SOFTWARE ENGINEERING

SPRINT 1 - KICKOFF PROJECT

Functional & Non-Functional Requirements

In this section we briefly describe our functional and non-functional requirements.

Functional Requirements

As stated in the project proposal, we were committed to deliver **functional requirements** and we were committed in sprint one to deliver the following:

- Application for court owning institutes under the name **COURT OWNER** to manage their courts.
- Ability to view the **owner's profile**.
- Ability to **add a new court** to the owning institute.
- Ability to **view courts** associated with the owning institute.
- Ability to **add a booking** to a court.
- Ability to **view bookings** in a court.

Non-Functional Requirements

Non-functional requirements elicited were:

The Backend Structure

- Creating a database to:
    - hold the information on court owning institutes (COURT OWNERS). The database used is **SQL**.
    - hold information on courts owned by institutes.
    - hold information on reservations and their relations to courts and so their owner.

    - generally hold additional relations to be implemented and featured in the upcoming sprints.
    - Kickoff database is completely handled in the backend.
    - Each relation in the database schema is associated with a **repository**.
- Another database we used was the **Firebase Cloud**
    - Firebase cloud allows us to save the images and attachments issued not only in the court owner profile, but in the attachments handling in the upcoming sprints.
- Creating a model-controller structure
    - **Java Spring Boot Framework** is the spine of this structure.
    - Backend structure consists of
        - Controllers
        - Model
        - Repositories (Database)
        - Services
- Handling the requests issued by application users through controllers to support the functional requirements are done through these controllers
    - **Booking Agent Controller** - handles:
        - Requests of adding an online/offline reservation to a court.
        - ***(Court Owner Feature)*** Request to view reservations and their info.
    - **Court Owner Agent Controller** - handles:
        - Requests of getting courts associated with the owner.
        - Requests of creating/adding a new court to the owner's courts.
        - Requests of adding/editing the profile picture of the owner.
        - Requests of editing profile related info ***(not featured in this sprint)***.
    - **Login Controller** - handles:
        - Requests of logging into an existing account.
    - **Signup Controller** - handles:
        - Requests of signing a new account for court.
- Each controller has a servicer associated by its name and it interfaces an implementation to the services provided by each controller.
    - ***Agents & Services***
        - Booking Agent

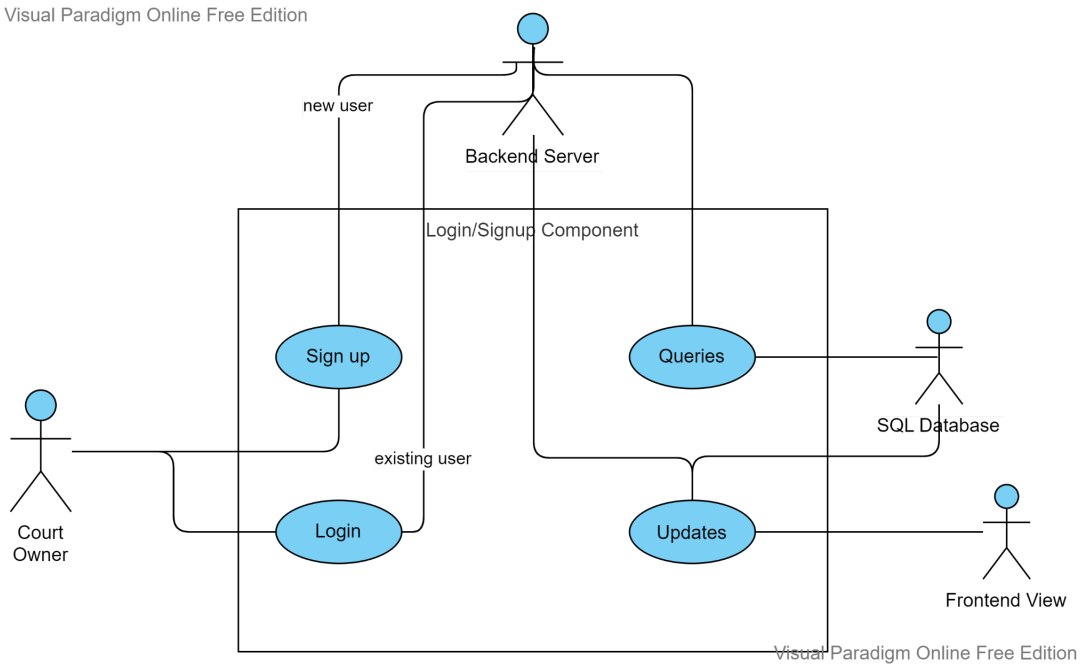
        - Court Owner Agent
        - Login Service
        - Reservations Service
        - Signup Service
        - Empty Json Response
        - Schedule Agent
- Our models are
    - ***Classes***
        - Court
        - CourtOwner
        - CourtSchedule
        - Player
        - Reservation
    - ***Enumerations***
        - CourtState - *Active, Out of order*.
        - ReservationState - *Expired, Pending, Active*.

