Software Requirements Specification

for

GooGrade

Version 3.0 approved

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BluGoo

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Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Paul Phu	01-29-09	First Draft	1.0
Hermyn Mendez	02-02-09	First Major Revision (edited section 1,2, added 3)	2.0
Hermyn Mendez	02-05-09	Added/Revised Section 4 and Appendix C (Kathy, Paul, and Kalvin). Revised sections utilizing the QA document. Synced Section 3 with Use Case List.	2.1
Paul Phu	2-10-09	Edits to all sections excluding section 3	2.2
Paul Phu	2-11-09	Add customer input on changes to all sections excluding section 3	2.3
Paul Phu	2-11-09	Revised Appendix and fixed small errors.	2.4
Hermyn Mendez	2-11-09	Updated section 3	2.5
Katherine Blizard	2-16-09	Fixed small errors. References, Glossary and Data Dictionary	2.7
Hermyn Mendez	2-17-09	Class to Course and Page to Display	2.8
Hermyn Mendez	2-17-09	Revised Section 3, mostly worked on Functional Requirements and formatting. Pasted in Data Dictionary and tried to bold Data Dictionary terms.	2.9
Paul Phu	2-25-09	Revised all Sections excluding section 4. Added revised Data Dictionary and Glossary. Added Survey.	2.9.1
Hermyn Mendez	2-25-09	Updated Section 3 by working on formatting, took out Data Dictionary redundancies, and reworded most the features and functional requirements. Included previously TBD features.	3.0

1.Introduction

1.1 Purpose

This SRS provides specifications for GooGrade v1.0 for complete development. This document states the functionality of GooGrade v1.0. Features for future releases are noted accordingly. All GooGrade v1.0 features have a higher priority than those features noted for follow-up releases. Items in the Data Dictionary will be indicated in bold font for clarity and aid in development. This document is intended for members of the GooGrade development team, the BluGoo team, the customer Lauren Tsung and the user. The SRS contains features and information required for the release of GooGrade v1.0 and possible future releases. It should be read through thoroughly, though the table of contents may be used for immediate references. Sections 1 to 2.2 can give a quick overview of GooGrade while further down this document will give a more detailed specification.

1.2 Project Scope

GooGrade is an open source web based application designed to help teachers track and manage students and their respective grades in a course. It is also designed to allow students to track their grades and compare their progress to the rest of the peers in their course by means of grade metrics. Because GooGrade is open source, it complies with the Open Standard Requirements (OSR) for Software. The OSR states that the GooGrade must be freely available and royalty-free. GooGrade must not have any dependencies on technology that does not comply with the OSR.

For more information regarding the Business Requirements, see section 1 of the GooGrade Vision and Scope (see section 1.5).

1.3 References

1. Open Standard Requirements for Software http://opensource.org/osr
2. Blugoo Wiki http://wiki.csc.calpoly.edu/blugoo
3. Schalch, Stephen R. *Object Oriented Classical Software Engineering*
4. BluGoo, Vision and Scope Document.
5. BluGoo, Use Case Document.
6. Wieger's SRS Example http://www.csc.calpoly.edu/%7Ecsturner/courses/308w09/srs_template.doc
7. *Web Content Accessibility Guidelines (WCAG) 2.0* http://www.w3.org/TR/WCAG20/
8. *Family Educational Rights and Privacy Act* (FERPA). http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html.

2. Overall Description

2.1 Product Perspective

GooGrade's conception is a response to many already available grading tools which do not effectively package commonly desired student/teacher functionality. Popular grading tools, such as Blackboard, are expensive and do not offer all of the features that GooGrade provides (see Appendix A in Vision and Scope document). GooGrade not only provides a means of editing and tracking grades and progress, it also provides an environment for teachers and students to exchange electronic documents. Most students turn in their assignments to teachers via physical copies. To bring the submission process to the digital world, Cal Poly's Computer Science Department created a UNIX based program called *handin* to allow students to submit electronic copies of their assignments. Though the process is functional, it can be difficult to use because it requires experience in UNIX. GooGrade offers a web based interface which not only allows students to submit their assignments to teachers, but also allows teachers to upload documents for students to download. For these reasons, we believe GooGrade could replace programs like *handin*.

Content Diagram - TBD

2.2 Product Features

GooGrade allows **Students** and **Teachers** access to a common grading application. **Teachers** are able to take attendance, add users, manage A**ssignment Grades**, post **Announcements** and, in release 2, upload **Files** for **Students** to download. **Students** are able to view their grades, view grade metrics, upload A**ssignments** for submission, and are able to project their final grade with the grade predictor. GooGrade will only support Firefox 3.0 or higher, Safari 3.0.0 or higher, and Internet Explorer 7 or higher.

2.3 User Types and Characteristics

Teacher

The **Teacher** is the administrator for up to five **Courses**. They manage **Students**, their respective grades, manage **Teacher Assistants** (see below), manage **Assignments**, and have the ability to post **Announcements** and upload documents for the **Students**.

Teacher Assistant

The **Teacher Assistant** is a lower administrator. They are managed and given permissions by the **Teacher**. If the **Teacher** desires, the **Teacher Assistant** may have all of the functionality that a **Teacher** has.

Student

The **Students** are able to view any grades and **Announcements** posted by the **Teacher** and **Teacher Assistant** for a given **Course**. They are also given access to **Metrics** and also have the ability to upload **Assignments** for submission.

2.4 Operating Environment

OE-1: GooGrade will run on all supported web browsers.

OE-2: GooGrade has the ability to run on either Linux or Windows servers.

OE-3: Access to GooGrade is available both on-campus and off-campus.

