



SSS

Sweet & Spicy Sixteen

For CSCC01 - Introduction to Software Engineering

Project Report

CONTACT INFORMATION

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Dr. Wade Watts

- Male, 57 years old, African American, married and loyal to wife
- Ph.D. in Statistics
- Statistics lecturer at local university for first and second year students
- Only works in his office at the university
- Likes writing assignments the old way, with pen and paper rather than using any word software - and has teaching assistants type and post them for him
- Prefers all communication to be in person rather than through email or any other electronic means
- Understands that society is relying more and more on technology but is adamant on not wanting to change; might change thoughts if it comes to it
- The height of his technical skill is his ability to use SAS and R on his laptop
- Wants a simple, easy to use system that won't cause too much confusion on his part

Brianna Chen

- Female, 54 years old, Chinese, single
- Ph.D. in Statistics and Computer Science
- Teaches both Statistics and Computer Science as a professor in the local university
- Speaks Mandarin and English
- Proficient in HTML, CSS, JavaScript, Python, SAS, R and Java
- Had experiences in building and managing MYSQL servers
- Strong knowledge with using both Microsoft and Linux operating systems
- Tries to keep up with current technology even on her current age
- Loves all kinds of technology and willing to learn about even more software, with little tips here and there

Mia Kapoor

- Female, 17 years old, Indian, in a relationship
- Studies at UTSC, first year student in Life Science, specializing in neurology with a minor in Statistics
- Fluent in Hindi and Punjabi, good understanding of English
- Recent immigrant from India with minimal technological experience due to old rural lifestyle
- Average student but strong interest in the human body and brain, wants to become a doctor
- Creative mindset willing to learn more about technology - wants to learn more about statistics and math-related subjects from parents' influence
- Decent knowledge about Microsoft OS; owns a laptop for viewing notes and completing assignments
- Strong positive attitude towards various types of technology - willing to put in time and effort during her free time to learn for future situations
- Aware that she needs to get a grasp on technology use for future workplaces after graduation

Randolph Hotter

- Male, 16 years old, German, single
- Second year student - Statistics major and Computer Science Minor at UTSG with a strong interest in Statistics
- Gifted student who skipped two years of high school
- Works on his laptop and is very experienced with both IOS and Linux environments
- Speaks, reads and writes fluently in both German and English
- Enjoys his studies in Statistics and would like to pursue his career in it
- Intense personality, perfectionist. Aims to score perfect in every assignment and exam
- Good computer skills: uses all software in Microsoft Office Suite and Adobe Suites
- Has basic programming skills in Python and R; wants to learn more languages
- Loves using technology for everything he does - from taking notes, to writing assignments and more
- Wants to learn everything on his own, and does not like getting hints or help in general

User Stories

User Story 1

As a...	I would like to/I want to be able to...
Professor	Make new accounts for students

Task 1: 1 Story point

Setup an admin class

Dependency: N/A

Task 2: 1 Story point

Setup a student class

Dependency: N/A

Task 3: 2 Story points

Setup a function so an admin is able to create accounts for students

Dependency: T1

Task 4: 2 Story points

Setup a login UI

Dependency: N/A

Task 5: 2 Story points

Setup a main page UI for the admin to show all main functionalities

Dependency: N/A

Task 6: 2 Story points

Setup a student add UI

Dependency: N/A

Task 7: 6 Story points

Make the functions and UI work together

Dependency: All previous tasks

Technological Choices:

Java as main programming language

JavaFX with Scene builder for creating GUIs

Detailed Description:

This is the part where we start to build the application from the ground up so we first need to setup the login screen for it. We then have to setup the main page or the home screen of the admin that shows all the functionalities they

can use i.e. view/add students, show assignments etc. As an initial design choice, we store each Student class inside an ArrayList. As a main functionality for the current user story, we setup the main student page and include a way for the admin to add students to the course.

User Story 2

As a...	I would like to/I want to be able to...
Professor	Remove students from my courses

Task 8:

Add a function to remove a student from the database
Dependency: T1

Task 9:

Add UI elements for student removal
Dependency: N/A

Task 10:

Combine the function and the UI element
Dependency: T8 & T9

Technological Choices:

Java as main programming language
JavaFX with Scene builder for creating GUIs

Detailed Description:

Add a function for the admin class to manipulate the Student List and remove specific students that they want. Design a UI element on the Student List page for the admin to be able to remove students. We then combine the function and UI element.

User Story 3

As a...	I would like to/I want to be able to...
Professor	Post assignments

Task 11:

Create a Question Class
Dependency: N/A

We create a question class that needs to contain the question itself, the choices, and the answer.

Task 12:

Create an Assignment Class

Dependency: N/A

Create an assignment class that contains a due date and an array to store questions in.

Task 13:

Add a function for admins to create questions

Dependency: T1

Create a function that takes the admin's questions taken through basic text (for now) and creates a question class and adds them into the respective assignment class.

Task 14:

Add a UI element for adding questions

Dependency: N/A

Design an "Add question" button on the admin's Assignment Page.

Task 15:

Add a function to post assignment

Dependency: T12, T13

Create a function that allows the admin to make assignments visible to students until the due date.

Task 16:

Add a UI element to see the assignments

Dependency: N/A

Design a page for admins to view example assignments with the questions, multiple choice answers, and a submit button.

Task 17:

Combine UI and function elements to make them work together

Dependency: All previous tasks from this user story

Connect the functions we created in this user story to the respective UI elements created.