The Frontend Structure

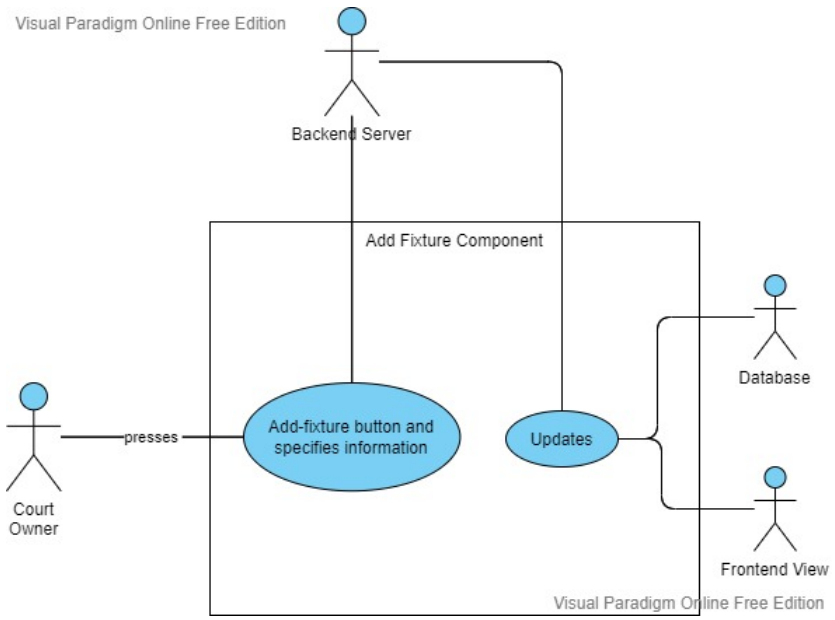
- To model the **view** of our backend **model-controller and repository** structure, we used **Flutter Framework** which uses **Dart Programming Language**.
- Main system components
    - Login Screen - *Contains the logic of logging in or registering a new account.*
    - Profile Screen - *Contains the logic of viewing owner profile info and courts associated with the owner.*
    - Announcements Screen - *Upcoming sprints feature.*
    - Reservations Screen - *Contains the logic of viewing reservations associated with each court on a dedicated date and adding a new offline fixture through the owner.*
- Other non-functional requirements were elicited in handling the validity of the data entry through services and validators in cooperation between both back and front ends.

Detailed Use Case Diagrams

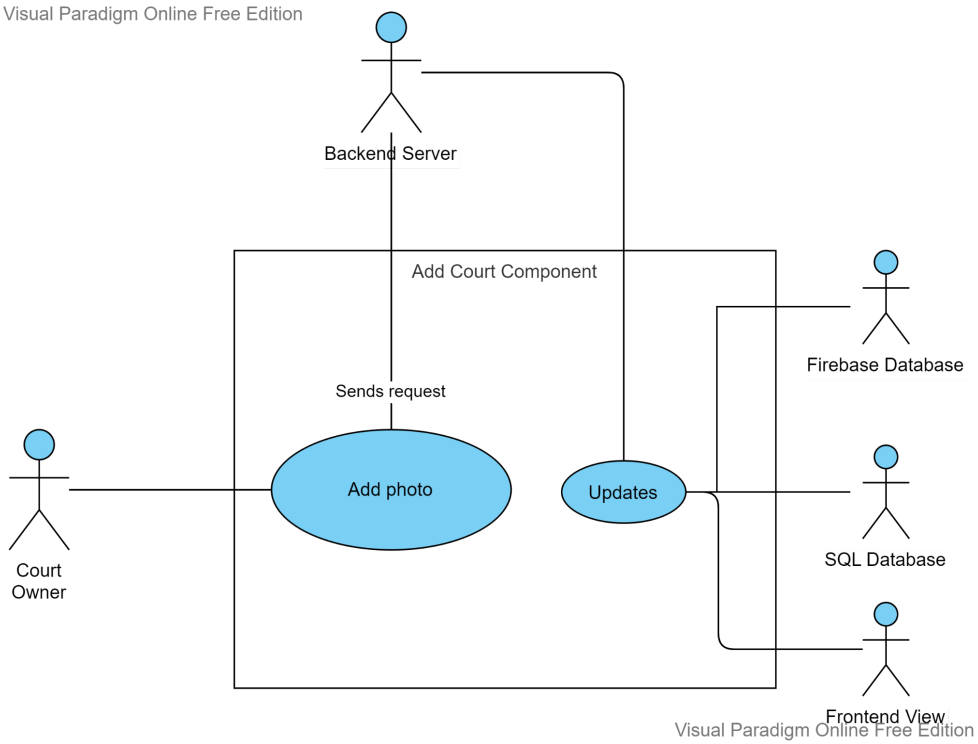
1. Use Case Diagram: Login/Signup Component



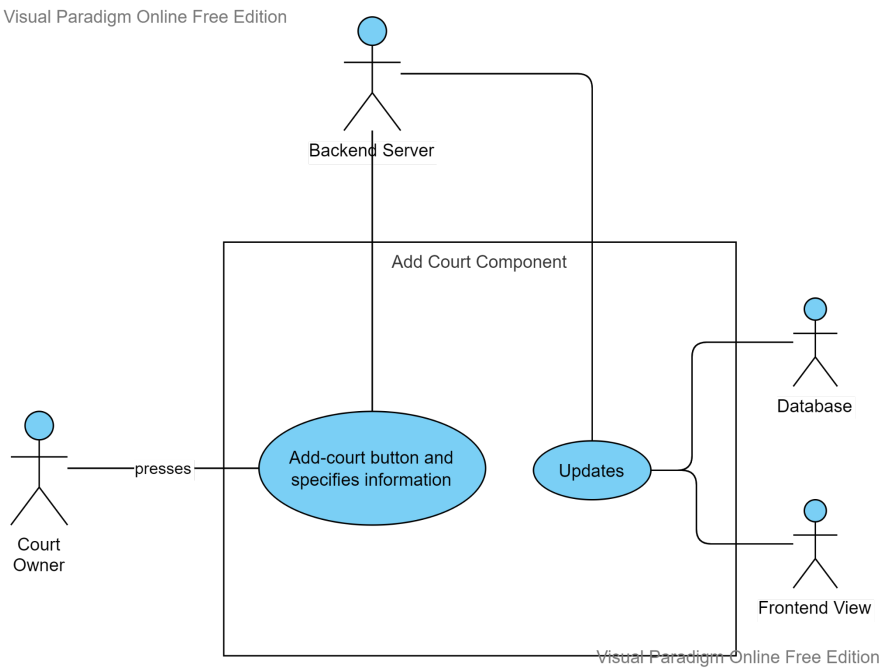
2. Use Case Diagram: Add Offline Reservation



