

VIP/Senior Project Final Presentation Summer 2020

PEDIATRIC EMERGENCY MEDICINE APP



Team Member(s): Santiago de Irala Mut, Dianet Cruz,
Yeilys Fundora, Abel Gonzalez

Product Owner(s): Jean Hannan, Bruce Quinn

Professor: Masoud Sadjadi

**School of Computing and Information Sciences
Florida International University**

PROBLEM DEFINITION



- o Whole Project:
 - Medical staff should have an application where they can have quick and easy access to critical medical information for pediatric emergencies. In the app, there should also be areas for users to interact with other healthcare workers. Using a chatroom, users can send messages, access user profile description for online users, and be able to identify each person they are communicating with, just by tapping on their avatar. Medical personnel using the application will also be able to handle user account settings for reviewing and/or updating their personal information, active status and important data like medical certifications. Also, users have the option, to create and add significant events to their device's calendar directly from the application. In addition, Administration staff should have an Admin panel with tools to manually add, edit, create, fetch and clipboard medical information within the application, including text and images documentation, without the need of application updates or developer's interaction.

PROBLEM DEFINITION



- My Part (**Santiago de Irala Mut**):
 - I implemented a better look for the chats which is reminiscent of other chat messaging apps such as Facebook Messenger and Whatsapp. It will allow future groups to add the ability to create chats between users as it currently is a modular design. I have also implemented the chat's message permanence which allows the chat's messages to remain active even after every user disconnects from the chatroom. At last, I have also added a significant amount of modularity to the chat part of the app, which again will hopefully facilitate that future developers will be able to add the ability to have user-created chats.

PROBLEM DEFINITION



o My Part (**Dianet Cruz**):

- I implemented and designed the splash screen of the application once it is opened by users. I redesigned the entire user interface of the application to create pleasurable and easy interfaces for users to experience. After the splash screen, I created a landing page where users will get the option to Login in or create an account. If the user clicks on Sign up, it will route you to a new sign up page for the user to create their account. Once they create their account, they will be re routed to login with their credentials. The most important complex implementation was adding the Google Log-in. If the user decides to click on Login button, they will land on a new Login page with the option of Signing in with their Google Account. Once they click on the Login with Google button they will be connected to choose their google account, be automatically logged in, welcomed with their account name. From here, I added once again the new UI you see once you enter the application in the categories and subcategories. I also added a notification for admin mode.

PROBLEM DEFINITION



o My Part (**Yeilys Fundora**):

- I implemented and designed the profile component for users in the application to handle their personal information, set their active status, handle their certifications, and an easy way to create and save events to their device's calendar. I also worked on improving the navigation of the app, adding new navigators that worked as shortcuts to transition from screen to screen, like the bottom tab navigator for opening the Home Page (Categories Screen) and also the Chatroom. The switch navigator which made every screen reachable in the app, and more importantly, enables users to logout easily using the drawer from any screen and be redirected to the Login Screen. Finally, I worked on making the users' profile visible to other online users in the chatroom, by tapping on the avatar of a specific user, you are able to see their profile with basic information, that way is easier for users to identify each other while interacting in the chatroom.

PROBLEM DEFINITION



o My Part (**Abel Gonzalez**):

- I restructured and modified the previous application's code using react-redux library to successfully manage the application states, logic and maintain the entire application in a single immutable state tree (object), which can't be changed directly. Only through the use of reducers and actions which I implemented, allowing to handle data efficiently. In addition, I integrated redux-thunk to create http requests by using the api middleware to make asynchronous calls to the server and redux-store. Consequently, I created the Administration Panel's user interface and backend server requests and added functionalities of editing, adding, removing and fetching of data to/from the Firebase Server and application state, which process permitted Admin Doctors to manually manage medical information(categories) in a very friendly environment, without the need of a developer, including text documentation images and clipboard feature. Additionally, I added a navigation drawer to the categories screen to easy access the admin panel. I also worked in the design of the Categories Content Screen to display information when a specific tab is clicked.

