authentication module will keep a running tally of failed logins, in case of an attempted break-in.
2. The Course Coordinator, once logged into the system, will have the ability to add new users to the system, as well as manage existing users. The admin will be able to set access privileges over the student, lab instructor, and lecture instructor accounts. The Course Coordinator will also be able to create a list of assignments for each lab section. In addition, the Course Coordinator will submit some form of grading key which the software will use in grading student submitted files. Finally, the Course Coordinator will have the ability to view some type of grading summary if they so choose.
3. The Course Coordinator will have the ability to change their own password if they wish. They will be able to do this from the webGUI.
4. The Course Coordinator will have the ability to logout safely to protect their account from accidental access by other users using the same computer system.

Student Use-Case:

1. The student is a person registered in a lab for either CSIS-010 or CSIS-011. The student will go to the main login screen and enter the username and password that will be issued by the Course Coordinator.
2. Once logged in the student has a couple of options. The student may submit the lab files that may be due for that week by clicking a button that would help to navigate through the computer and find all the needed files for that lab. Once all files have been located, the student may then submit the lab.
3. The student may then choose to logout or check for labs that have been graded so far. For each lab that is graded a summary sheet will be available to tell the student with information such as what grade was received and what was done wrong along with all the examples that were completed incorrectly. The student may also view a summary of every lab that has been completed earlier in the semester as well. As a last option, the student may change the password that gives access to the account once the student has logged in at least once.

Use- Case for the Lab Instructor (Grader):

1. The lab instructor logs into the system through the web interface by entering their unique user name and password. If the lab instructor fails to enter in the correct password 3 times in a row, the system will lock them out for security purposes. Once the lab instructor has logged in successfully, they will see the home welcome page.
2. The lab instructor can view lab reports that have been submitted by students and also student information, like section number and lecturer. They can look up the student by section or by name from the drop down list. The lab instructor can also view the generated grade reports, which is a summary of all grades given. The lab instructor can view the reports by grades of the whole section or by each question. The lab instructor has the authority to change grades that are correct but the system did not mark wrong. For example formulas in a cell can be entered in a number of different ways. The system may mark it wrong because it was not exact to the key, but it could still be correct.
3. The lab instructor has the ability to override the grading system in order to change a grade. In order to do this the lab instructor must look at the grade reports and make the necessary changes. The system will allow this because the Lab instructor has this privilege of changing grades and would recognize that from their unique login.
4. After the lab instructor has graded the labs, the summary reports are sent back to the server to be stored.

Use- Case for the Lecture Instructor:

1. The lecture instructor is a person who teaches the lecture section of either CSIS-010 or CSIS-011. The Lecture Instructor will go to the main login screen and enter the username and password that will be issued by the Course Coordinator.
2. The lecture instructor chooses a lab or lecture (if they have more than one). The main function that the lecture instructor is able to do is to view grades and grading summaries about their students.
3. In order for the lecture instructor to view grades, Excel labs for the instructor's class must be uploaded and graded. The lecture instructor can then choose to view a list of individual grades or chooses from various summaries.
4. The lecture instructor has the option of viewing and/or printing the selected reports
5. Lastly, the lecture instructor logs out and closes the web page.

2.3: Functional Descriptions

The overall functionality of this software that is being developed is to grade every single lab that has been handed in by every CSIS-010 and CSIS-011 lab student so that the Lab Instructor does not have to. The surplus of labs that Lab Instructors get every week is very overwhelming, which is the reason for the production of this software. Each lab will be submitted via the internet after logging into the appropriate website. Once a student submits a lab, a Lab Instructor may then correct that lab or they may also correct a section of labs at once. The Lab Instructor will receive a summary report for every single student for every lab that was submitted and graded. The Lab Instructor will also be able to override any corrections that the software has done since there may be multiple acceptable answers to a single question. Since this software grades every lab, the Lab Instructors time will now be able to be used more efficiently.

2.4: Design Environment Information

Needs Apache 1.3.24 or better
Needs PHP 4.2.1 or better
Needs MySQL 3.23.29 or better.
Minimum 10 mb disk space.
Redhat linux kernel version 2.4.2

Production environment at-least the above specifications.

Data store setup:

Class database table
Username field, type var char(length 10)
Is_student field, Boolean
Is_grader field, Boolean
Is_instructor field, Boolean

Users database table
Username field, type var char(length 10)
Email field, var char(length 20)
Password field, var char(sha1 fixed length)
Is_student field, Boolean
Is_grader field, Boolean
Is_admin field, Boolean
Is_instructor field, Boolean

Submitted files and grading keys
Saved as comma separated value text files.