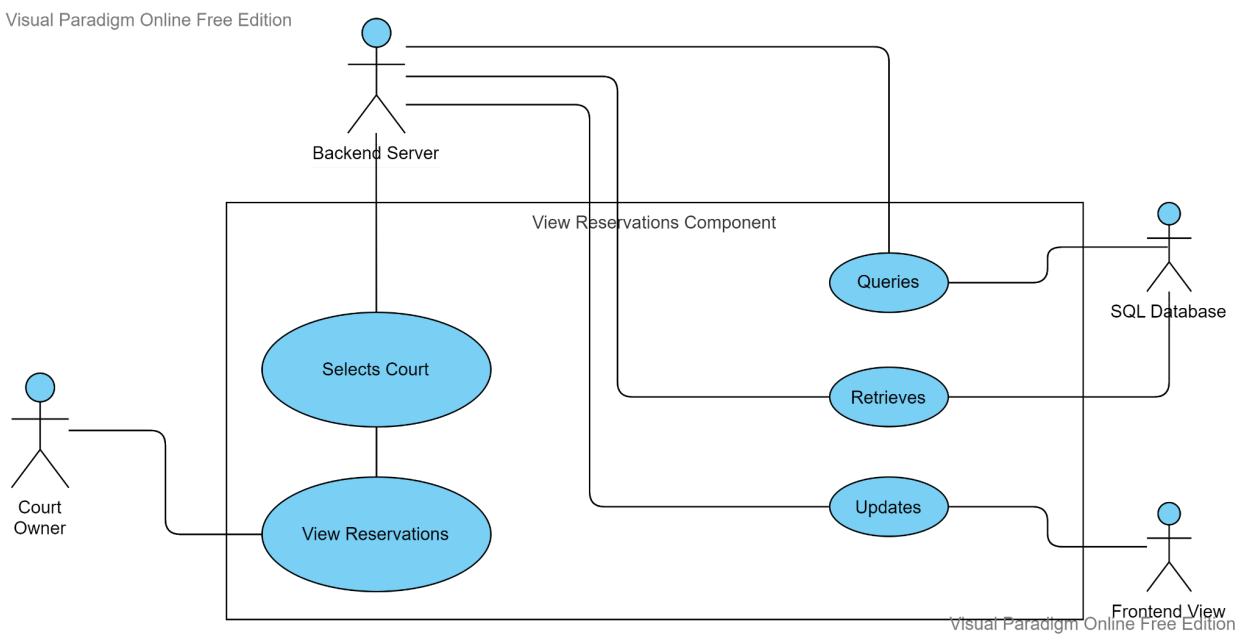
3. Use Case Diagram: Profile Interactions - Upload Profile Picture



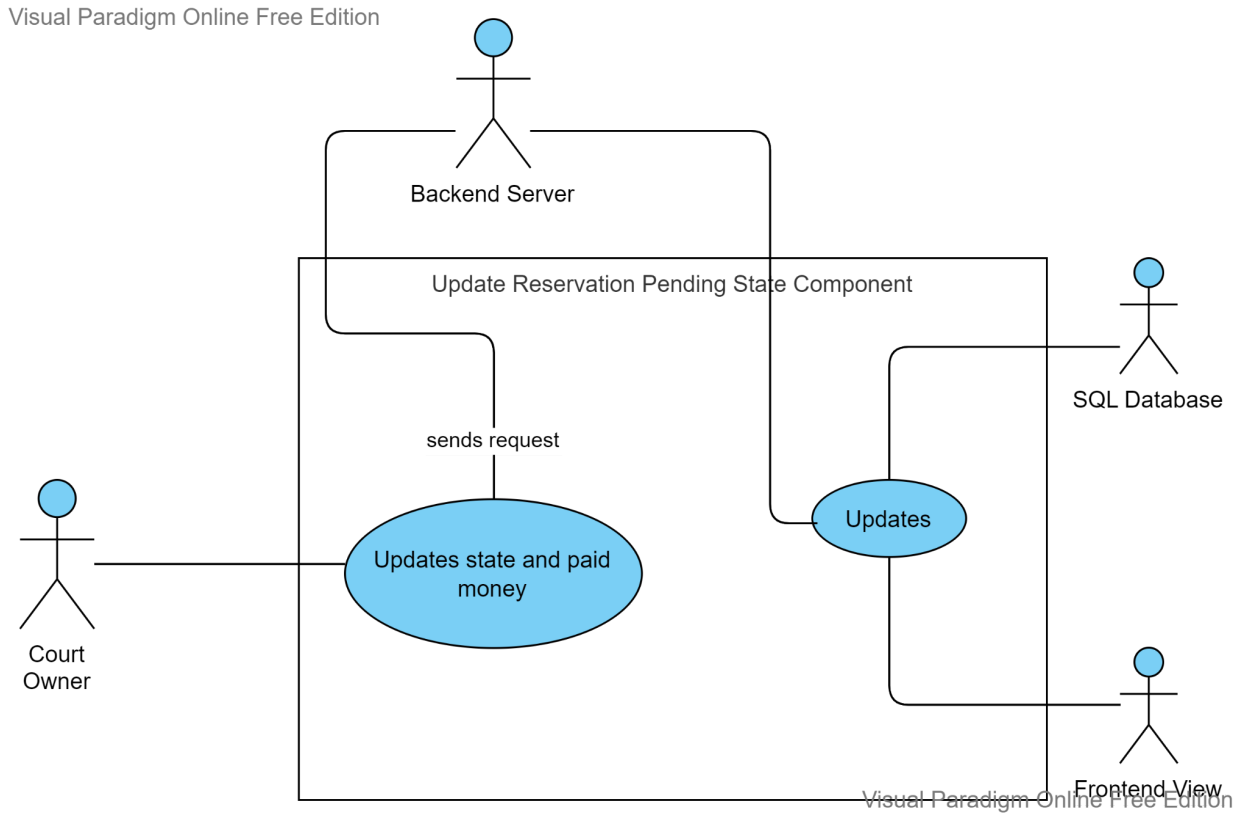
4. Use Case Diagram: Profile Interactions - Add a new court