PROJECT MANAGEMENT



USER STORIES	SPRINT 1	SPRINT 2	SPRINT 3	SPRINT 4	SPRINT 5	SPRINT 6
Become familiar with the code & technologies used.						
Restructure and modify the application's code using react-redux to manage the application states, logic and be able to handle data efficiently.						
Implement an interface panel for admin-users to be able to edit, add and remove data within the application.						
Integrate a user profile for users to access their personal information.						
Allow multiple users to interact with each other in the chatroom						
As a Admin-user I want to be able to copy and paste information from different sources to the administrator panel EditCatContent component which handles the adding and editing of data within the application						
As a developer I want to use a real-time database as storage to upload, update, and fetch all the medical information related to categories of the application using redux-thunk middleware asynchronous calls.						
Restructure the application (set the Login to be the first screen in the app, move the Chatroom and CME from the Subcategories to their own navigators components for easier access)						
Allow users to modify their profile description and save changes to firebase real-time database.						
Allow users to login using their gmail account.						
Implement a date picker for users to select a renewal date for their certifications without having to manually type it.						
Integrate a responsive user profile for when a user avatar is pressed in the chatroom.						
Allow users to create events and save to their device's calendar.						
Fix bugs in the application and handle input validation.						
Complete final deliverable's documentation.						

USER STORIES (SANTIAGO DE IRALA MUT)



- o I worked on the following user stories:
 - 1-1, 2-1, 3-15, 4-4, 4-8, 5-5
- o Of these, the most significant/important are:
 - **2-1:** As a user of the app, I would like to be able to chat with other users.
 - **3-15:** As a user of the app, I would like to be able to see a picture or profile of the person



USER STORIES (DIANET CRUZ)

- I worked on the following user stories:
 - 1-4,2-8, 2-10, 3-8, 3-9, 3-10, 3-11, 4-5, 4-6, 4-7, 5-7,5-8, 6-3
- Of these, the most significant/important are:
 - **2-10:** As a user, I would like to sign into my account using other types of applications such as gmail.
 - **3-8:** As a developer, I want to be able to login with my Gmail.
 - **3-10:** As a developer, I want to be able to create a landing page where my user can understand what the application is about.
 - **3-11:** As a User, I want to have a nice UI once I login into the application.
 - **4-5:** As a developer, I would like to create a way for users to log in and sign up with google when opening the application.
 - **4-6:** As a user, I would like to see a splash screen when first entering the application before going to the login/signup page.
 - **4-7:** As a user, I would like to see a landing page when I open the application.



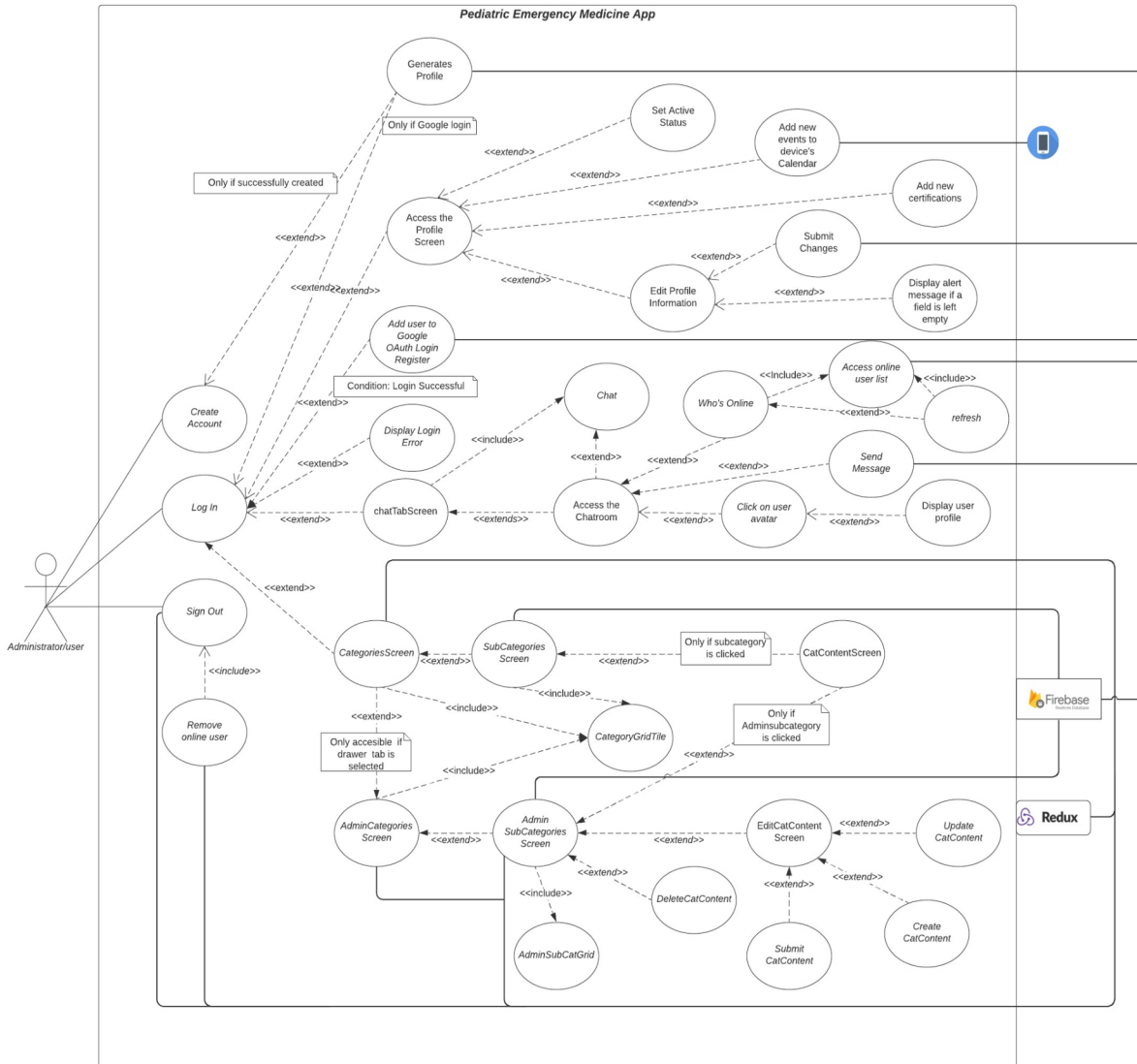
USER STORIES (YEILYS FUNDORA)