2.5 Design and Implementation Constraints

CO-1: GooGrade will be web based to allow all Users access to it in various forms of computer environment

CO-2: All HTML shall meet the W3C XHTML 1.1 Standard.*
CO-3: All CSS shall meet the W3C CSS level 2.1 Standard*

CO-4: GooGrade must have the same functionality and look the same across all supported web browsers to ensure the same User experience regardless of browser.**

CO-5 GooGrade will not display any information to unauthorized User to protect the identity and privacy of the Student.***

*As recommended by the Customer
**As recommended by W3C
***As enforced by law by FERPA

2.6 User Documentation

User Manuals, such as how to use GooGrade, shall be provided online on our website (see section 1.3) and included with GooGrade.

2.7 Assumptions and Dependencies

Assumptions and dependencies may be found in GooGrade Vision and Scope section 2.3 (see section 1.5).

3. System Features

User	Category	Section	System Feature
Student		3.1	View Announcements
		3.2	View Grade
		3.3	Check Course Standing
		3.4	Predict Grade in Course
		3.5	Printer Friendly Display
	Exchange Files	3.6	Download File
		3.7	Upload File
		3.8	Reset Password
Teacher		3.9	View Metrics
	Manage Courses	3.10	Add Course
		3.11	Remove Course
		3.12	Edit Course
	Manage Users	3.13	Add Users
		3.14	Remove Users
		3.15	Edit Users
	Manage Assignments	3.16	Add Assignment
		3.17	Remove Assignment
		3.18	Edit Assignment
	Manage Announcements	3.19	Add Announcement
		3.20	Remove Announcement
		3.21	Edit Announcement
		3.22	Send Email
		3.23	Grade Students
		3.24	View Roster
		3.25	Take Attendance
		3.26	Adjust Grading Curve
	Manage Data	3.27	Import Data
		3.28	Export Data

3.1 View Announcements

3.1.1 Description and Priority

Description	The system displays all of the **Announcement**(s) posted by the **Teacher** sorted with the most recently posted **Announcement** at the top of the list.
Priority	High

3.1.2 Stimulus/Response Sequences

Stimulus	User selects “View Announcements”
Response	System takes user to the “View Announcements” display as described above.

3.1.3 Functional Requirements

REQ-1.1: When user selects “View Announcements,” system displays all of the **Announcement**(s) posted by the **Teacher** sorted with the most recently posted **Announcement** at the top of the list

REQ-1.2: If no **Announcement** has been made the system displays a "No Announcements Exist.”

3.2 View Grade

3.2.1 Description and Priority

Description	The system displays a table that summarizes all of the grades the **Student** has received for the Course. This summary is a table of **Assignment Grades** and also includes **Total Grade**. By default, the table will be sorted with the oldest **Assignment** at the top. **Total Grade** will always be kept at the bottom of the table.
Priority	High

3.2.2 Stimulus/Response Sequences

Stimulus	User selects “View Grade”
Response	System takes user to the “View Grade” display. This displays **Student Assignment Grades** and **Total Grade**.
Stimulus	User selects a column on the table displayed
Response	System sorts the table with respect to the column selected.

3.2.3 Functional Requirements

REQ-2.1: When user selects “View Grade,” the system displays a table of **Assignment Grades** and also includes **Total Grade**. By default, the table will be sorted with the oldest **Assignment** at the top. **Total Grade** will always be kept at the bottom of the table.

REQ-2.2: If the user selects a column header, the system displays the table sorted in ascending alphabetical order with respect to that column.

REQ-2.3: If an **Assignment** has no **Assignment Score**, the system displays the **Assignment** name with the **Assignment Score** field blank.

REQ-2.4: If no **Assignments** exist yet, the system displays the words “No Assignments Exist.”

3.3 Check Course Standing

3.3.1 Description and Priority

Description	The system displays a selection of graphs that show a comparison of the **Assignment Grades** and **Total Grades** of all the **Student**(s) in the **Course**.
Priority	Medium

3.3.2 Stimulus/Response Sequences

Stimulus	User selects “Check Course Standing”
Response	System takes user to the “View Grade” display. This displays graphs that show a comparison of **Student Assignment Grades** and **Total Grade**.

3.3.3 Functional Requirements

REQ-3.1: When user selects “Check Course Standing,” the system displays a selection of graphs that show a comparison of the **Assignment Grades** and **Total Grades** of all the **Student**(s) in the **Course.**

REQ-3.2: If the **Student** is alone in the **course,** the system displays “No Other Students Are in the Course.”

REQ-3.3: If no **Assignments** exist, system displays “No Assignments Exist.”

REQ-3.4: If no **Assignment Scores** exist, system displays “No Graded Assignments Exist.”

3.4 Predict Grade in Course

3.4.1 Description and Priority

Description	The system displays the final grades possible, taking into account the remaining **Assignment Grades** the **Student**(s) in the **Course**. The system will add up points necessary to get a final grade and always will pick the highest grades possible for remaining **Assignment**(s).
Priority	Medium Low

3.4.2 Stimulus/Response Sequences

Stimulus	User selects “Predict Grade in Course”
Response	System takes user to the “Predict Grade in Course” display. This prompts the user to select a final grade.
Stimulus	User selects a final grade.
Response	System displays the needed **Assignment Scores** for **Assignments,** without **Assignment Scores,** to get a desired final grade.

3.4.3 Functional Requirements

REQ-4.1: When user selects “Check Course Standing,” the system displays the final grades possible, taking into account the remaining **Assignment Grades** the **Student**(s) in the **Course**.

REQ-4.2: When user selects a final grade, the system will add up points necessary to get a final grade and always will pick the highest grades possible for remaining **Assignment**(s).

REQ-4.3: If there are no more **Assignments** without **Assignment Scores**, the system displays “No More Ungraded Assignments.”

REQ-4.4: If no **Assignments** have **Assignment Scores**, system displays “No Graded Assignments Exist.”

3.5 Printer Friendly Display

3.5.1 Description and Priority

Description	The system display minimizes color usage by having no images, using black and white, and text that is formatted to be 8.5 inches wide.
Priority	Low

3.5.2 Stimulus/Response Sequences

Stimulus	User selects “Printer Friendly Display”
Response	System takes user to the “Printer Friendly” version of the previous display.

