System and Unit Test Report:

Product name: Rendezvous

Team name: Rendezvous

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• System Test scenarios (25 points per sprint – total 75 points): You have identified user stories (that map to user requirements/functionality for your system) completed for each sprint (in that sprint's report). You will be using scenario-based testing. Scenario Based testing focuses on how the user uses the system and allows for multiple user roles as well as multiple functions provided for each user role.
For each sprint, list the user story or stories and the scenario or scenarios that show 'coverage' of those user stories. A scenario is a list of system level actions (including precise input and output) a user would follow to determine that each user story has been completed.

Sprint 1:

User Story 1: As a user, I would want to be able to create/join a room, which other users can also enter using a code.

User Story 2: I want to be able to see my location on a map, and change it by moving my marker, or searching a location.

Scenario:

1. Start Rendezvous app and enter your username. Hit GO once you've selected your username
2. On the next screen, select Create Room to create a room, or Join Room to join a room
    a. If you select Join Room, you will have to enter the room code to join the room.
3. Once you've created or joined a room, you should be able to see your location on the map, as well as a search bar to be able to change your location

Sprint 2:

User Story 1: As a user, I would want to be able to create/enter a room, which other users can also enter using a code.

User Story 2: I would like a list of possible locations to be displayed based on the locations of the people.

Scenario:

1. Start Rendezvous app and enter your username. Hit GO once you've selected your username
2. On the next screen, select Create Room to create a room, or Join Room to join a room
    a. If you select Join Room, you will have to enter the room code to join the room.
3. A midpoint will show up between your location and the other users.

Sprint 3:

User Story 1: As a user, I want the information of all members of the room to be synced (All users names should be displayed on the sidebar, user locations should be displayed, with users names displayed when their markers are clicked). I should know if a user joined or left the room, by seeing a marker and their names appear or disappear, and should be able to see if a user changes their location, by seeing their marker and the midpoint move.

User Story 2: As a user I want to see places that I can visit pop up around the midpoint within a certain radius that I choose using a slider.

a. Implement category search bar for yelp

User Story 3: I want to be able to leave the room

User Story 4: Users should be able to see location images along with their names on the slide up bar. If the location name is clicked, users should be redirected to the locations yelp page.

Scenario:

1. Click Join room.
2. On the next screen, user can see their location, other users locations, the midpoint and yelp locations on the map
3. Click on the sidebar
4. Users can see names of all users in the room. Users can also see the room code, a 'leave room' button, and a slider for range from midpoint. Users should also see a search bar for yelp categories.
5. Users can use a slider to change the range from the midpoint they are willing to travel to see more yelp locations (max yelp locations is 20).
6. If the user searches a category on yelp, locations matching that category will pop up on the map.
7. If the user clicks leave room, they will be redirected to the first page, and can enter their username again, and choose to join or create a room again. Other users will see the user disappear from their app.

Unit Test for Firebase:

- On creating a room, the room is correctly created on firebase, with a unique id to access it. The room code is also uploaded to firebase as well as the users name and location.
- On joining a room, you can see other users locations as magenta markers. This is because we are accessing other users' locations in the room from firebase.
- We tested that if a user joins a room, their name pops up on the sidebar, as well as their location (changing the midpoint). When a user leaves a room also, their name disappears from the room sidebar, as well as their marker.
- We tested that once a user leaves a room, they are no longer associated with it and are free to create or join another room.
- If a user changes their location, their location is correctly updated on firebase, as well as everyone else's map.

Unit Test for Google Maps API:

- We first tested that the map displays on both android and ios when the user enters a room. This works perfectly on iOS, but the map doesn't load occasionally on android. If this happens, we simply need to close the app and open it again to get the map to load. We couldn't find why this was happening.
- We then tested that the users are able to change the location of their marker by pressing the 'Add Marker' button. This deletes the user's old marker, and adds a marker to their new location, as we want it to.
- We then tested the Google Maps search bar. Here, we ensured that if a user searches a location, their old marker will be deleted and a marker will be created from the location they searched, with the camera now pointing at that marker.

Unit Test for Midpoint:

- First, we tested with dummy values that if a user enters a room, the other users markers will show up on the map (this is also part of firebase testing).
- Then, we checked that a blue midpoint marker is created at the midpoint of all the locations. The midpoint is calculated by getting the average Latitude and Longitude of all the users. This consistently works every time, with no errors.

Unit Test for Yelp API:

- When the midpoint is found, green markers correctly pop up around the midpoint to show the locations of nearby places. This can take a few seconds sometimes.
- No locations show on the map if there are none
- We tested the app to ensure that users are able to search categories of places they are interested in, causing those types of places to appear on the map
- We tested the slider functionality from the midpoint. If a user finds too few locations from the midpoint, they can increase the slider range from the midpoint to display more options. The maximum number of places we display is 20, so if there are already 20 places displayed, no more will be displayed.

- On a yelp search, the slide up bar correctly shows the locations that are found along with their image. If you click the place on the slide up bar, you are correctly taken to the yelp page of that location.
- Issues we've found is that sometimes the backend does not return any places. This is due to an issue with the yelp api returning an error. We could not solve this problem, as it is from the yelp api's code.
- Another issue we found was that sometimes the yelp markers from a previous midpoint do not get deleted. This was also a weird bug that we found, and could not pinpoint.
- To test the actual backend we implemented, we wrote curl requests that we could run on our local computer as a unit test to see if the actual data can be retrieved.

Unit Test for flutter UI

- The app has been tested to ensure a user can create a username, create a room, join a room, change location, search for desired criteria, and leave a room.
- The app has been tested to ensure up to five users can enter a room and find search results based on their midpoint, as this is the maximum number of users allowed by our app.