5. Use Case Diagram: View Reservations

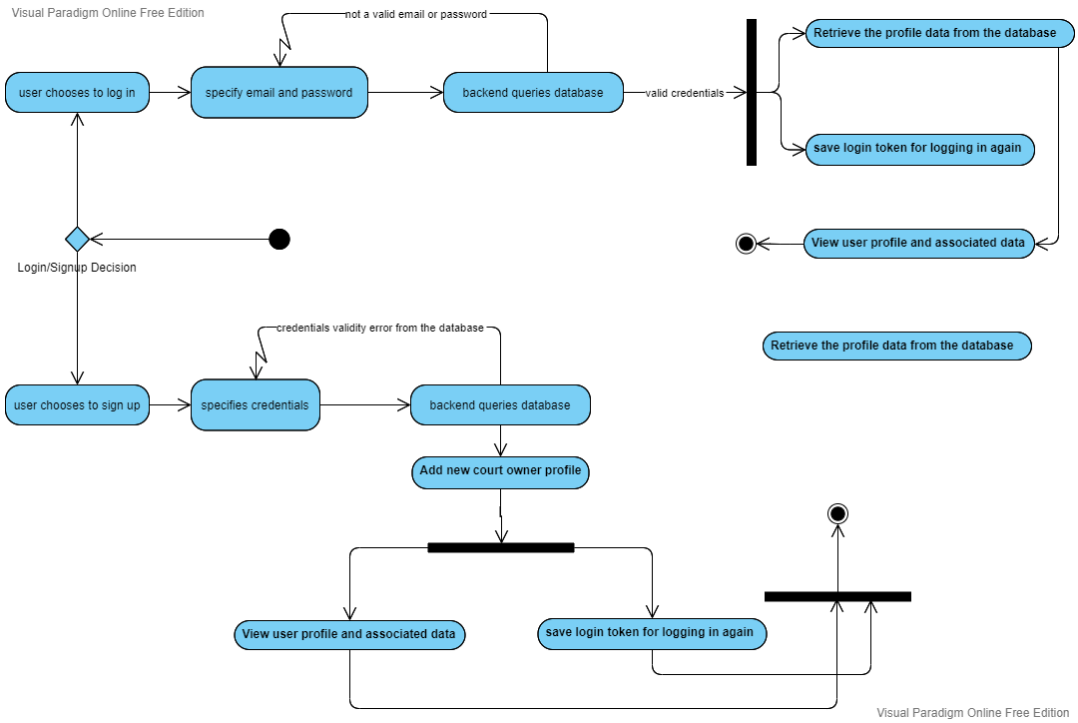


6. Use Case Diagram: Edit Reservation State

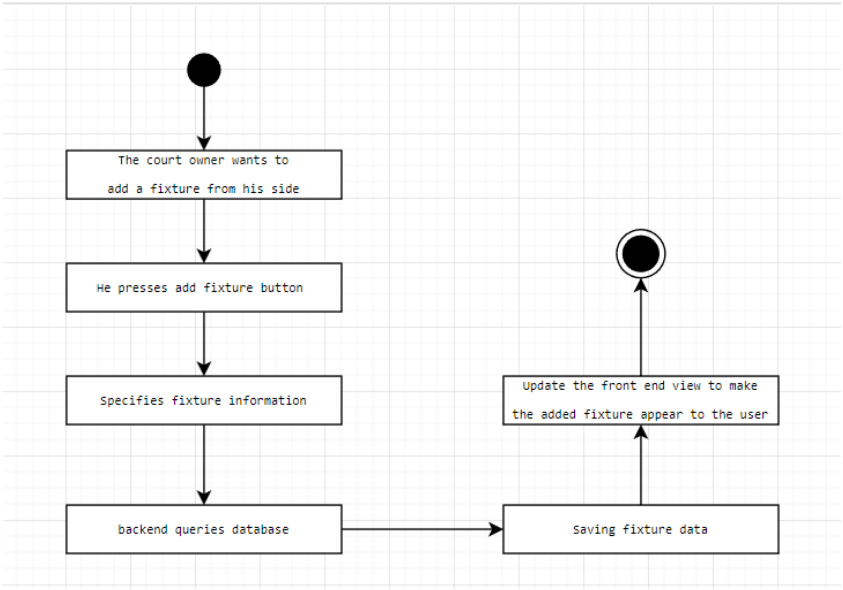


