BoilerCheck Team 13

Sprint 2 Incremental and Regression Testing

Team Members:
Kinshuk Juneja
Nadeem Mahmood
Jeremiah Murphy
Michael Reed
Jacob Richwine
Zhandos Suleimenov

Classification of Components

Android Application GUI:

- **Login Screen**
  - Input: Email, Password, Login button, Sign Up button
  - Output: Descriptive error or navigate to Building screen
  - Parent Dependency: none
  - Child Dependency: Login action, Create User Screen
- **Create User Screen**
  - Input: Email, Password, Create User button
  - Output: Descriptive error or Login Screen
  - Parent Dependency: Login Screen
  - Child Dependency: Create User Action
- **Display Buildings Screen**
  - Input: Each building entry
  - Output: Check-in status
  - Parent Dependency: Login Action
  - Child Dependency: Retrieve Building Info Action

Android Application Activities:

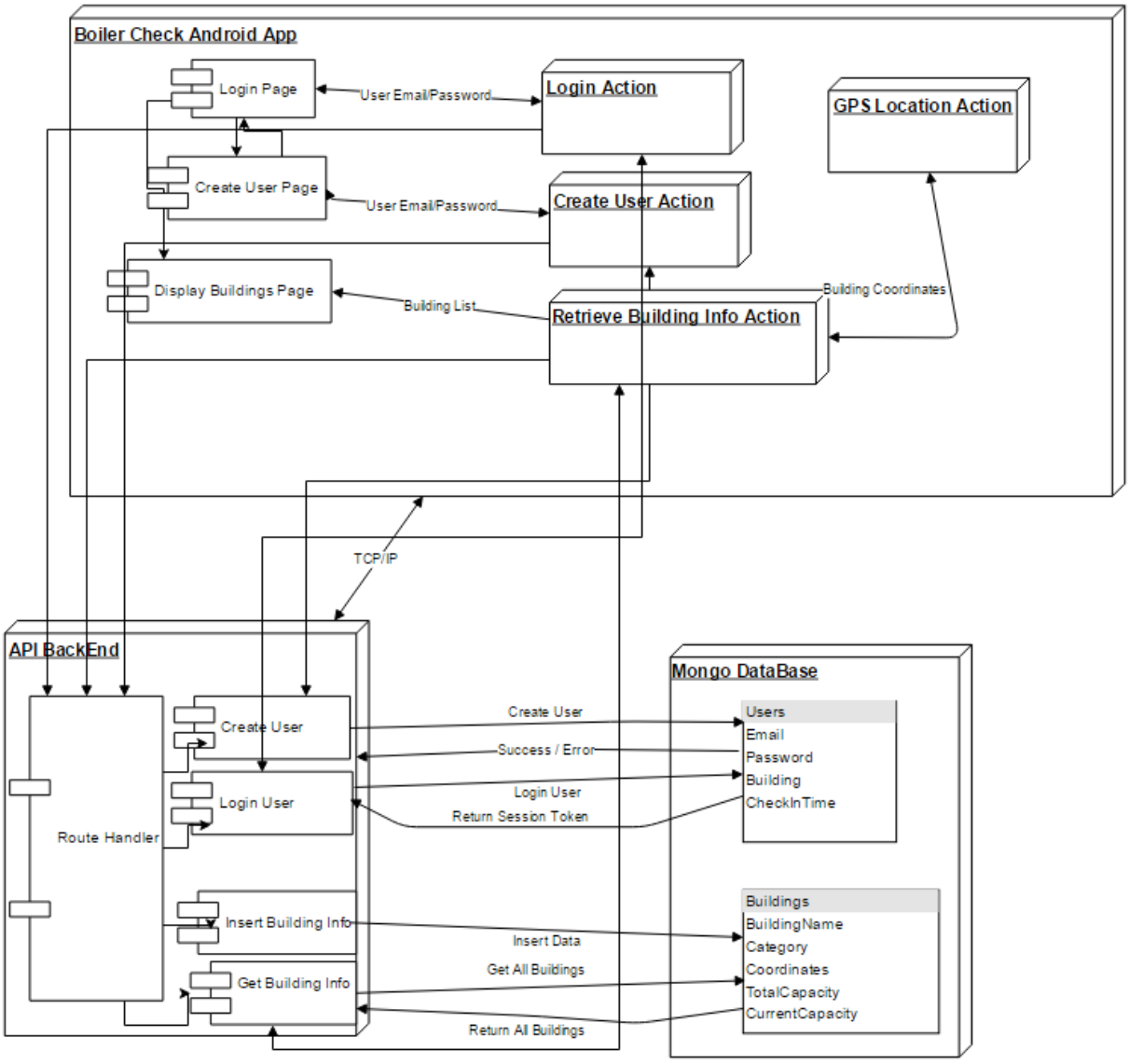
- **Create User Action**
  - Input: Email and Password
  - Output: Account Creation success or failure and reason
  - Parent Dependency: Create User Screen
  - Child Dependency: Login Screen
- **Login Action**
  - Input: Email and Password
  - Output: Login success or failure
  - Parent Dependency: None
  - Child Dependency: Display Buildings Screen
- **GPS Location Action**