- I worked on the following user stories:
 - 1-2, 2-2, 2-3, 2-4, 3-5, 3-6, 3-7, 4-1, 4-2, 4-3, 5-1, 5-2, 5-3, 5-6, 6-1
- Of these, the most significant/important are:
 - **2-3:** As a user, I would like to access my profile, be able to edit my personal information and save it.
 - **2-4:** As a user, I would like to have navigation tabs and menus to access the app's contents easily.
 - **3-5:** As a developer, I want to restructure the application, moving the categories Search, Chat and CME to their own navigators' components for easier access.
 - **3-7:** As a developer, I want to be able to save all the user information and future updates to a real-time database.
 - **5-2:** As a developer, I want to show a responsive user profile for when a user avatar is pressed in the chatroom.
 - **5-3:** As a developer, I want users to create events and be able to add them to their own device calendar.

USER STORIES (ABEL GONZALEZ)



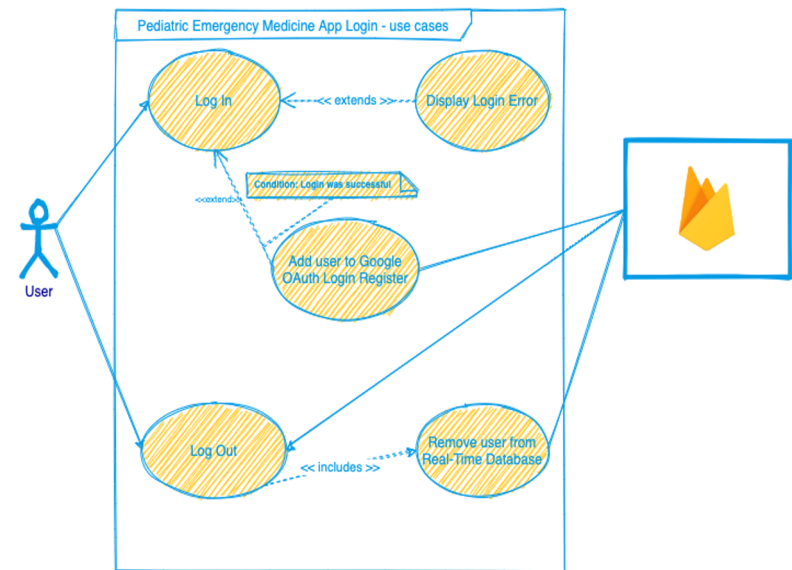
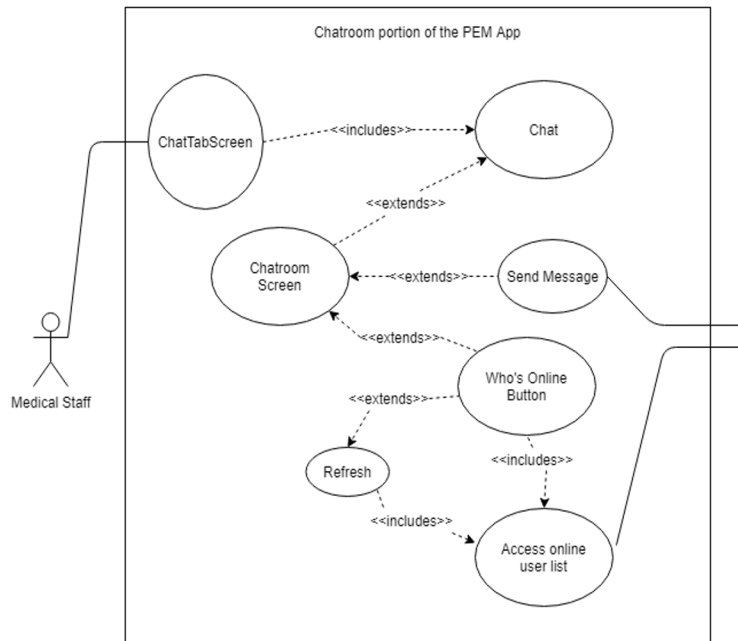
- o I worked on the following user stories:
 - 1-3, 2-5, 2-6, 2-7, 3-1, 3-2, 3-3, 3-4, 4-9, 4-10, 5-4, 5-9, 6-4
- o Of these, the most significant/important are:
 - **2-5:** As a developer I want to work in restructuring and modifying the application's code using react-redux to manage the application states, logic and be able to handle data efficiently.
 - **2-6:** As an admin-user, I would like to have an interface panel to be able to edit, add and remove data within the application.
 - **2-7:** As a user I would like to have a drawer navigation to access the admin panel, categories and categories content from the home page of the application
 - **3-1:** As a Admin-user I want to be able to copy and paste information from different sources to the administrator panel EditCatContent component which handles the adding and editing of data within the application
 - **3-3:** As a developer I want to use a real-time database as storage to upload, update, and fetch all the medical information related to categories of the application using redux-thunk middleware asynchronous calls.
 - **3-4:** As a developer I want to redesign the categories content screen to be more user friendly and display data when a tab is pressed



USE CASE DIAGRAM (WHOLE PROJECT)



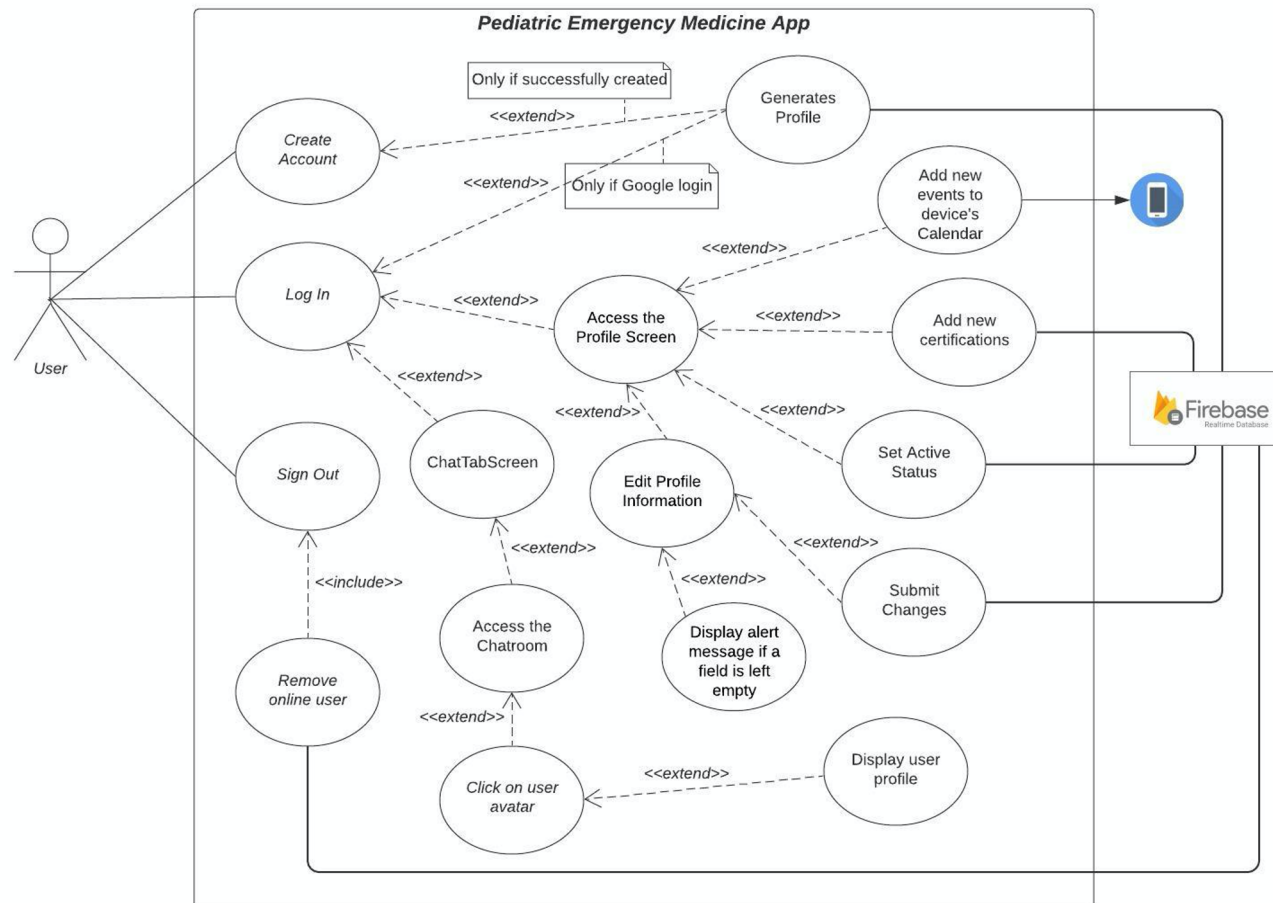
USE CASE DIAGRAM (INDIVIDUAL PARTS)



