SOFTWARE DESIGN DOCUMENT

FOR

RUVACANT

VERSION 0.1

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JULY 2020

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REVISIONS

Date	Name	Revision Description

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of RUVacant is to inform users which classrooms within Rutgers University is empty. It will display information such as how many classrooms in a building is empty, what percentage of the selected times will the classroom be empty for, and more information about specific rooms in the building.

1.2 INTENDED AUDIENCE

RUVacant is intended to be used by traditional college students in Rutgers University. This includes both Undergraduate and Graduate students.

1.3 INTENDED USE

RUVacant is intended to be used during an active semester, when classrooms are in use. It is to be used when a student needs a currently unused classroom. However, this application only takes into case course information and not event information. Hence, the application will not be aware of event details; so if an event is placed in a classroom, the application will not know.

1.4 SCOPE

The goal of this application is to ease the process of finding an empty classroom. Students will no longer need to look at every classroom to determine whether it is being used. The student shall open the application, search for the building, and immediately discover which rooms are empty and for how long.

1.5 PRODUCT PERSPECTIVE

1.5.1 SYSTEM INTERFACES

This application runs in Android phones and tablets

1.5.2 EXTERNAL SERVICES

This application uses the Rutgers Course and Places API to fetch necessary data

2.0 USE CASES

2.1 ACTORS

2.1.1 USER

There is only one actor for this application as there are no different types of users for this application. There is a user for the application whom will use all parts of the application. Typically, the user will be a student but it is not limited to be used only by students. Any user can use this application and can access all parts of the application.

2.2 USE CASES

Use case name: Select Options	**ID:** UC01
Brief description: User selects three options	
Goal: The user will select three options and clicks save, in which the application then proceeds with this information	
Success Measurement: All options have one selection and the user clicks save, where the application successfully downloads and saves data	

Precondition:
All three options have exactly one selection
Trigger:
• The user opens the application and the application currently has no data
  ○ The user deletes all data through the device settings and opens the application
  ○ The user opens the application for the first time
• The user deletes all data within the app	

Typical flow of events: 1. The user opens the application for the first time or the user deletes all data either within the app or outside of it and continues to use the app 2. The user selects a Semester option 3. The user selects a Campus option 4. The user selects a Level option 5. The user clicks Save 6. The application proceeds to download data and save it	

Use case name: Search for Building	**ID:** UC02
Brief description: The user will type in text in the search bar to search for a building	
Goal: As the user types, the application filters the list depending on the query text	
Success Measurement: The user finds the building they search for	
Precondition: • Data exists in database **Trigger:** • User types text into search bar or clicks the search submit button	
Typical flow of events: 1. User clicks on the search bar 2. User types text into search bar 3. As user types or submits search, the list is filtered 4. User finds searched for building	

Use case name: Favorite a Building	**ID:** UC03

Brief description: The user favorites a building, either in the building list or in the building activity
Goal: The application adds a building as a favorite in the database
Success Measurement: The building will be added to the favorites list, and the UI star will be filled
Precondition: • Data exists in database • A building is not a favorite **Trigger:** • User clicks on the star button
Typical flow of events: 1. User clicks on the star button

Use case name: Unfavorite a Building	**ID:** UC04
Brief description: The user unfavorites a building, either in the building list or in the building activity	
Goal: The application removes a building as a favorite in the database	
Success Measurement: The building will be removed from the favorites list, and the UI star will be unfilled	
Precondition: • Data exists in database • A building is a favorite **Trigger:** • User clicks on the star button	
Typical flow of events: 1. User clicks on the star button	

Use case name: Click a Building	**ID:** UC05
Brief description: User clicks (chooses) a building from the building list	
Goal: Open a new activity and pass in the selected building's information	
Success Measurement: The building activity is opened and properly populated with the correct information	
Precondition: • Data exists in database **Trigger:** • User clicks on a building	
Typical flow of events: 1. User opens the application 2. The building listing is presented to the user 3. The user clicks on a building 4. The user is taken to the building screen	

Use case name: Fast Scroll	**ID:** UC06
Brief description: The user holds and drags on an alphabetical fast scroll, which scrolls them to the appropriate location	
Goal: The list is scrolled to the appropriate location	
Success Measurement: The list is scrolled to the appropriate location	
Precondition: • Data exists in database **Trigger:** • The user scrolls up or down on the list, which triggers the display of the fast scroll • The user holds and drags over the fast scroll	
Typical flow of events: 1. User opens app 2. User taken to building listing screen 3. User scrolls up or down the listing 4. Fast scroll appears 5. User holds and drags finger over the fast scroll 6. List is scrolled to appropriate location	