Section 3: Testing Requirements

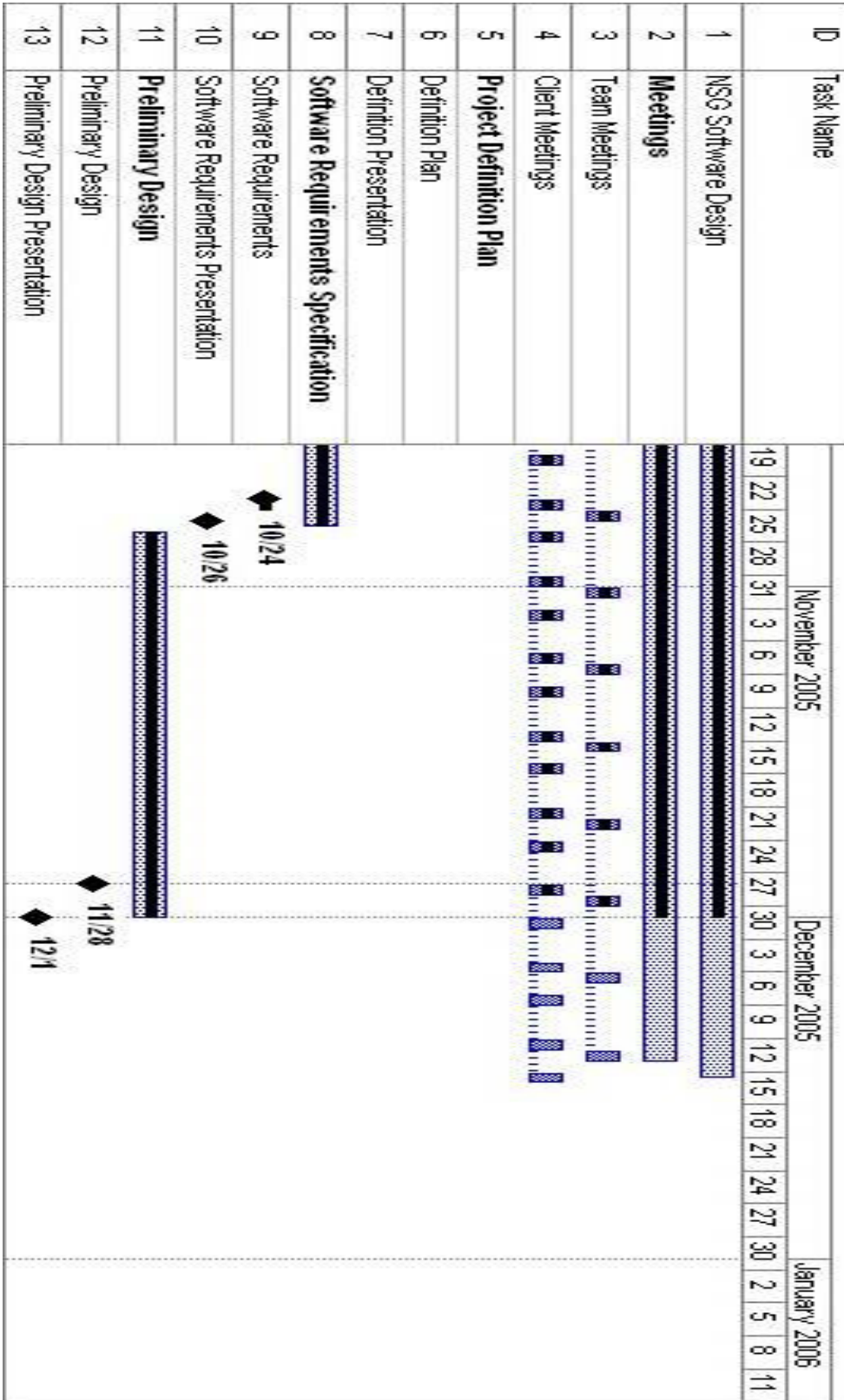
3.1: Requirement inventory

The main requirement that this software must have in its inventory are the copies of all the labs along with all the summaries of each graded lab. In order to do this though are steps that the software must take. First the Student has to submit a lab, which is of course at their discretion. Then the Lab Instructor will choose a section of labs to grade. Only after doing this will the desired result of graded labs and summaries be available.

3.2: Design Inventory

For the design, simplicity will be the best path to take for this project. Therefore we do not want to over clutter the website with useless or impractical links everywhere. A common occurrence on every page after logging in will be a link that will allow for every user in the system to change their own password to whatever they would like. The Course Coordinator and Lab Instructor will have links allowing the maneuvering throughout the site to get to any lab section desired. The Lab Instructor will only have access to the grades of the students that are in their lab sections. The Course Coordinator on the other hand will be able to view any students grades.

Section 4: Gantt Chart



Section 5: Glossary

Code – A set of data or symbols that represent a string of instructions to the computer.

Course Coordinator – The administrator for the Excel Grading System. Has the privileges to perform all tasks on the web interface as well as view all information.

CSIS-010 – Intro to Computer Applications. One of the Siena College courses that will be using our Excel Grading System.

CSIS-011 – Problem Solving with Spreadsheets. Another course that will be using our Excel Grading System.

Data Flow Diagram - A representation of the functional decomposition of a system.

administrator will be using on the website to wither grade or submit the labs.

Database - The organization of all the labs into a structure that is simplest to the faculty members and System Administrator.

Gantt Chart - A chart that depicts progress in relation to time, often used in planning and tracking a project.

Internet - An interconnected system of networks that connects computers around the world.

Key – The key is something that the course coordinator uploads into the system in order for the labs submitted by the students to be corrected against. The key is a perfect copy of what the lab should look like.

Lab Instructor – The lab instructor may or may not be a lecture instructor. The lab instructor is a person who grades the lab reports.

Lab Reports - A summary of each lab that has been graded for each student who has submitted a lab.

Lecture Instructor – The lecture instructor is a person who teaches a lecture section for either CSIS-010 or CSIS-011. They have the ability to view grades through the web interface and also grade summaries.

Software - Written programs or procedures or rules and associated documentation pertaining to the operation of a computer system and that are stored in read/write memory.

Student – The student, one of the four main users within the system, is a person enrolled in either CSIS-010 or CSIS-011. They have the ability to submit lab reports and view their own grades.

UI (User Interface) - This is the interface that each faculty member, student, and system.

Use-Case – Describes how the system responds to the requests of different actors.