3.5.3 Functional Requirements

REQ-5.1: When user selects “Printer Friendly Display,” the system display minimizes color usage by having no images, using black and white, and text that is formatted to be 8.5 inches wide.

3.6 Download File

3.6.1 Description and Priority

Description	The system displays a list of **Assignments** which have **Files** available for download. Once the user selects an **Assignment**, the system displays a list of **Files** for the **Assignment**.
Priority	Medium

3.6.2 Stimulus/Response Sequences

Stimulus	User selects “Download File”
Response	System takes user to the “Download File” display. This prompts the user to select an **Assignment**.
Stimulus	User selects an **Assignment**.
Response	System displays the **Files** available for that **Assignment**.
Stimulus	User selects a **File**.
Response	System redirects the user to the file location.

3.6.3 Functional Requirements

REQ-6.1: When user selects “Download File,” the system displays a list of **Assignments** which have **Files** available for download.
REQ-6.2: When user selects an **Assignment**, the system displays a list of **Files** for the **Assignment**.
REQ-6.3: If there are no **Assignments** with **Files** available for download, the system displays “No Files Available.”

3.7 Upload File

3.7.1 Description and Priority

Description	The system displays a list of **Assignments** for which the **Teacher** is accepting **Files** for upload. Once the user selects an **Assignment**, the system prompts the user to select the location of the **File** to be uploaded.
Priority	Medium

3.7.2 Stimulus/Response Sequences

Stimulus	User selects “Upload File”
Response	System takes user to the “Upload File” display. This prompts the user to select an **Assignment**.
Stimulus	User selects an **Assignment**.
Response	System prompts the user to select the location of the **File** to be uploaded
Stimulus	User selects a location.
Response	System receives **File** and displays confirmation.

3.7.3 Functional Requirements

REQ-7.1: When user selects “Upload File,” the system displays a list of **Assignments** for which the **Teacher** is accepting **Files** for upload.

REQ-7.2: When user selects an **Assignment**, the system prompts the user to select the location of the **File** to be uploaded.

REQ-7.3: If there are no **Assignments** for which the Teacher is accepting **Files** for upload, the system displays “No Files Are Currently Being Accepted.”

3.8 Reset Password

3.8.1 Description and Priority

Description	The system randomly generates a Password, changes the user's **Password** to this, and sends the **Password** to the user's **EmailAddress**. Note that this feature is available before login.
Priority	Medium Low

3.8.2 Stimulus/Response Sequences

Stimulus	User selects "Reset Password"
Response	System takes user to the "Reset Password" display, which displays confirmation and the user's **EmailAddress**.

3.8.3 Functional Requirements

REQ-8.1: When user selects "Reset," the system randomly generates a Password, changes the user's **Password** to this, and sends the **Password** to the user's **EmailAddress**.

3.9 View Metrics

3.9.1 Description and Priority

Description	The system displays a table of **Assignments**, along with grade metrics. These include metrics for each **Assignment** and metrics for the **Course** overall (**Total Grade** metrics). By default, the table will be sorted with the oldest **Assignment** at the top. Metrics for **Total Grades** will always be kept at the bottom of the table.
Priority	Medium

3.9.2 Stimulus/Response Sequences

Stimulus	User selects “View Metrics”
Response	System takes user to the “View Metrics” display, which is a table with metrics for individual **Assignments** and **Total Grades**.
Stimulus	User selects a column on the table displayed
Response	System sorts the table with respect to the column selected.

3.9.3 Functional Requirements

REQ-9.1: When user selects “View Metrics,” the system displays a table of **Assignments**, along with grade metrics. These include metrics for each **Assignment** and metrics for the **Course** overall (**Total Grade** metrics). By default, the table will be sorted with the oldest **Assignment** at the top. Metrics for **Total Grades** will always be kept at the bottom of the table.

REQ-9.2: If the user selects a column header, the system displays the table sorted in ascending alphabetical order with respect to that column.

REQ-9.3: If an **Assignment** has no **Assignment Score**, the system displays the **Assignment** name with the metrics fields blank.

REQ-9.4: If no **Assignments** exist yet, the system displays the words “No Assignments Exist.”

3.10 Add a Course

3.10.1 Description and Priority

Description	The system prompts the user for information required for a **Course** to be added. Once the user enters the information and selects "Add," then system adds the **Course.**
Priority	High

3.10.2 Stimulus/Response Sequences

Stimulus	User selects "Add a Course"
Response	System takes user to the "Add a Course" display. This display prompts the user to information about the **Course** being added.
Stimulus	User inputs information and selects "Add."
Response	System displays confirmation.

3.10.3 Functional Requirements

REQ-10.1: When user selects "Add a Course," the system prompts the user for information about the **Course** being added.

REQ-10.2: When user selects "Add" and all of the information has been entered, the system creates the new **Course**. The system then displays a confirmation.

REQ-10.3: When user selects "Add" and all of the information has not been entered, the system displays "The Following Information is Missing: "and lists the fields that are empty.

REQ-10.4: If the **Course Title**, **Course Section**, or **Course Number** already exist, the system displays "Course Already Exists: " and displays the existing **Course**.

REQ-10.5: If the location and time of **Course** already exist, the system displays "Course Information Conflicts with Existing Course: " and displays the existing **Course**.

3.11 Remove Course

3.11.1 Description and Priority

Description	The system displays a list of **Courses.** The user selects a **Course** and selects "Remove" to remove the **Course**.
Priority	Medium High

3.11.2 Stimulus/Response Sequences

Stimulus	User selects "Remove Course"
Response	System takes user to the "Remove Course" display. This prompts the user to select the **Course** to be removed.
Stimulus	User selects a **Course**.
Response	System prompts User to confirm the removal
Stimulus	User confirms.
Response	System displays confirmation.