Use case name: Pick a Day	**ID:** UC07
Brief description: User picks a day of the week	
Goal: User is shown a list of days of the week, who then picks a day of the week	
Success Measurement: Correct day shows up on selection after user picks it and correct data shows up	
Precondition: • Data exists in database • User is in either the Building Activity or Room Activity **Trigger:** • User clicks on the day selector	
Typical flow of events: 1. User opens app 2. User goes to either building or room activity 3. User clicks on the day selector 4. User picks a day 5. Application displays chosen day on selector 6. Application processes data and displays correct information	

Use case name: Pick a Time	**ID:** UC08
Brief description: User picks a time from a time picker	
Goal: Allow user to pick a time then process and display correct data	
Success Measurement:	

Correct time shows up after picking and correct data shows up
Precondition: • Data exists in database • User is in the building or room activity **Trigger:** • User clicks on the time picker
Typical flow of events: 1. User launches app 2. User navigates to either building or room activity 3. User clicks on time picker 4. User picks a time 5. Application extracts data after picking and displays it 6. Application processes data 7. Application displays data

Use case name: Click a Room	**ID:** UC09
Brief description: User clicks on a room, which then navigates to the room activity	
Goal: After user clicks a room, a new activity is opened and the correct data shows up	
Success Measurement: The correct room data shows up	
Precondition: • Data exists in database • The user is in the building activity **Trigger:** • User clicks on a room	
Typical flow of events: 1. User launches app 2. User navigates to the building activity 3. User clicks one room 4. User is taken to the next screen, the room activity 5. Application displays correct data 6. Application scrolls to proper location depending on chosen data from previous screen	

Use case name: Open Navigation Drawer	**ID:** UC10
Brief description: User opens the navigation drawer	
Goal: Open the navigation drawer when user either swiper left to right or clicks on a menu button	
Success Measurement: Navigation drawer opens	
Precondition: • Data exists in database • User is either in the building listing activity, building activity, or room activity **Trigger:** • User swipers left to right or clicks a menu button	

Typical flow of events:

1. User launches app
2. User navigates to one of activities that allow a navigation drawer
3. User swipes left to right or clicks a menu button if displayed
4. Navigation drawer opens

Use case name: Close Navigation Drawer	**ID:** UC11
Brief description: User closes the navigation drawer	
Goal: Close the navigation drawer when user clicks outside the navigation drawer	
Success Measurement: Navigation drawer closes	
Precondition: • Data exists in database • User is either in the building listing activity, building activity, or room activity **Trigger:** • User clicks outside the navigation drawer	
Typical flow of events: 1. User launches app 2. User navigates to one of activities that allow a navigation drawer 3. User swipes left to right or clicks a menu button if displayed 4. Navigation drawer opens 5. User clicks outside the navigation drawer 6. Navigation drawer closes	

Use case name: Open Info	**ID:** UC12
Brief description: User opens the info screen	
Goal: Open the info screen when user clicks on the info button on the navigation drawer	
Success Measurement: The info screen opens with correct information	
Precondition: • Data exists in database • The user is in either the building listing activity, building activity, or room activity **Trigger:** • User clicks on the info button on the navigation drawer	
Typical flow of events: 1. User launches app 2. User navigates to one of activities that allow a navigation drawer 3. User swipes left to right or clicks a menu button if displayed 4. Navigation drawer opens 5. User clicks on info button 6. Application navigates to info screen	

Use case name: Reselect Options	**ID:** UC13
Brief description: User chooses to delete data and reselect options	
Goal: Data is deleted and repopulated with the correct options	
Success Measurement: Data is deleted and repopulated with the correct options	
Precondition: • Data already exists in database • User is in one of the activities that allow the navigation drawer **Trigger:** • User clicks on reselect options in navigation drawer	
Typical flow of events: 1. User launches app 2. User navigates to one of activities that allow a navigation drawer 3. User swipes left to right or clicks a menu button if displayed 4. Navigation drawer opens 5. User clicks on reselection options button 6. Application deletes all data 7. Application navigates to option screen	