Activity Flow Diagrams

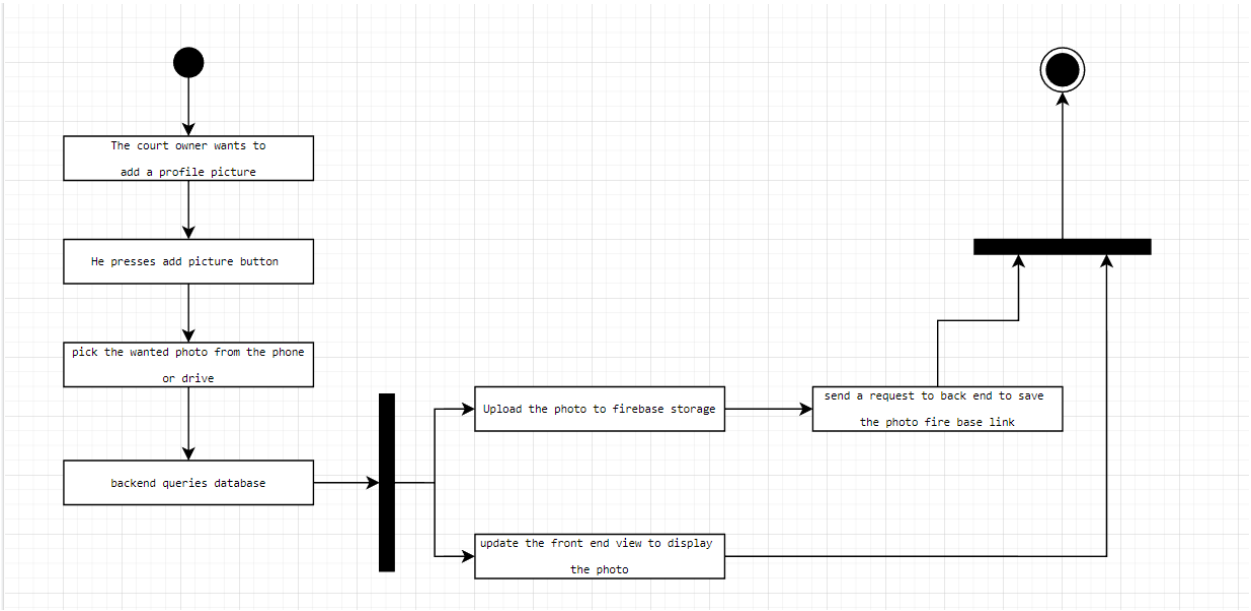
1. Activity Diagram: Login/Signup



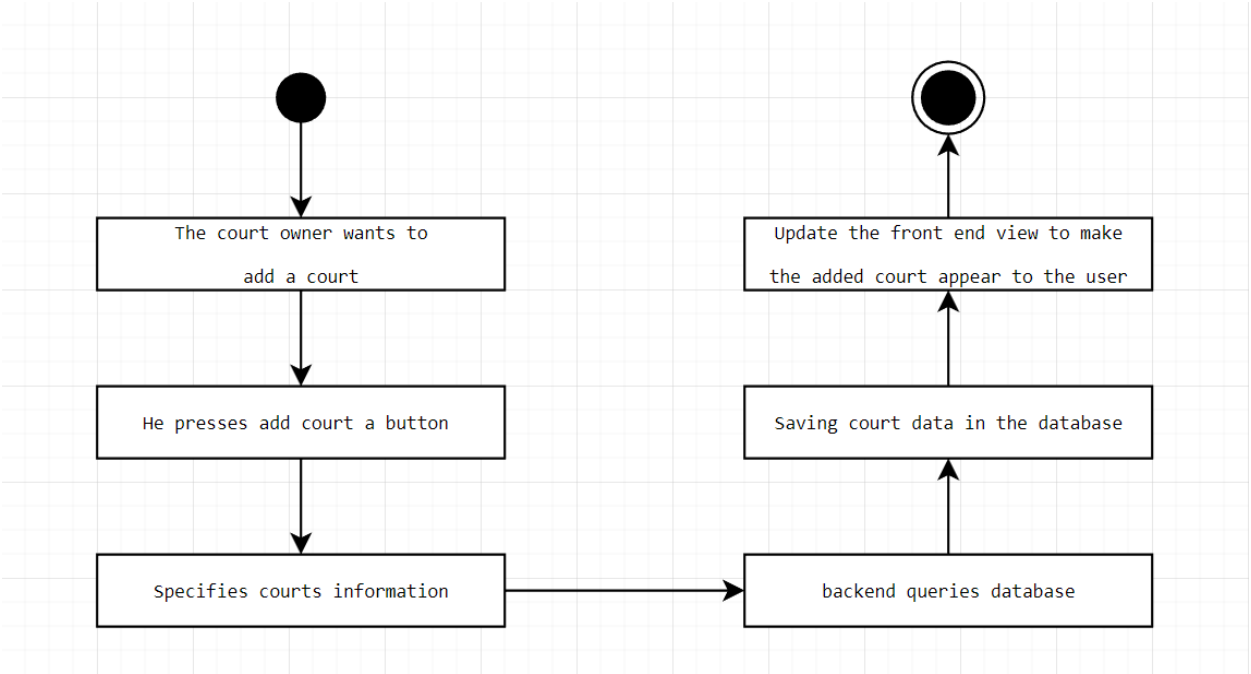
2. Activity Diagram: Add Offline Reservation



