GCU Student App

Eric C Moore

CST-451 Capstone Project Requirements Document

Grand Canyon University

Instructor: Professor Mark Reha

Revision: 0.1.0

Date: Nov 1, 2020

**ABSTRACT**

Students at Grand Canyon University are often grouped with other students who make for incompatible roommates. Due to this incompatibility, the potential for roommate conflict is consistent at a level that requires the university to set aside resources—time, money, and personnel—to resolve these conflicts as they arise. Despite the student housing portal having a roommate preference questionnaire that students are required to fill out, this application lacks any convenient opportunities for students to select compatible roommates for on-campus housing.

This project seeks to solve this problem by allowing users to log into this app, fill out the questionnaire from the housing portal, and view each other’s answers and contact information much quicker than on the student portal. This will allow students to develop groups with more compatible roommates much faster and more conveniently than through the student portal, and allow them to contact each other outside of the portal and bond as well as discuss plans for moving in. This reduces the potential for roommate conflict and allows the university to dedicate these resources to other projects, which will ultimately save the university money and allow for greater expansion rate.

This application will be a dynamic web application programmed with Thymeleaf, Bootstrap, and JQuery for the frontend, Spring Boot for the backend, and MongoDB for the database server. The logical structure of the application will follow several common design patterns including MVC, N-Layer, Façade, DAO, DTO, and Singleton design patterns. It will be deployed as a Heroku web application.

|  |
| --- |
| History and Signoff Sheet |

**Change Record**

|  |  |  |
| --- | --- | --- |
| **Date** | **Author** | **Revision Notes** |
|  |  | Initial draft for review/discussion |
|  |  |  |
|  |  |  |

|  |
| --- |
| **Overall Instructor Feedback/Comments** |

|  |
| --- |
| **Overall Instructor Feedback/Comments** |

**Integrated Instructor Feedback into Project Documentation**

Yes  No

**TABLE OF CONTENTS**

Functional Requirements 5

Non-Functional Requirements 9

Technical Requirements 10

Logical System Design 11

User Interface Design 12

Functional Requirements

The following table holds all the user stories describing each functional requirement.