Use case name: Sync Data	**ID:** UC14
Brief description: User clicks on the sync data button and all data is deleted and repopulated with the same options	
Goal: Data is deleted and repopulated with the same options and correct data	
Success Measurement: Data is deleted and repopulated with the same options and correct data	
Precondition: • Data already exists in database • User is in one of the activities that allow the navigation drawer **Trigger:** • User clicks on the sync data button on the navigation drawer	
Typical flow of events: 1. User launches app 2. User navigates to one of activities that allow a navigation drawer 3. User swipes left to right or clicks a menu button if displayed 4. Navigation drawer opens 5. User clicks on sync data button 6. Application deletes all data 7. Application repopulates data with the same options 8. Application navigates back to the building listing activity	

3.0 DESIGN OVERVIEW

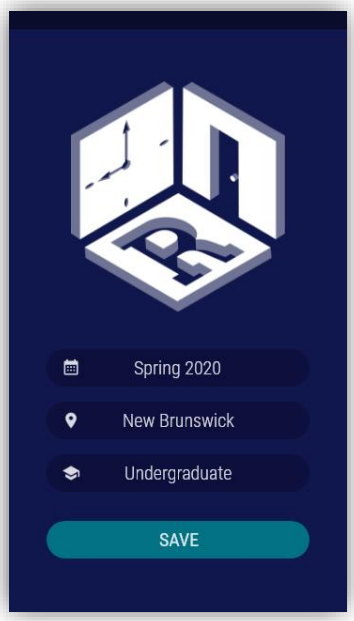
3.1 INTRODUCTION

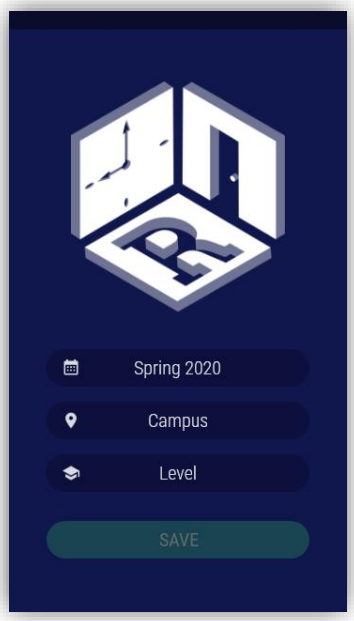
This section will contain all designs for the application, including architecture, class, and user interface.