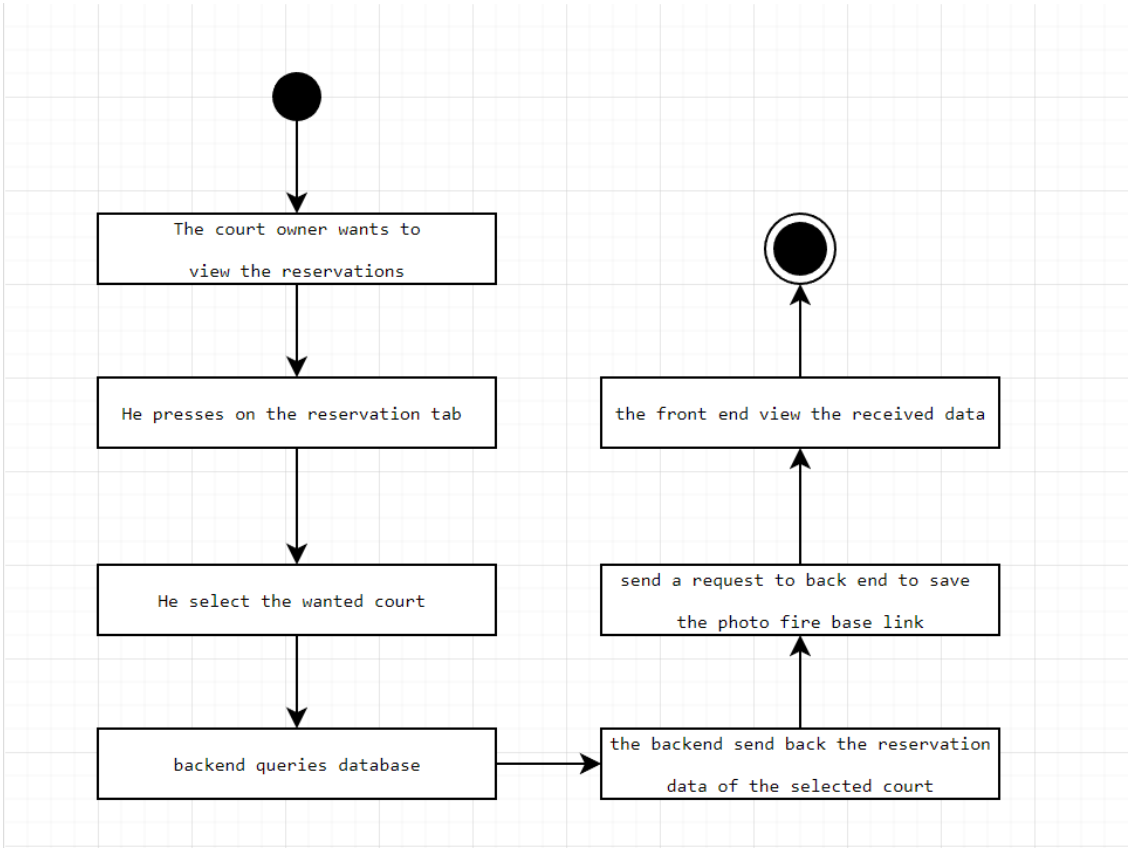
3. Activity Diagram: Profile Interactions - Upload Profile Picture



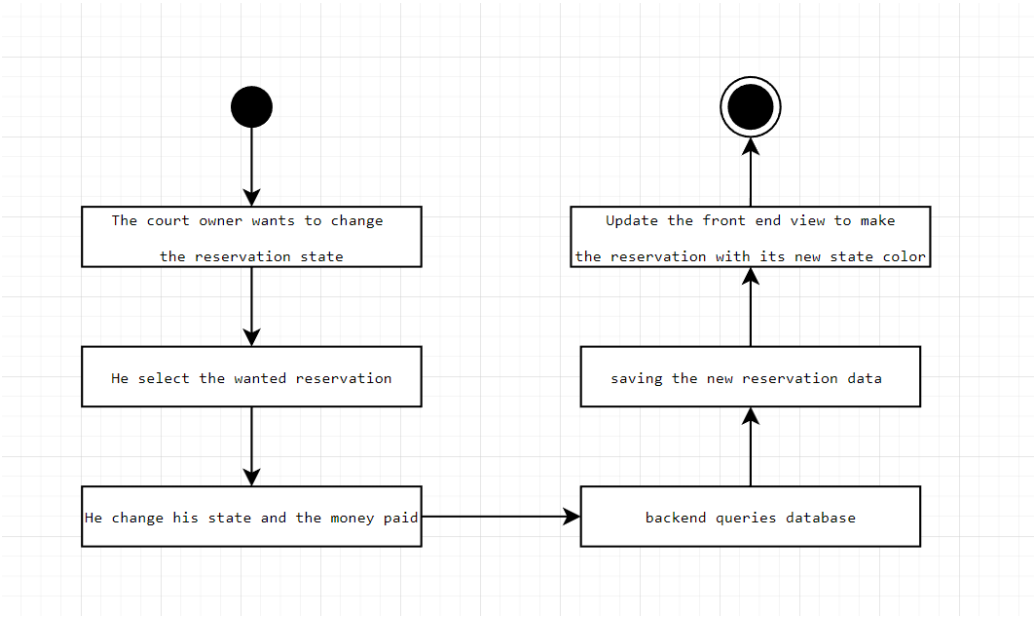
4. Activity Diagram: Profile Interactions - Add a new court



5. Activity Diagram: View Reservations



6. Activity Diagram: Edit Reservation State



Changes/Refactoring

No significant changes were issued after the initial project proposal.

Scrum Master Report

Sprint Planning Report

The sprint plan was represented in the following steps:

1. Requirement specification and creating the stories.
2. Creating tasks and assigning each task. Making sure that there are 2 or 3 people working in each story.
3. Developing and implementing each task will merging the related task iteratively
4. Testing and refactoring each task and component then the whole system
5. Fixing any bugs and reviewing the codes.