Use Case Diagram (Santiago de Irala's Contribution)

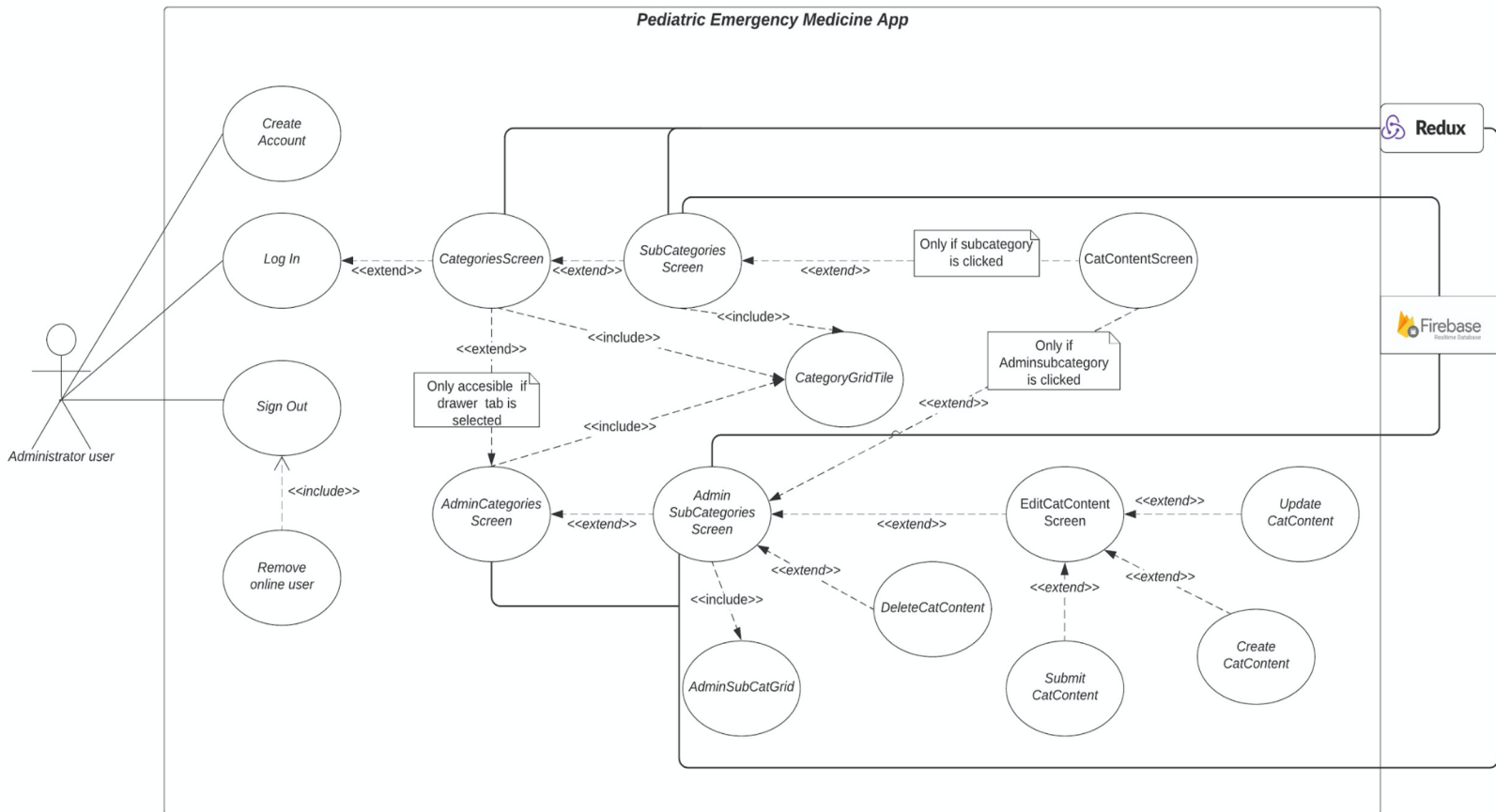
Use Case Diagram (Dianet Cruz's Contribution)