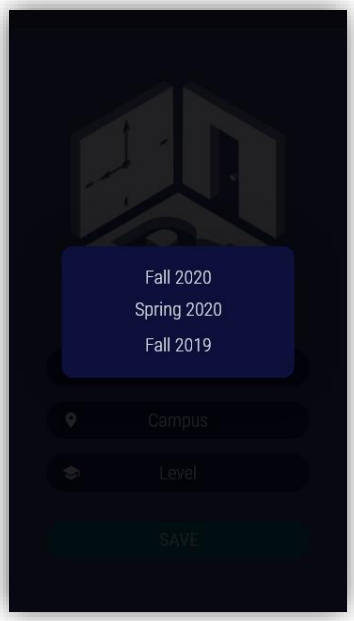
3.2 USER INTERFACE

3.2.1 SPLASH ACTIVITY

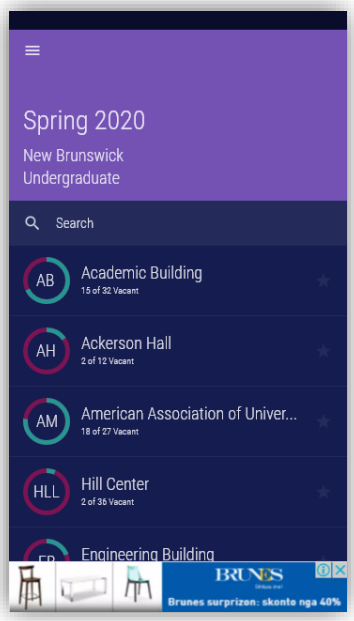
3.2.2 OPTIONS ACTIVITY

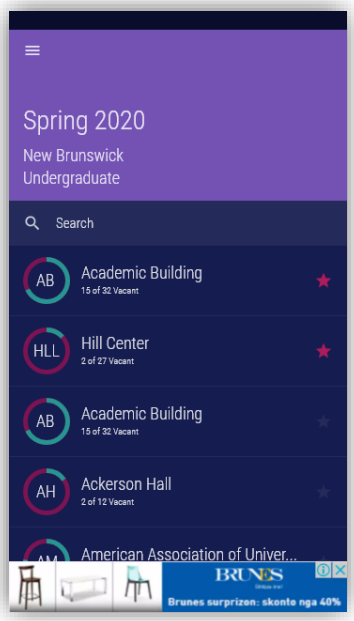


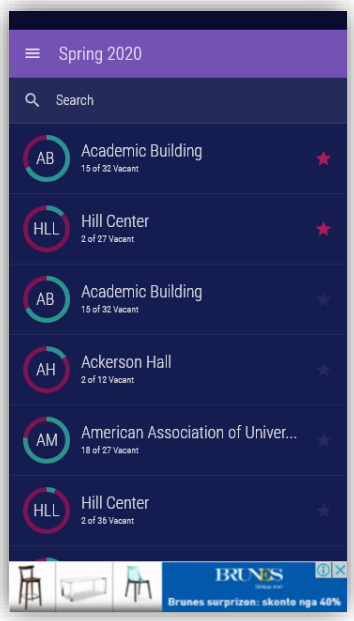


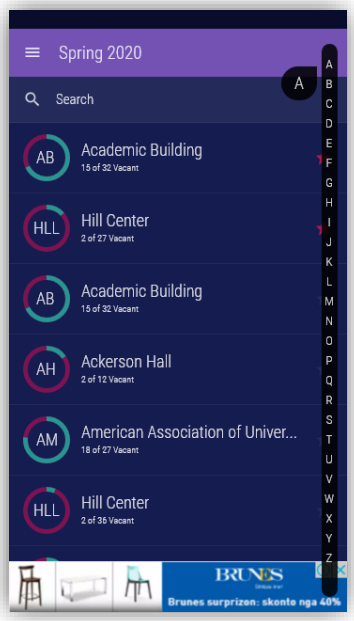


3.2.3 BUILDING LISTING ACTIVITY

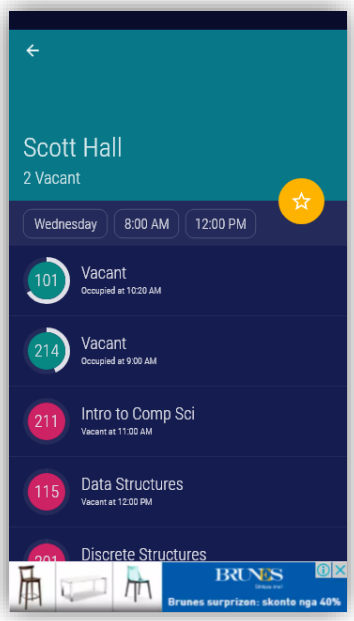


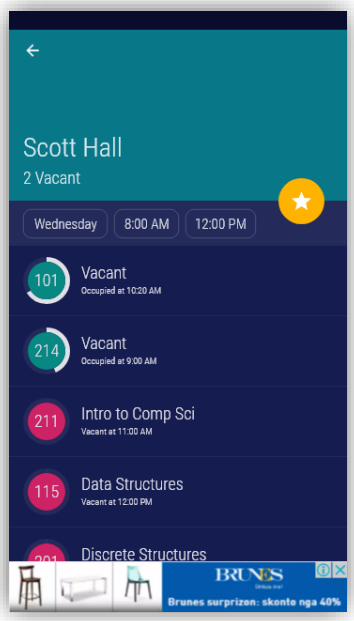