Please refer to *GIT/GITHUB REPORT* as it reports the pull requests, code reviews, etc.,.

Jira Report

Current Jira Roadmap

Milestone sprint listing the included requirements Jira Stories

Stories, tasks, and subtasks estimates

Stories

- As a court owner, I need to have the ability to log into the system.
- As a court owner, I need to have the ability to upload timetables of courts.
- As a court owner, I need to have the ability to add courts.
- As a court owner , I need to have ability to modify and cancel reservation.

Tasks & Subtasks Estimates

- Front End
- Back End

Task	Assigned-to	Estimated Time	Description
Backend package	Omar Khairat	1 day	Creating the packages on the backend. Controller, Repositories, Model and Services
Booking agent	Omar Khairat	2 days	Create the components related booking agent service and controller which is responsible for offline reservation functionality
Design Courts	Zeyad Zidan	1 day	Design the court model and view in the frontend. Design court services and http requests
Design Reservations	Zeyad Zidan	2 days	Design the reservation model and view in the frontend. Design the add offline reservation feature.
Signup Page for Court Owner	Abdelaziz Mohamed	2 days	Design Signup page for Court owner

Create Court Request	Abdelrhman Gad	1day	Handling the requests of creating the court
Schedule Model	Abdelrhman Gad	1 day	The design of the class of the court schedule.
Merge Schedule with Reservations	Abdelrhman Gad	2 days	Manage the mapping between court schedule and reservation.
Profile Design	AbdEl-Rahman El-Sayed	3 days	Represent the profile data of the user after logging in
get all reservations on time interval at Schedule agent	Abdelrhman Gad	1 day	Filtering the reservations of a court to take the reservation on certain date
Add image to login. (subtask)	Abdelrhman Gad	0 day (1 hour)	Add the image link to the response of the login
Create signup response like login. (subtask)	Abdelrhman Gad	0 day (2 hours)	Editing the response of signup request to make it return the profile attributes.
getAttachments Controller (subtask)	Abdelrhman Gad	0 day (2 hours)	Making the get request to get and add the image to the CourtOwner
Reservation Model and Builder	Abdelrhman Gad	2 day	Build the model of the reservation.
Login Page for Court Owner	Abdelaziz Mohamed	2 days	Design Login page for CourtOwner
Court Model	Abdelaziz Mohamed	1 day	Build Model of Court
Navigation Bar	AbdEl-Rahman El-Sayed	1 day	Add a bar to navigate between tabs

Court Owner Model	Omar Khairat	1 day	Build the model of the court owner data.
Backend Signup Services	Omar Khairat	1 day	Create the business logic towards signing up news court owner
Backend Signup Controller	Omar Khairat	1 day	Receive court owner sign up request
Implement stay logged in	AbdEl-Rahman El-Sayed	2 days	Saved the login data on the user phone in order not to make the user login every time he open the app
implement log out	AbdEl-Rahman El-Sayed	0 day	Log out from the app
Showing Attachments	AbdEl-Rahman El-Sayed	2 days	Make the user able to select image from the phone and make it appear every time he login
Attachments	Abdelaziz Mohamed	2 days	Store image link in back end and connect flutter with firebase
CourtOwner Agent	Omar Khairat	2 days	Create court owner agent related functionalities with request handling
Backend Login Controller	Abdelaziz Mohamed	1 day	Making the post request to get information of login of the court
Backend Login Services	Abdelaziz Mohamed	1 day	Check the information of the CourtOwner if it is found.

Git/Github Report

Branches

Main branch: main

Milestone: Sprint1

Features branches:

- Sprint1_Backend_andCourtModel
- ReservationModelBuilder
- Frontend_Profile_initiation
- CourtOwner-Signup
- Sprint1_frontend_login
- Frontend-profile
- Fixtures
- BookingAgent
- Sprint1_edit_login

Test and reviewing branches

- Test-Branch
- RequestHandling

Pull Requests

- **Pull Request #1 - Package Creation**.
    - Creating the architecture of the system projects (Flutter Frontend project & Spring Boot Backend project) including their packages.
- **Pull Request #5 -** Reservation and Court Models creation in the backend server.
- **Pull Request #8 -** Schedule model and services in the backend server and merge with the reservation.
- **Pull Request #9 -** Court Owner, Signup, and Login models and services in the backend server.

- **Pull Request #10 -** Frontend Signup and Login component creations.
- **Pull Request #11 -** Frontend Profile component creation.
- **Pull Request #12 -** Frontend Fixtures, which are the frontend model of the reservations backend model, representing the reservations associated with each court.
- **Pull Request #13 -** The Backend's booking agent, which handles reservations pending status, booking a reservation, deletion of a reservation and viewing the reservations for specified court).
- **Pull Request #15 -** Login frontend component editing after reviewing and testing.
- **Pull Request #16 -** Login and Signup frontend and backend components and models requests handling.
- **Pull Request #19 -** Fixtures phase 2, which was the refactoring of fixtures after code reviewing and fixing errors and bugs.
- **Pull Request #20 -** Handling requests for attachments and major UI enhancements.
- **Pull Request #24 -** Handling the rest of the components requests.
- **Pull Request #25 -** Test branches merge after testing, reviewing, and resolving conflicts, errors, and bugs.
- **Pull Request #31 -** Requests handling and merging all branches into one branch under the name Sprint1 and then main.