3.11.3 Functional Requirements

REQ-11.1: When user selects "Remove Course," the system displays a list of **Courses**.
REQ-11.2: When user a **Course** and selects "Remove," the System prompts the user to confirm the removal. If the user selects "Remove," the **Course** will be removed from the system. If the user selects "Cancel," the system will return to the "Remove Course" display.
REQ-11.3: If no **Courses** exist, the system displays "No Courses Exist."

3.12 Edit Course

3.12.1 Description and Priority

Description	The system displays a list of **Courses**. The user selects a **Course** to edit, then changes information about the **Course**.
Priority	Medium High

3.12.2 Stimulus/Response Sequences

Stimulus	User selects “Edit Course”
Response	System takes user to the “Edit Course” display. This prompts the user to select the **Course** to be edited.
Stimulus	User selects a **Course**.
Response	System prompts user to edit **Course** information
Stimulus	User edits information and selects “Accept.”
Response	System prompts user to confirm the edits
Stimulus	User confirms.
Response	System displays confirmation.

3.12.3 Functional Requirements

REQ-12.1: When user selects “Edit Course,” the system displays a list of **Courses**.

REQ-12.2: When user selects a **Course** and “Accept,” the system prompts the user to confirm the edits. If the user selects “Accept,” the **Course** changes will be saved. If the user selects “Cancel,” the system will return to the “Edit Course” display.

REQ-12.3: If no **Courses** exist, the system displays “No Courses Exist” and redirects the user to “Add Course.”

REQ-12.4: When user selects “Accept” and all of the information has not been entered, the system displays “The Following Information is Missing: “and lists the fields that are empty.

REQ-12.5: If the **Course Title**, **Course Section**, or **Course Number** already exist, the system displays “Course Already Exists: ” and displays the existing **Course**.

REQ-12.6: If the location and time of **Course** already exist, the system displays “Course Information Conflicts with Existing Course: “ and displays the existing **Course**.

3.13 Add Users

3.13.1 Description and Priority

Description	The system prompts the user for information required for an **Account** to be added. The user enters the information, and the new user is sent an **Email** with their randomly generated **Password**.
Priority	High

3.13.2 Stimulus/Response Sequences

Stimulus	User selects “Add Users”
Response	System takes user to the “Add Users” display. This prompts the user to information about the new user being added.
Stimulus	User inputs information
Response	System displays confirmation.

3.13.3 Functional Requirements

REQ-13.1: When user selects “Add User,” The system prompts the user for information required for an **Account** to be added.

REQ-13.2: When user selects “Add” and all of the information has been entered, the System creates the new user and automatically sends an **Email** the new user with a randomly generated **Password**. The System then displays a confirmation.

REQ-13.3: When user selects “Add” and all of the information has not been entered, the system displays “The Following Information is Missing: “and lists the fields that are empty.

REQ-13.4: If the **Username** specified already exists, the system displays “Username Already Exists” and user must correct the error to continue.

REQ-13.4: If the **EmailAddress** is already in use, system displays “EmailAddress Already Exists” and user must correct the error to continue.

REQ-13.5: If **EmailAddress** isn’t valid, the system displays “The EmailAddress is Invalid.”

3.14 Remove User

3.14.1 Description and Priority

Description	The system displays a list of **Accounts.** The user selects an **Account** and selects “Remove” to remove the **Account**. The system will notify the **Account** holder about the termination of the **Account**.
Priority	High

3.14.2 Stimulus/Response Sequences

Stimulus	User selects “Remove User”
Response	System takes user to the “Remove User” display. This prompts the User to select the **Account** to be removed.
Stimulus	User selects an **Account** and selects “Remove.”.
Response	System prompts User to confirm the removal
Stimulus	User confirms.
Response	System displays confirmation.

3.14.3 Functional Requirements

REQ-14.1: When user selects “Remove User,” the system displays a list of **Accounts**.

REQ-14.2: When user selects an **Account** and “Remove,” the system prompts the user to confirm the removal. If the user selects “Remove,” the **Account** will be removed from the system and the **Account** will sent an **Email** about the termination of the **Account**. If the user selects “Cancel,” the System will return to the “Remove User” display.

REQ-14.3: If no **Accounts** exist, the System displays “No Accounts Exist.”

3.15 Edit User

3.15.1 Description and Priority

Description	The system displays a list of **Accounts**. The user selects an **Account** to edit, then changes information about the **Account**. The system will notify the **Account** holder about any changed made via **Email**.
Priority	High

3.15.2 Stimulus/Response Sequences

Stimulus	User selects "Edit User"
Response	System takes user to the "Edit User" display. This prompts the user to select an **Account** to be edited.
Response	System prompts user to edit **Account** information
Stimulus	User edits information and selects "Accept."
Response	System prompts user to confirm the edits
Stimulus	User confirms.
Response	System displays confirmation.

3.15.3 Functional Requirements

REQ-15.1: When user selects "Edit User," the System displays a list of **Accounts.**

REQ-15.2: When user selects an **Account** and "Accept," the system prompts the user to confirm the edits. If the user selects "Accept," the **Account** changes will be saved. If the user selects "Cancel," the system will return to the "Edit User" display.

REQ-15.3: When user selects "Accept" and all of the information has not been entered, the system displays "The Following Information is Missing: "and lists the fields that are empty.

REQ-15.4: If no **Accounts** exist, the System displays "No Accounts Exist" and redirects the user to "Add User."

REQ-15.5: If the **Username** specified already exists, the system displays "Username Already Exists" and user must correct the error to continue.

REQ-15.6: If the **EmailAddress** is already in use, system displays "EmailAddress Already Exists" and user must correct the error to continue.

REQ-15.7: If **EmailAddress** isn't valid, the system displays "The EmailAddress is Invalid."

REQ-15.8: If **Password** does not comply with SE-4 (see Section 5.3 in SRS), the system displays "The Password is Invalid."