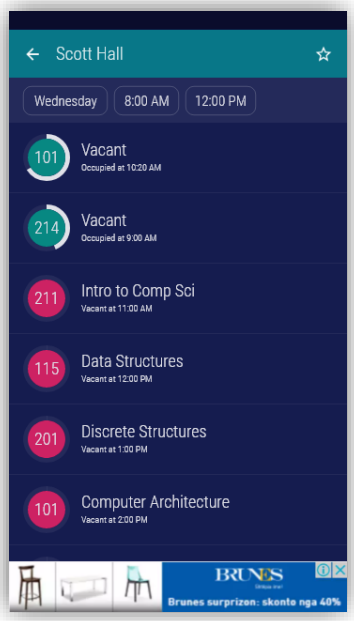


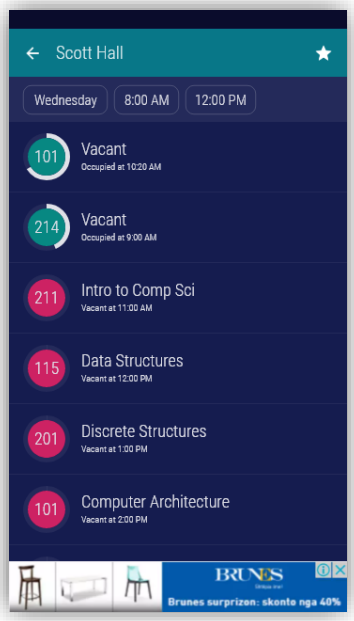


3.2.4 BUILDING ACTIVITY

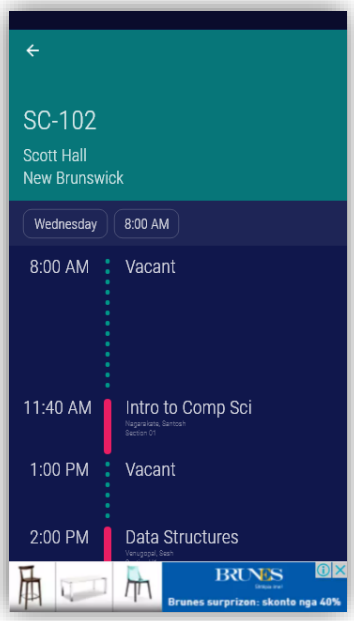


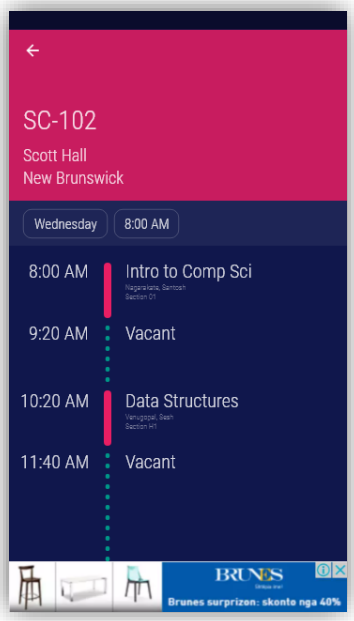


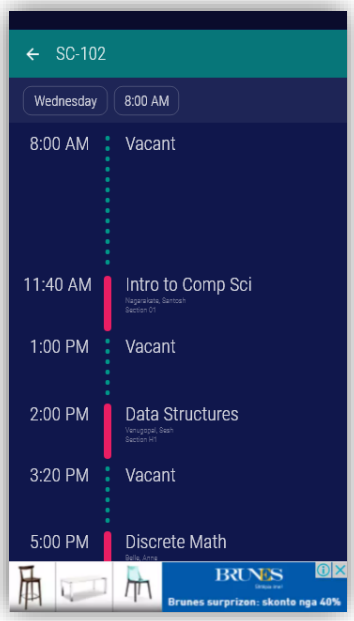


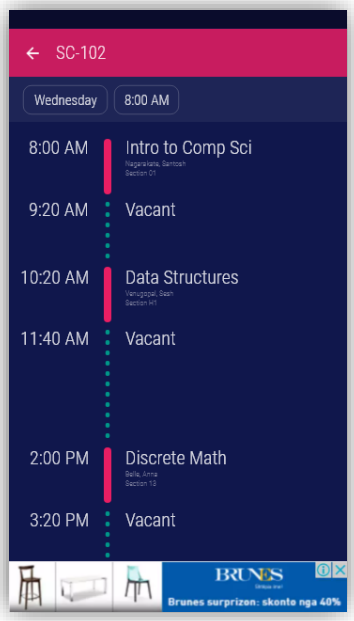


3.2.5 ROOM ACTIVITY



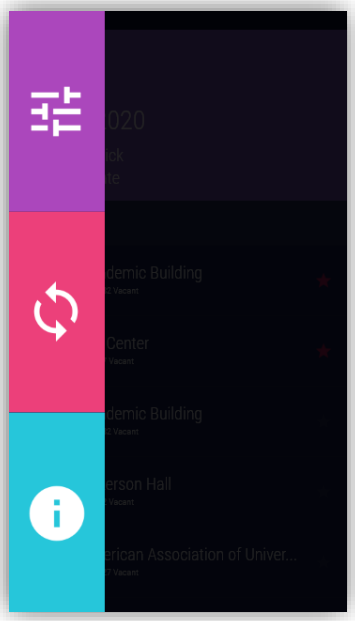






3.2.6 INFO ACTIVITY

3.2.7 NAVIGATION DRAWER



3.3 CLASS DESIGN