    - Input: None
    - Output: GPS coordinates(longitude and latitude), distance between buildings
    - Parent Dependency: Retrieve Building Info Action
    - Child Dependency: None
- **Retrieve Building Info Action**
    - Input: None
    - Output: buildings from API BackEnd
    - Parent Dependency: Display Buildings Screen
    - Child Dependency: GPS Location Action
- **CheckIn**
    - Input: User Touch on Building Entry in List
    - Output: Status Response(Success/Error)
    - Parent Dependency: Display Buildings Screen
    - Child Dependency: GPS Nearest Building, CheckIn Async Task
- **CheckOut**
    - Input: User Moves out of Range (>30 meters)
    - Output: Status Response(Success/Error)
    - Parent Dependency: GPS Nearest Building, GPS Location
    - Child Dependency: CheckOut Async Task

API BackEnd:

- **Create User Handler**
    - Input: Email and Password
    - Output: Creation success or failure to app
    - Parent Dependency: Create User action
    - Child Dependency: App User table
- **Login User Handler**
    - Input: Email and Password
    - Output: Login success or failure to app
    - Parent Dependency: Login action
    - Child Dependency: App User table
- **Insert Building Data into Database**
    - Input: Building, Location, Category, Capacity
    - Output: Building record insertion success or failure
    - Parent Dependency: None
    - Child Dependency: Building table
- **Retrieve Building Data from Database**
    - Input: Building
    - Output: Building record deletion success or failure
    - Parent Dependency: None
    - Child Dependency: Building table
- **CheckIn Handler**

    - Input: Building, User
    - Output: Update User Table, Update Building Capacity, Return Status
    - Parent Dependency: None
    - Child Dependency: Building/User table
- **CheckOut Handler**
    - Input: User
    - Output: Update User Table, Update Building Capacity, Return Status
    - Parent Dependency: None
    - Child Dependency: Building/User table
- **Refresh Capacity Handler**
    - **I**nput: None
    - Output: Building Capacities
    - Parent Dependency: None
    - Child Dependency: Building table



Top-Down Incremental Testing:

We chose this technique due to the fact that our program heavily relies on, and even does not function without, the parent component functioning. We see the login/create screens first, so they must properly function as GUI components before we can test the code within, which are the Login/Create User Action components. Once we know those components are sending the correct data, we can then move further down the chain to the API BackEnd Modules for handling the requests. The majority of the action flow occurs from top to bottom, so that is the method we chose for testing.

Module	Android App:Login Screen

Incremental Testing

Defect #	Description	Severity	How To Correct
1	An error is quickly displayed after successfully logging in	3	Fix boolean return values of async task and onPostExecute.

Regression Testing

Defect #	Description	Severity	How To Correct
1	Using a boolean to report messages will not be sufficient. There are more than two cases.	3	Change return type of async task to a string and switch on it to determine the correct message status

Module	Android App:Create User Screen

Incremental Testing

Defect #	Description	Severity	How To Correct
1	User already exists error quickly shown after successful creation	3	Fix boolean return values of async task and onPostExecute.