3.16 Add Assignment

3.16.1 Description and Priority

Description	The system prompts the user for information required for an **Assignment** to be added. Once the user enters the information and selects “Add,” then system adds the **Assignment.**
Priority	High

3.16.2 Stimulus/Response Sequences

Stimulus	User selects “Add Assignment”
Response	System takes user to the “Add Assignment” display. This prompts the user for information about the **Assignment** being added.
Stimulus	User inputs information
Response	System displays confirmation.

3.16.3 Functional Requirements

REQ-16.1: When user selects “Add Assignment,” the System display prompts the user for information about the **Assignment** being added.

REQ-16.2: When all of the information has been entered and user selects “Add,” the system creates the new **Assignment**. The System then displays a confirmation.

REQ-16.3: When user selects “Add” and all of the information has not been entered, the system displays “The Following Information is Missing: “and lists the fields that are empty.

REQ-16.4: If **Assignment Name** already exists, the system displays “Assignment Name Already Exists.”

3.17 Remove Assignment

3.17.1 Description and Priority

Description	The system displays a list of **Assignments.** The user selects an **Assignment** and selects "Remove" to remove the **Assignment**. The system recalculates any **Assignment Grade** dependent on removed **Assignment.**
Priority	High

3.17.2 Stimulus/Response Sequences

Stimulus	User selects "Remove Assignment"
Response	System takes user to the "Remove Assignment" display. This prompts the user to select the **Assignment** to be removed.
Stimulus	User selects an **Assignment** and "Remove."
Response	System prompts User to confirm the removal
Stimulus	User confirms.
Response	System displays confirmation.

3.17.3 Functional Requirements

REQ-17.1: When user selects "Remove Assignment," the System displays a list of **Assignments** to select from.

REQ-17.2: When user selects "Remove" and an **Assignment** has been selected, the system prompts the user to confirm the removal. If the user selects "Remove," the **Assignment** will be removed from the system and the system recalculates any **Assignment Grade** dependent on removed **Assignment.** If the user selects "Cancel," the system will return to the "Remove Assignment" display.

REQ-17.3: If no **Assignments** exist, the system displays "No Assignments Exist."

3.18 Edit Assignment

3.18.1 Description and Priority

Description	The system displays a list of **Assignments**. The user selects an **Assignment** to edit, then changes information about the **Assignment**. The system recalculates any **Assignment Grade** dependent on removed **Assignment.**
Priority	High

3.18.2 Stimulus/Response Sequences

Stimulus	User selects "Edit Assignment"
Response	System takes user to the "Edit Assignment" display. This prompts the user to select an **Assignment** to be edited.
Response	System prompts user to edit **Assignment** information
Stimulus	User edits information and selects "Accept."
Response	System prompts user to confirm the edits
Stimulus	User confirms.
Response	System displays confirmation.

3.18.3 Functional Requirements

REQ-18.1: When user selects "Edit Assignment," the system displays a list of **Assignments** to select from.

REQ-18.2: When user selects an **Assignment** and "Accept," the system prompts the user to confirm the edits. If the user selects "Accept," the **Assignment** changes will be saved and the system recalculates any **Assignment Grade** dependent on removed **Assignment.** If the user selects "Cancel," the System will return to the "Edit Assignment" display.

REQ-18.3: If no **Assignments** exist, the System displays "No Assignments Exist."

REQ-18.4: When user selects "Accept" and all of the information has not been entered, the system displays "The Following Information is Missing: "and lists the fields that are empty.

REQ-18.5: If **Assignment Name** already exists, the system displays "Assignment Name Already Exists."

3.19 Add Announcements

3.19.1 Description and Priority

Description	The system prompts the user for information required for an **Announcement** to be added. Once the user enters the information and selects "Add," then system adds the **Announcement.**
Priority	Medium High

3.19.2 Stimulus/Response Sequences

Stimulus	User selects "Add Announcement"
Response	System takes user to the "Add Announcement" display. This prompts the user to information about the **Announcement** being added.
Stimulus	User inputs information
Response	System displays confirmation.

3.19.3 Functional Requirements

REQ-19.1: When user selects "Add Announcement," the system display prompts the user for information about the **Announcement** being added.

REQ-19.2: When user all of the information has been entered and the user selects "Add," the system creates the new **Announcement**. The system then displays a confirmation.

REQ-19.3: When user selects "Add" and all of the information has not been entered, the system displays "The Following Information is Missing: "and lists the fields that are empty.

3.20 Remove Announcement

3.20.1 Description and Priority

Description	The system displays a list of **Announcements.** The user selects an **Announcement** and selects “Remove” to remove the **Announcement**.
Priority	High

3.20.2 Stimulus/Response Sequences

Stimulus	User selects “Remove Announcement”
Response	System takes user to the “Remove Announcement” display. This prompts the user to select the **Announcement** to be removed.
Stimulus	User selects an **Announcement** and “Remove.”
Response	System prompts User to confirm the removal
Stimulus	User confirms.
Response	System displays confirmation.

3.20.3 Functional Requirements

REQ-20.1: When user selects “Remove Announcement,” the system displays a list of **Announcements** to select from.

REQ-20.2: When user selects an **Announcement** and “Remove,” the system prompts the user to confirm the removal. If the user selects “Remove,” the **Announcement** will be removed from the system. If the user selects “Cancel,” the system will return to the “Remove Announcement” display.

REQ-20.3: If no **Announcements** exist, the system displays “No Announcements Exist.”

3.21 Edit Announcement

3.21.1 Description and Priority

Description	The system displays a list of **Announcements**. The user selects an **Announcement** to edit, then changes information about the **Announcement**.
Priority	High

3.21.2 Stimulus/Response Sequences

Stimulus	User selects “Edit Announcement”
Response	System takes user to the “Edit Announcement” display. This prompts the user to select an **Announcement** to be edited.
Response	System prompts user to edit **Announcement** information
Stimulus	User edits information and selects “Accept.”
Response	System prompts user to confirm the edits
Stimulus	User confirms.
Response	System displays confirmation.