USE CASE DIAGRAM (INDIVIDUAL PARTS)



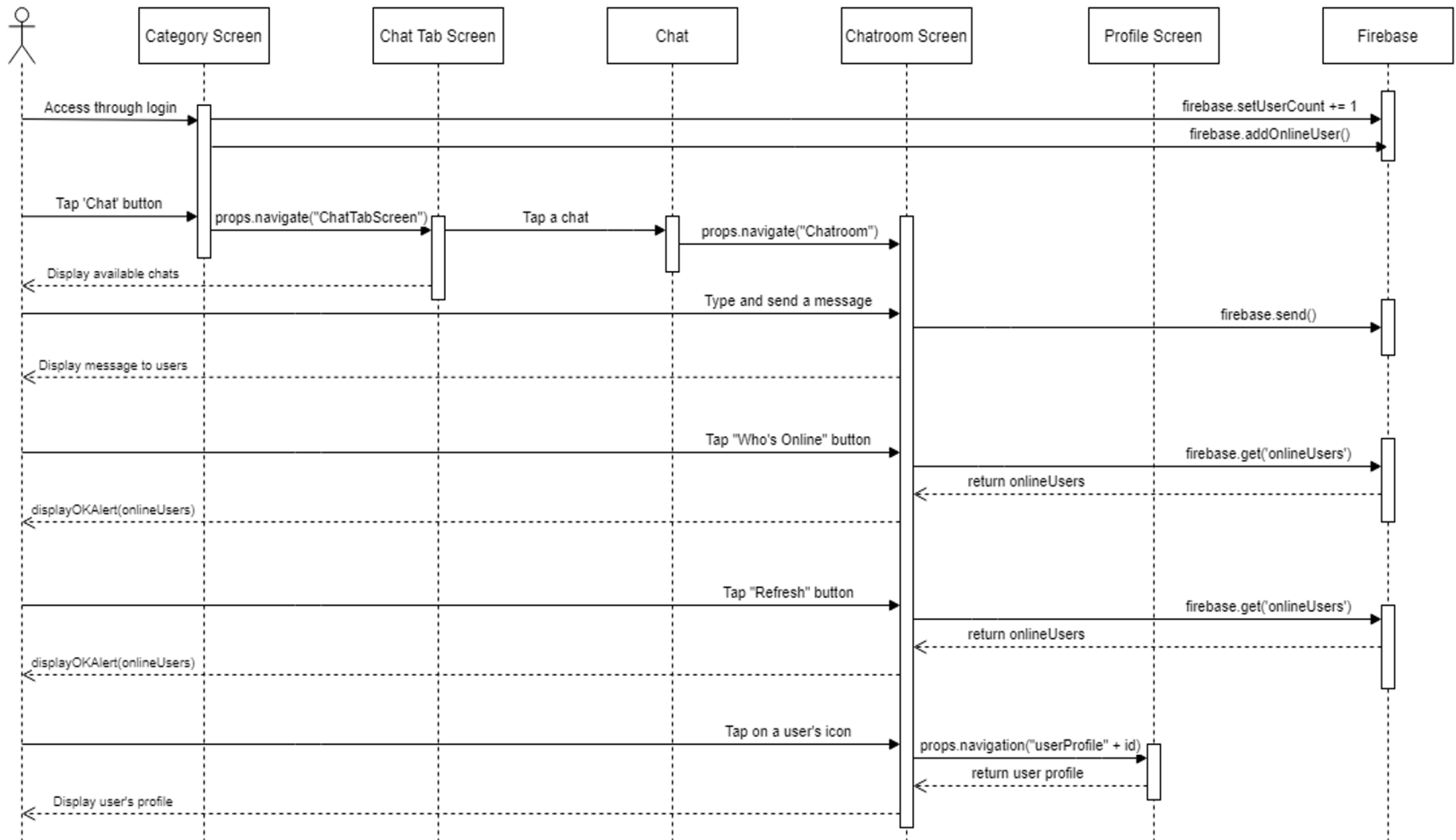
Use Case Diagram (Yeilys Fundora's Contribution)