Regression Testing

Defect #	Description	Severity	How To Correct
1	Using a boolean to report messages will not be sufficient. There are more than two cases.	3	Change return type of async task to a string and switch on it to determine the correct message status

Module	Android App:CheckIn Async Task

Incremental Testing

Defect #	Description	Severity	How To Correct
1	All status messages are showing when user checks in	2	Fix boolean return values of async task and onPostExecute.
2	Multiple checkins allowed	1	Create flag to disallow multiple checkins

Regression Testing

Defect #	Description	Severity	How To Correct
1	Using a boolean to report messages will not be sufficient. There are more than two cases.	3	Change return type of async task to a string and switch on it to determine the correct message status
2	CheckIn flag not persisting	1	Move the checkIn Flag variable to the boilercheck class to be a static variable

Module	Android App:Refresh Async Task

Incremental Testing

Defect #	Description	Severity	How To Correct
1	All status messages are showing when user checks in	2	Fix boolean return values of async task and onPostExecute.
2	Data returned is not in proper JSON Format	1	Modify response data string to correct format to be used by GSON
3	GSON Json Parser returns null when parsing response	1	Make class to handle the capacity object

Regression Testing

Defect #	Description	Severity	How To Correct
1	Using a boolean to report messages will not be sufficient. There are more than two cases.	3	Change return type of async task to a string and switch on it to determine the correct message status
2	The class created is not getting populated at all	1	Move the class outside of the current refreshTask class into its own

Module	Android App:CheckOut Async Task

Incremental Testing

Defect #	Description	Severity	How To Correct
1	All status messages are showing when user checks in	2	Fix boolean return values of async task and onPostExecute.

Regression Testing

Defect #	Description	Severity	How To Correct
1	Using a boolean to report messages will not be sufficient. There are more than two cases.	3	Change return type of async task to a string and switch on it to determine the correct message status

Module	Android App:Display Buildings Screen

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Distance to the buildings was not being displayed	3	Assign distance to each building in nearestBuilding function

2	**Distance to the buildings was not being displayed until check-in was clicked**	**3**	**Call nearestBuilding function at the start of the app**

Regression Testing

Defect #	**Description**	**Severity**	**How To Correct**
None			

Module	**Android App:CheckIn User Action**

Incremental Testing

Defect #	**Description**	**Severity**	**How To Correct**
1	**Can’t check-in to a new building if checked into another**	**2**	**Check if user is at the new building, and if they are, check them out of old building and into new building**

Regression Testing

Defect #	**Description**	**Severity**	**How To Correct**
1	**Multiple check-ins to the same building**	**2**	**Add conditional statement to check if user is checked-in the building**

Module	Android App:CheckOut User Action

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Checkout listener was crashing the app	1	Add a checkout button in the “holder” for each building
2	User was not being checked-out if they left the building	2	In onLocationChanged function check if the user is no longer at the building and checkout if they are not

Regression Testing

Defect #	Description	Severity	How To Correct
None			

Module	BackEnd: Refresh Buildings

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Server crashes on refreshCapacity route being called	1	Add an empty object to the find function

Regression Testing

Defect #	Description	Severity	How To Correct
None			

Module	BackEnd: Checkout

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Server crashes on checkOut being called multiple times for same user	1	Add a check to see if user's building is none, and return if so instead of trying to proceed

Regression Testing

Defect #	Description	Severity	How To Correct
None			

Module	BackEnd: User LogOut

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Calling the route crashes the server	1	Remove the extra call to response.send in logout route

Regression Testing

Defect #	Description	Severity	How To Correct
1	Clicking logout on the action bar when there is no logged in user causes an error	2	Only show the navbar when there is a logged in user

Module	Persistent login

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Upon closing the app and starting it again, the user is unable to access the list of buildings.	1	Use the saved shared preferences to reauthenticate the user with the node server upon startup.

Regression Testing

Defect #	Description	Severity	How To Correct
None			