3.21.3 Functional Requirements

REQ-21.1: When user selects “Edit Announcement,” the system displays a list of **Announcements** to select from.

REQ-21.2: When user selects an **Announcement** and “Accept,” the system prompts the user to confirm the edits. If the user selects “Accept,” the **Announcement** changes will be saved. If the user selects “Cancel,” the system will return to the “Edit Announcement” display.

REQ-21.3: If no **Announcements** exist, the System displays “No Announcements Exist.”

REQ-21.4: When user selects “Accept” and all of the information has not been entered, the system displays “The Following Information is Missing: “and lists the fields that are empty.

3.22 Send Email

3.22.1 Description and Priority

Description	The system prompts the user for information required for an **Email** to be sent. Once the user enters the information and selects "Send," then system sends the **Email.**
Priority	Medium Low

3.22.2 Stimulus/Response Sequences

Stimulus	User selects "Send Email"
Response	System takes user to the "Send Email" display. This prompts the User to information about the **Email** being sent.
Stimulus	User inputs information
Response	System displays confirmation.

3.22.3 Functional Requirements

REQ-22.1: When user selects "Send Email," the system displays blank fields which represent a new **Email**.

REQ-22.2: When user selects "Send" and all the information has been entered, the system sends the **Email**.

REQ-22.3: When user selects "Send" and all of the information has not been entered, the system displays "The Following Information is Missing: "and lists the fields that are empty.

REQ-22.4: If the user selects **"**Send" with an invalid **Username, Course Name** or **EmailAddress**, the system displays "Invalid Recipient(s)."

REQ-22.5: If the user selects **"**Send" with no **Email Title,** the system places "[No Subject]" in this field and sends.

REQ-22.6: If the user selects **"**Send" with no **Email Body**, the system displays "No Email Body" and doesn't send the **Email**.

3.23 Grade Students

3.23.1 Description and Priority

Description	The system displays a list of **Courses**. The user selects a **Course**, and then the system will display a table of **Students** and **Assignments**.
Priority	High

3.23.2 Stimulus/Response Sequences

Stimulus	User selects “Grade Students”
Response	System takes user to the “Grade Students” display. This prompts the user to select the **Course** to be graded.
Stimulus	User selects a **Course**.
Response	System prompts user selects an **Assignments** and **Student** to be graded.
Stimulus	User inputs grade and selects “Accept.”
Response	System displays confirmation.

3.23.3 Functional Requirements

REQ-23.1: When user selects “Grade Students,” the system displays a list of **Courses** for the user to choose from.
REQ-23.2: When user selects a **Course**, the system displays a table of **Assignments** and **Students** for the user to edit.
REQ-23.3: When user selects “Accept,” the system prompts the user to confirm the edits. If the user selects “Accept,” the grade changes will be saved and the system will display confirmation. If the user selects “Cancel,” the system will not save the changes.
REQ-23.4: If no **Courses** exist, the system displays “No Courses Exist.”
REQ-23.5: If no **Assignments** exist, the system displays “No Assignments Exist.”
REQ-23.6: If no **Students** exist, the system displays “No Students Exist.”

3.24 View Roster

3.24.1 Description and Priority

Description	The system displays a list of **Courses**. The user selects a **Course**, and then the system will display a list of **Students**
Priority	Medium High

3.24.2 Stimulus/Response Sequences

Stimulus	User selects "View Roster"
Response	System takes user to the "View Roster" display. This prompts the user to select the **Course** to be viewed.
Stimulus	User selects a **Courses**
Response	System displays the **Course** roster.

3.24.3 Functional Requirements

REQ-24.1: When user selects "View Roster," the system displays a list of **Courses** for the user to choose from.
REQ-24.2: When user selects a **Course**, the system displays a list of **Students** in the **Course**.
REQ-24.3: If no **Courses** exist, the system displays "No Courses Exist."
REQ-24.4: If no **Students** exist, the system displays "No Students Exist."

3.25 Take Attendance

3.25.1 Description and Priority

Description	The system displays a list of **Courses**. The user selects a **Course**, and then the system will display a table of **Students** and calendar dates.
Priority	Medium Low

3.25.2 Stimulus/Response Sequences

Stimulus	User selects "Take Attendance"
Response	System takes user to the "Take Attendance" display. This prompts the user to select the **Course** to be viewed.
Stimulus	User selects a **Courses**
Response	System displays a table of **Students** and calendar dates.
Stimulus	User edits the attendance records and selects "Accept."
Response	System displays confirmation.

3.25.3 Functional Requirements

REQ-25.1: When user selects "Take Attendance," the system displays a list of **Courses** for the user to choose from.
REQ-25.2: When user selects a **Course**, the system displays a table of **Students** in the **Course** and dates. This table has checkboxes which may be checked or unchecked.
REQ-25.3: When user selects "Accept," the system stores the changes.
REQ-25.4: If no **Courses** exist, the system displays "No Courses Exist."
REQ-25.5: If no **Students** exist, the system displays "No Students Exist."

3.26 Curve Adjustment

3.26.1 Description and Priority

Description	The system a list of Courses. The user will select five text boxes with plus and minus buttons will let the user increment or decrement the curve. The system displays graphs which show the curve changing as it is adjusted. The user must select "Accept" so save the changes.
Priority	Medium

3.26.2 Stimulus/Response Sequences

Stimulus	User selects "Curve Adjustment"
Response	System takes user to the "Curve Adjustment" display. This prompts the user to select the **Course** whose curve will be adjusted.
Stimulus	User selects a **Course**
Response	System displays the **Course** curve adjustment interface.
Stimulus	User edits curve and selects "Accept."
Response	System displays confirmation.

3.26.3 Functional Requirements

REQ-26.1: When user selects "Curve Adjustment," the system displays a list of **Courses** for the user to choose from.
REQ-26.2: When user selects a **Course**, the system displays graphs showing the current curve and text boxes which allow the curve to be adjusted.
REQ-26.3: When user adjusts the curve by modifying the text boxes, the system changes the graphs (in real time) to show this adjustment.
REQ-26.4: If the user selects "Accept," the curve adjustment will be saved and the system will display confirmation.
REQ-26.5: If no **Courses** exist, the system displays "No Courses Exist."