|  |  |
| --- | --- |
| **User story** | **Justification** |
| As a user, I want to include my first name upon creating an account | So that my first name may be visible to other users on the website. |
| As a user, I want to include my last name upon creating an account | So that my last name may be visible to other users on the website. |
| As a user, I want to include my email address upon creating an account | So that I may be uniquely identified by my email address for authentication on the website. |
| As a user, I want to create a password upon creating an account | So that I may prove my identification on the website. |
| As a user, I want to be notified when I leave my first name blank upon registration | So that I may be given the opportunity to include my first name. |
| As a user, I want to be notified when I leave my last name blank upon registration | So that I may be given the opportunity to include my last name. |
| As a user, I want to be notified when I leave my email blank upon registration | So that I may be given the opportunity to include my email. |
| As a user, I want to be notified when I leave my password blank upon registration | So that I may be given the opportunity to include my password. |
| As a user, I want to be notified when I enter non-alphanumeric characters for my first name | So that I may be given the opportunity to remove non-alphanumeric characters from my first name. |
| As a user, I want to be notified when I enter non-alphanumeric characters for my last name | So that I may be given the opportunity to remove non-alphanumeric characters from my last name. |
| As a user, I want to be notified when I enter a first name that does not contain between 2 and 32 characters | So that I may adjust the length of my first name. |
| As a user, I want to be notified when I enter a last name that does not contain between 2 and 32 characters | So that I may adjust the length of my last name. |
| As a user, I want to be notified when the email address I attempt to submit does not fit the standard email address expression | So that I may format my email to fit the standard email address expression |
| As a user, I want to be notified if my password input does not consist of 6 to 16 characters | So that I may input a password of appropriate length |
| As a user, I want to be notified whenever there is a registration error on the website | So that I may be made aware when an issue has occurred when I attempt to create an account. |
| As a user, I want to input my email upon logging in | So that the website can identify me. |
| As a user, I want to input my password upon logging in | So that I may prove that I am the one logging into the site. |
| As a user, I want to be notified whenever there is a login error on the website | So that I may be made aware when an issue has occurred when I attempt to log in. |
| As a user, I want to be presented with a list of questions to respond to that I may submit upon completion | So that I may be able to fill out my questionnaire |
| As a user, I want to answer the question which asks whether I prefer to sleep in cold, warm, or lukewarm temperature | So that other users will know my room temperature preference |
| As a user, I want to answer the question which asks whether I prefer to go to bed early, late, or at a standard time | So that other users will know my sleep time preference |
| As a user, I want to answer the question which asks whether I want to be best friends with, good acquaintances with, or complete strangers to my roommates | So that other users will know my roommate socializing preference |
| As a user, I want to answer the question which asks whether I prefer to share all my things, some of my things, or none of my things | So that other users will know my sharing preference |
| As a user, I want to answer the question which asks whether I prefer to confront my roommates or leave them alone when conflict arises | So that other users will know how I handle conflicts |
| As a user, I want to answer the question which asks whether I prefer to sleep in silence, in general quiet, or in noisy environments | So that other users will know my noise tolerance level |
| As a user, I want to answer the question which asks whether I prefer to sleep with the lights on, with the lights off, or regardless of the lights | So that other users will know what light level I prefer to sleep in |
| As a user, I want to include my year when filling out my student profile | So that other users will know what year I am |
| As a user, I want to be notified when I leave my year blank | So that I may be given the opportunity to include my year |
| As a user, I want to indicate whether I am a transfer student or not | So that other users may know if I am a transfer student |
| As a user, I want to indicate whether I am an honors student or not | So that other users may know if I am a honors student |
| As a user, I want to include my major when filling out my student profile | So that other users will know what major I am in |
| As a user, I want to be notified when I leave my major blank | So that I may be given the opportunity to include my major |
| As a user, I want the option to include a second major | So that I may display both of my majors |
| As a user, I want the option to include a minor | So that I may display my minor |
| As a user, I want the option to include a second minor | So that I may display both of my minors |
| As a user, I want to include a short autobiography when filling out my student profile | So that other users can know me more personally through the website |
| As a user, I want the option to include my SnapChat username on my list of social media handles on my user profile | So that other users can reach out to me on SnapChat. |
| As a user, I want the option to include my Instagram username on my list of social media handles on my user profile | So that other users can reach out to me on Instagram. |
| As a user, I want the option to include my Discord username on my list of social media handles on my user profile | So that other users can reach out to me on Discord. |
| As a user, I want the option to include my Twitter username on my list of social media handles on my user profile | So that other users can follow me on Twitter. |
| As a user, I want the option to begin drafting a message to a user from their profile | So that I may contact the user |
| As a user, I want to be provided with a list of other users | So that I may view other users on the website |
| As a user, I want to see the first name of each user on the list | So that I may know the first name of each user on the list |
| As a user, I want to see the last name of each user on the list | So that I may know the last name of each user on the list |
| As a user, I want to see the email address of each user on the list | So that I may know the email of each user on the list |
| As a user, I want to view the profile of a user I have found on the list of users | So that I may see the user's more personal information |
| As a user, I want to view the filled questionnaire of a user I find on the list of users | So that I may see what the user's roommate preferences are |
| As a user, I want to search for a user by typing in a first and/or last name | So that I may search for specific users on the website |
| As a user, I want to see a list of messages that are addressed to me | So that I may read and respond to users on the website |
| As a user, I want to read the content of a message addressed to me | So that I may see what the sender sent to me |
| As a user, I want to delete a message that has been sent to me | So that I may keep my inbox from being cluttered |
| As a user, I want to respond to a message sent to me | So that I may continue the conversation with this user |
| As a user, I want to include a subject header in my message | So that the recipient may see the topic of my message at a glance |
| As a user, I want to be notified when I leave the subject header in my message blank | So that I have the opportunity to include a subject header in my message |
| As a user, I want to include a text message within the message I wish to send | So that I may communicate my message to the recipient |
| As a user, I want to be notified when I leave the message content blank | So that I may be given the opportunity to write my message to the recipient |
| As a user, I want to be notified when there is an error with my list of received messages | So that I may be made aware that an issue occurred with the message list |
| As a user, I want to be notified when there is an error with a message I am attempting to read | So that I may be made aware that an issue occurred with the message I am reading |
| As a user, I want to be notified when there is an error with a message I am attempting to send | So that I may be made aware that an issue occurred with the message I am sending |

Non-Functional Requirements

**User stories**

|  |  |
| --- | --- |
| **User Story** | **Justification** |
| **As a system, I do not want to display any page that a user is not authorized to see.** | **So that I can guarantee the traffic security of the website** |

Technical Requirements

The following list describes the tools and technologies used in the project.

* Spring Boot v2.3.5
* Bootstrap v4.5.2
* Thymeleaf v3.0.11
* MongoDB v4.2.10
* Visual Studio Code v1.49.3
* Java Development Kit v11.0.8
* Heroku v18 (This cloud service is not controlled by me)
* Apache Maven v4.0.0

Logical System Design

The following diagram is a high-level logical system design of the application.

**Diagram

Description automatically generated**

User Interface Design

The following diagram is the site map for the application.

Diagram

Description automatically generated

The following diagrams are the user interface diagrams (also known as “wireframes”) for this application.Table

Description automatically generatedTable

Description automatically generated

Diagram, table

Description automatically generated