User Story 4

As a...	I would like to/I want to be able to...
Professor	Have assignments with different questions for each student and every attempt

Task 18:

Create an algorithm to select randomized questions from the question pool

Dependency: T15

Create an algorithm that will randomly select a designated number of questions from an assignment question pool and put them into an assignment. This algorithm will randomize assignments for every student, and every reattempt that a student makes. It is possible for students to see repeat questions.

Task 19:

Implement algorithm into a function for assignment posting

Dependency: T18

User Story 5

As a...	I would like to/I want to be able to...
Student	Check the assignments that are available to be completed

Task 20:

Add a function for students to display available assignments

Dependency: N/A

Task 21:

Add a UI element to display assignments for students

Dependency: N/A

Task 22:

Combine said function and UI element

Dependency: T20, T21

Detailed Description:

Create a function that distinguishes pending assignments from overdue assignments and only displays the available ones. Design button on the student home page and combine it with the function.

User Story 6: 22 User Story points

As a...	I would like to/I want to be able to...
Professor/Student	Access data from the application remotely

Task 23: 6 User Story points

Make a Database Class that setups a database for usage of the application

Dependency: N/A

Task 24: 3 User Story points

Create a function for assignments, admins, and students to be able to store data (Student names, Assignment Questions, Assignment Data) into the database

Dependency: T23

Task 25: 7 User Story points

Setup a remote server to make the database accessible to all users remotely

Dependency: T23

Task 26: 6 User Story Points

Setup the database to work with the remote server and make all functions work for the application remotely.

Dependency: T23, T24, T25

Detailed Description:

Setup a database and make it work remotely so as to make all data accessible regardless of where the users access them. The application previously only worked locally and this feature would make it work online which is what is needed for all the students to answer assignments that the admins make.

User Story 7

As a...	I would like to/I want to be able to...
Student	Attempt/re-attempt assignment questions to receive marks

Task 27:

Add a function for students to be able to answer questions and record their

mark

Dependency: N/A

Task 28:

Add a function to reattempt the same assignment and record their mark if it is higher than previous attempts

Dependency: N/A

Task 29:

Add GUI element to display the whole assignment and let students answer with attempt/reattempt buttons

Dependency: N/A

Task 30:

Combine functions and UI elements

Dependency: N/A

User Story 8

As a...	I would like to/I want to be able to...
Student	See the answers for each question to get immediate feedback upon finishing an assignment

Task 31:

Add UI element to see assignment answers and implement it with the assignment function

Dependency: T12

Design a button on the student assignment page that leads to a page similar to the assignment page with answers underneath each question.

User Story 9

As a...	I would like to/I want to be able to...
Professor	Check and adjust marks for students as necessary

Task 32:

Add a function to show student marks

Dependency: N/A

Task 33:

Add a function to adjust student marks as needed

Dependency: T20

Task 34:

Add a UI element for viewing student profiles and editing them

Dependency: N/A

Task 35:

Make UI work with said function

Dependency: All previous tasks from this story

Detailed Description:

Create a function that lists every student and all their marks for individual assignments. Create a function that allows the admin to adjust marks for these assignments by increasing/decreasing the mark or removing it from calculation completely. Design UI elements for these functions and combine.

User Story 10

As a...	I would like to/I want to be able to...
Student	Check marks for all previously completed assignments

Task 36:

Add a function for students to view a collection of their assignment results

Dependency: T3

Task 37:

Add a UI element to display the assignment scores

Dependency: N/A

Task 38:

Add UI element to display the whole assignment and let students answer with attempt/reattempt buttons

Dependency: T37, T38

Detailed Description:

Make a function and a UI counterpart that allows the student to check his or her marks from previous assignments after completing them. This is done by designing a function that collects the students marks from previous assignments and displaying it in a GUI.

User Story 11

As a...	I would like to/I want to be able to...
Student	Get achievements/levels when completing specific goals

Task 39:

Add a function for students to track data from each of them that is needed for set achievements

Dependency: T3

Detailed Description:

The student gets an achievement by doing certain actions for the application. This is done by tracking the students' data through a set of functions i.e. number of completed assignments or average mark throughout the course

User Story 12

As a...	I would like to/I want to be able to...
Student	Check my achievements

Task 40:

Add a UI element to display the earned and unearned badges that displays how to get them

Dependency: N/A

Task 41:

Combine the function and GUI element so it can track when a student gets to a certain threshold and display an achievement

Dependency: T39, T40

Detailed Description:

The student gets an achievement by doing certain actions for the application. This is done by tracking the students' data through a set of functions and incorporating it with the GUI element to know when badges get displayed. The badges are greyed out at first but are displayed properly when the student gets the achievement needed.

Epics

As a...	I would like to/I want to be able to...
<i>Professor</i>	<i>Check student answers to see where they're going wrong if needed</i>
<i>Student</i>	<i>Review all my previous assignment attempts to study for exams</i>
<i>Student</i>	<i>Rate specific questions as easy, fair, or difficult</i>
<i>Professor</i>	<i>View question ratings to have an idea where students are standing on course content</i>
<i>Professor</i>	<i>Receive notifications about students doing poorly to provide extra help</i>
<i>Student</i>	<i>Be awarded an "inside-scoop" to the general statistics of how other students are doing with the system, and how I compare. The higher the achievement, the more relevant the stats information is</i>
<i>Professor</i>	<i>Check general statistics to see how students are doing with the system (percentage of students completing the assignments, average mark on the first try, date they completed vs the due date, how long completion takes)</i>