3.27 Import Data

3.27.1 Description and Priority

Description	The system prompts the user to select the type of data that the **File** contains. The data may be about an **Assignment, Account,** or **Course**.
Priority	Medium Low

3.27.2 Stimulus/Response Sequences

Stimulus	User selects "Import Data"
Response	System takes user to the "Import Data" display. This prompts the user to select to upload information for an **Assignment, Account,** or **Course**.
Stimulus	User makes a selection.
Response	System prompts the user for a **File** location
Stimulus	User selects a **File** location and uploads the **File.**
Response	System displays confirmation message.

3.27.3 Functional Requirements

REQ-27.1: When user selects "Import Data," the system prompts with a choice of either importing an **Assignment, Account,** or **Course**.
REQ-27.2: When user selects the type of data to import, the system prompts the user for the location of the **File**.
REQ-27.3: When user enters the location of the **File** and uploads it**,** the system displays confirmation.
REQ-27.4: If the **File** being imported is invalid, the system displays "The File is Invalid."
REQ-27.5: If the **Assignment** already exists, the system displays "Assignment already Exists."
REQ-27.6: If the **Account** already exists, the system displays "Account already Exists."
REQ-27.7: If the **Course** already exists, the system displays "Course already Exists."

3.28 Export Data

3.28.1 Description and Priority

Description	The system displays a list of **Courses**. The user selects a course and all data items within the **Course** are stored in a new **File** which the user is then able to download.
Priority	Medium

3.28.2 Stimulus/Response Sequences

Stimulus	User selects “Export Data”
Response	System takes user to the “Export Data” display. This prompts the User to select the **Course** who’s data items will be exported
Stimulus	User selects a **Courses**
Response	System creates a data **File** and redirects user to a location of this new **File.**

3.28.3 Functional Requirements

REQ-28.1: When user selects “Export Data,” the system displays a list of **Courses** for the user to choose from.

REQ-28.2: When user selects a **Course**, the system will prompt the user for a location to save the **File**.

REQ-28.3: If exporting fails, the system displays “Error during Export”. Exporting can fail due to an inconsistency with the storage or a network error.

4 External Interface Requirements

4.21 User Interfaces

UI-1: The system conforms to the *Web Content Accessibility Guidelines (WCAG) 2.0*

UI-2: The system provides a help link for every interface that requires user input to explain how to use that interface.

UI-3: The user should navigate to any display they are permitted to view in fewer than four intermediate displays.

UI-4: The system doesn’t use any design elements that force a display to take more then 15 seconds to download and 8 seconds on a DSL/Cable Connection.

UI-5: The system doesn’t use more than two fonts or font colors to display text paragraphs.

UI-6: The system layout doesn’t change if the window is resized or font size is changed with all features still accessible.

UI-7: The system labels all hyperlinks with text. If the hyperlink is in a sentence, the system underlines it. The system only underlines hyperlinks.

4.22 Hardware Interfaces

GooGrade runs on a web server accessible via the user's computer. The user interacts using a mouse and keyboard.

4.23 Software Interfaces

GooGrade server-side interface consists of a Linux or Window OS with an Apache web server. A storage server is needed. The user is able to interact with GooGrade using the any of the supported web browsers.

4.24 Communications Interfaces

The main communication interface is HTTP as the GooGrade is web based. Any supported web browser is able to interact with GooGrade. The system can send **Email** to users. As of version 2 a **Teacher** can compose **Email** and send them to users through the system. Transport Layer Security (TLS) is implemented. All information stored in the system is encrypted.

5 Other Nonfunctional Requirements

5.21 Performance Requirements

PE-1: GooGrade accommodates 200 users during any given time.

PE-2: Displays load within 15 seconds and 8 seconds or less on a DSL/Cable Connection.

As recommended by the Customer.

5.22 Safety Requirements

No safety requirements are required at this time.

5.23 Security Requirements

SE-1: **User** must be valid (**Account** exists) and needs to be authenticated by the system in order to use GooGrade.

SE-2: GooGrade must comply by law with Family Educational Rights and Privacy Act (FERPA). FERPA is viewable online at http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html.

SE-3: After 5 failed login attempts, the **User** is required to wait 10 minutes in order to attempt to log in again.

SE-4: User **Password** must contain at least 6 characters and must include the following: at least 1 number, at least 1 capital character and the **Password** may not be the same as the **Username**.

SE-5: User will be able to reset **Password** by answering identifying question that will prove that the User is the **Account** holder.

5.24 Software Quality Attributes

QA-1: GooGrade should be simple enough for a first time computer user to adapt within the first week of using it. Simplicity will be measured with a survey (see Appendix C for survey).

Appendix A: Glossary

3.18.4 A-B

- **Admin** - A User with administrative abilities. There are two kinds: Teacher and Teacher Assistant.
- **Application** - the software package to be installed by a host machine.
- **Attached File** - A File Attachment is a document that a user has uploaded onto the system to be distributed to other users.
- **Browser** - A Web Browser, an application like Internet Explorer, Firefox, and Safari to download an interpret web pages.

C-E

- **Core [modules]** - The central part of the software managing authorization of users, database connection, external modules etc.
- **Course** - A group of Students representing a college class. A Course is managed by at least one Teacher and can be assigned any number of Assistants.
- **Email** - A method of private communication between two or more people by sending messages to each user's inbox.
- **Exported Statistics** - A list of classes or students the teacher wishes to save to another format on his or her computer.

F

- **Features** - Actions that the system can take with data. Features can only be requested from users with appropriate permissions.
- **File Attachment** - An external file which is uploaded into the system to be downloaded by another user. For Instance, homework or a class reading.