Code Review

- **Creating Signup backend functionalities**

  Author: Omar Khairat

  Review: Abdelaziz Mohamed

  Created: 28/11/2022

  Last Update:6/12/2022

  Status: Done

- **Creating login backend functionalities**

  Author: Abdelaziz Mohamed

Review: Omar Khairat

Created: 28/11/2022

Last Update:6/12/2022

Status: Done

- **Creating CourtOwnerAgent functionalities**

  Author: Abdelrahman Gad - Omar Khairat

  Review: Abdelaziz Mohamed

  Created: 28/11/2022

  Last Update:6/12/2022

  Status: Done

- **Creating BookingAgent functionalities**

  Author: Abdelrahman Gad - Omar Khairat

  Review: Abdelaziz Mohamed

  Created: 28/11/2022

  Last Update:6/12/2022

  Status: Done

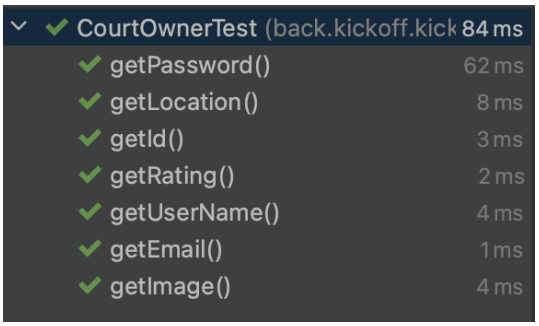
Unit Testing Report

Unit tests are created to test all our components in the following backend packages:

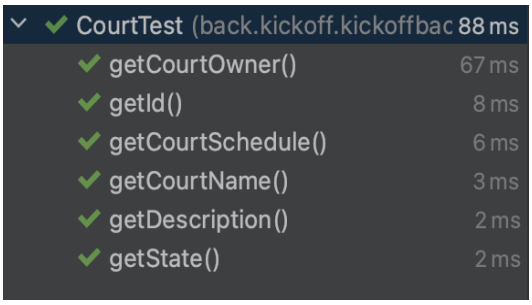
- **Model package**

  Unit tests are created in that package to ensure the attributes of each model class are persisted and stored correctly as they are essential in our business logic. The classes that are attributes are tested are the following:

  - *CourtOwner*

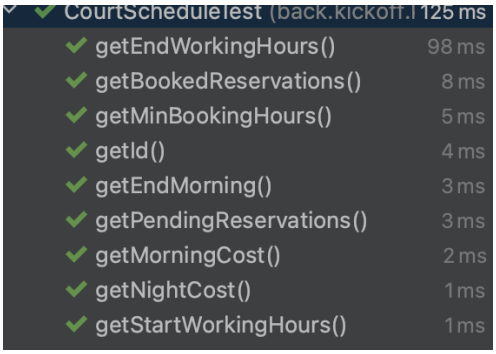


- *Court*



- *Reservation*

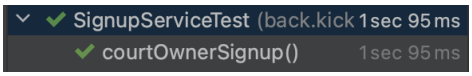
- *CourtSchedule*



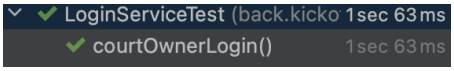
- **Service package**

  Unit tests are created in that package to ensure that each component in the service package is doing its required functionality efficiently and provide its necessary services and interacting with other packages correctly in the following test cases . The components that are attributes are tested are the following:

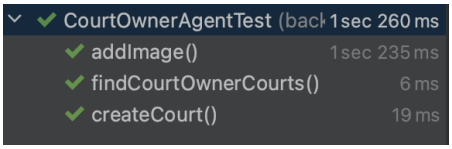
  - *SignupService*

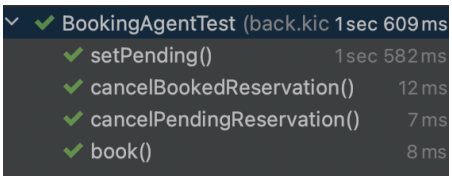
  - *LoginService*

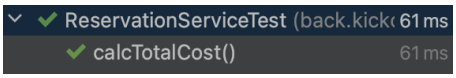
  - *CourtOwnerAgent*

  - *BookingAgent*

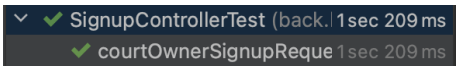
- *ReservationService*



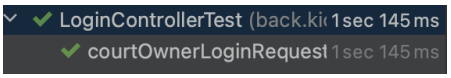
- **Controller package**

  Unit tests are created in that package to ensure that each controller interacts with desired services to provide correct responses towards the user requests coming from the view layer with data provided. The components that are attributes are tested are the following:

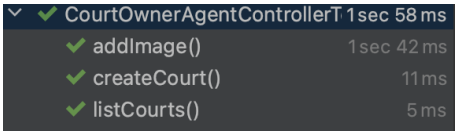
  - *SignupController*



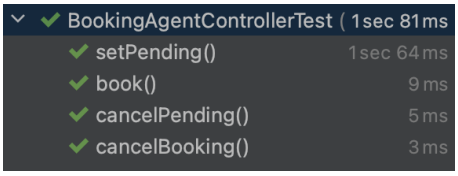
  - *LoginController*



  - *CourtOwnerAgentController*



  - *BookingAgentController*



Collaborators & Links

Scrum master for sprint one was ***Abdel-Rahman El-Sayed Gad El-Sayed***.

Collaborators

• **Zeyad Zidan**	**19015709**	**Github**
• **Abdelrahman Aly**	**19015893**	**Github**
• **Abdelrahman Gad**	**19015894**	**Github**
• **Abdel-Aziz Mohammed**	**19015941**	**Github**
• **Omar Khairat**	**19016063**	**Github**

Project

- **Github Repository**
- **JIRA Repository**
- **Firebase Repository**