G

- **Grade -** A value indicating a student's proficiency and rank in their class. An Assignment Grade is a score for a single, particular assignment while the Total Grade is their average.
- **Grading Rules** - A set of guidelines set by a teacher for the system to compute the total grade from.

H

- **Host Machine** - The computer in which software is installed and run.

I

- **Inbox - A storage place for all email messages.** Grade is a score for a single, particular assignment while the Total Grade is their average.
- **Interface** - Also known as a Graphical User Interface (GUI). The graphical, non-functional side of the system.
- **Imported Statistics** - A list of classes or students a teacher wises to import into the system for use.

L

- **Logged In User** - A user who has entered his or her password and is interacting with the system.
- **Logged Out User** - A user who is not interacting with the system or whose username and password has not been accepted by the system.

M

- **Metrics** - Five statistical values of grades: Maximums, Minimums, Quartiles, Medians, and Modes.
- **Module** - Package of code designed for one or a few related features.

O-P

- **OS** - Acronym for Operating System.
- **Password** - A string of characters that the user inputs with a username to log into the system and gain permissions that user has.
- **Permission** - Determines whether or not a Feature is available to an Account or a User.

R-S

4 **Roster** - A list of students in a single class.

5 **Software** - The final package of code we have produced which can be installed in separate instances.

6 **Student** - A person enrolled in the class and who will be graded.

7 **String** - A series of one or more alphanumeric characters and special characters.

8 **System** - The local instance of the Software and all of its stored data. It does not include its users.

T

- **Teacher** - The Teacher represents the one responsible for the class and grading.
- **Teacher Assistant** - A person brought in by a Teacher to assist the Teacher in some of the Teacher's tasks.

U-W

- **Unregistered User** - A human who attempts to access the system without any permissions.
- **User** - Any human with an Account within the System.

Appendix B: Data Dictionary

Account = Username
 + Name
 + Password
 + Permission
 + UserType
 + EmailAddress

Username = *A string of user's login name, maximum length of 40 characters*

Name = *A string of item's full name. The maximum string length is 200 characters.*

Password = *A password that grants access to a user. It is at least 6 characters long and encrypted*

Permission = *An array of booleans indicating what following features a user is permitted to use: Sending Emails, Upload Files, View Own Grades, Manage Classes, Manage Metrics, Manage Grades, Manage Rosters, Manage Announcements and Manage Users.*

EmailAddress = *A email address format, represented by a string of 321 characters. that each user has that can be contacted by. The name of the address, the
part before the @ sign, must be no longer than 65 characters and the domain, the part after the @ sign, must be no longer than 255 characters. *

UserType = ["Teacher" | "TeacherAssistant" | "Student"]

TeacherAssistant = *A User type that has permissions equal to or less than a Teacher and more than a Student*

Teacher = 1:5{Course}
 + 1:100{Announcement}
 + Files

Course = 1:200{Student}
 + 0:10{TeacherAssistant}
 + GradingRules
 + CourseTitle
 + CourseSection
 + CourseNumber

CourseTitle = *A string of 100 characters indicating the title of class, such as "Introduction to Welding"*

CourseSection = *A positive integer indicating the section number of the class, if the integer is single digit than a leading zero is displayed. *

CourseNumber = *A string of 32 characters indicating the short class name, "CSC308"*

GradingRules = Percentages
+ CourseCurve

CourseCurve = *Five numbers indicating the minimum Total Grade required to obtain an
A, B, C, and D*

Percentages = * An array of integers indicating the percentage of the Total Grade different
types of Assignment Grade make up. There are 6 numbers, each for Homework, Test,
Quiz, Final, Participation and Other. All numbers in the array have a sum of 100*

Announcement = AnnouncementTitle
+ AnnouncementText
+ AnnouncementDate

AnnouncementDate = *A date and time in the default date and time format on the Host
computer when the Announcement was published*

AnnouncementText = *A long string of 10,000 characters that indicated text body of
announcement post*

AnnouncementTitle = *A string of 200 characters that indicates the title of the announcement

Files = *A list of 100 files the user has uploaded onto the system*

Student = 1:100{AssignmentGrade}
+ TotalGrade
+ Files

TotalGrade = *A calculated floating point number, the total score of AssignmentGrades, and a
character, representing the letter grade, based on the AssignmentGrade*

AssignmentGrade = Assignment
+ AssignmentScore

AssignmentScore = *A floating point number and letter grade, represented by a char,
depicting the score of the assignment.*

Assignment = [Test | Quiz | Homework | Participation | Other]
+ DueDate
+ Name
+ AssignmentTotal

DueDate = *The date, using the host machine default for time and date, when the Assignment must be turned in to the Teacher*

AssignmentTotal = *A floating point number and a char depicting the total possible score points on this assignment*

Email = EmailBody
+ EmailTitle
+ EmailAttachment
+ EmailRecipients

EmailBody = *A string of text written by a user that acts as the body of the email. It holds a maximum of 10,000 characters.*

EmailTitle = *A string of 100 characters for the title of email*

EmailAttachment = *A string address of file to be uploaded and sent. It is no longer than 255 characters*

EmailRecipients = *A list of email addresses of the destinations. Each list item is a string of 321 characters.*

Appendix C: Analysis Models

Survey

Name:

Date:

Are you a teacher or student?

How many weeks have you been using GooGrade for? (round to nearest whole number)

Please rate your overall experience with GooGrade on a 1-10 scale (1 = poor, 10 = excellent)

Please rate the GooGrade's features list on a 1-10 scale (1 = poor, 10 = excellent)

Please rate the ease of use of GooGrade on a 1-10 scale (1 = difficult, 10 = easy)

Please rate the GooGrade's graphical user interface on a 1-10 scale (1 = poor, 10 = excellent)

Storyboard – TBD

Appendix D: Issues List

Issue-1: File-size limitations on uploads
Issue-2: File format support
Issue-3: Use case document format
Issue-4: Review nonfunctional requirements