USE CASE DIAGRAM (INDIVIDUAL PARTS)

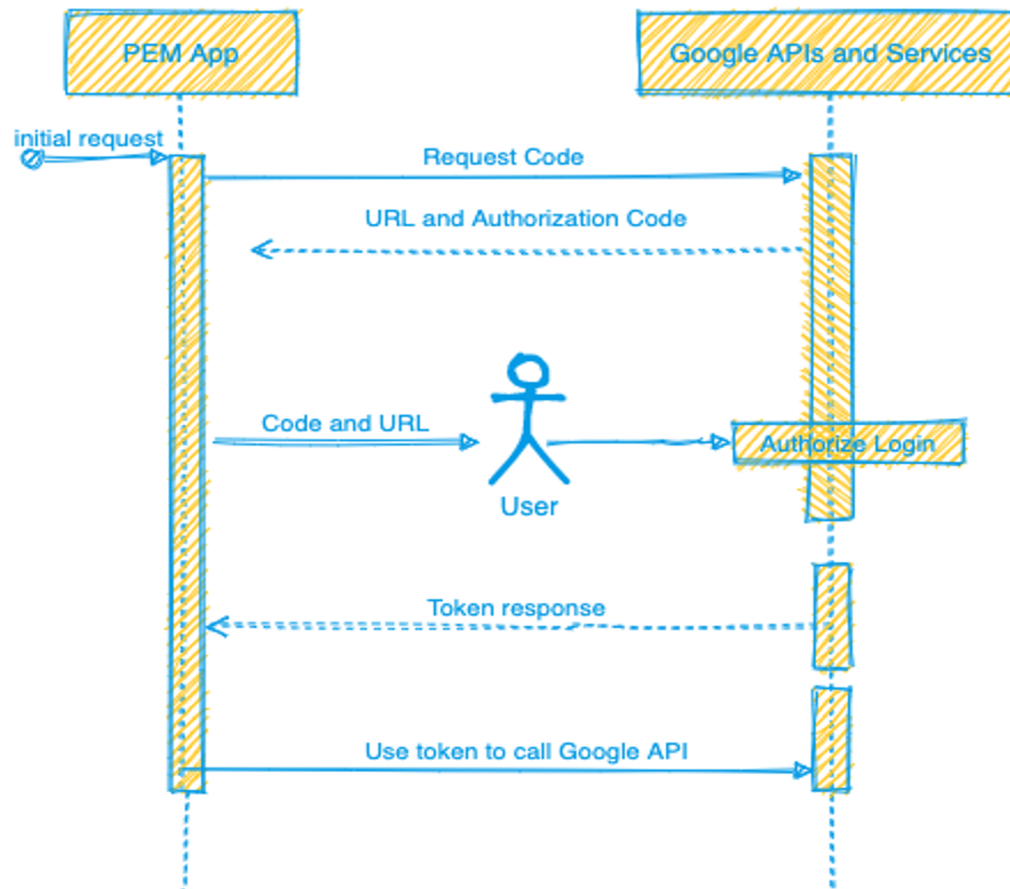


Use Case Diagram (Abel Gonzalez's Contribution)

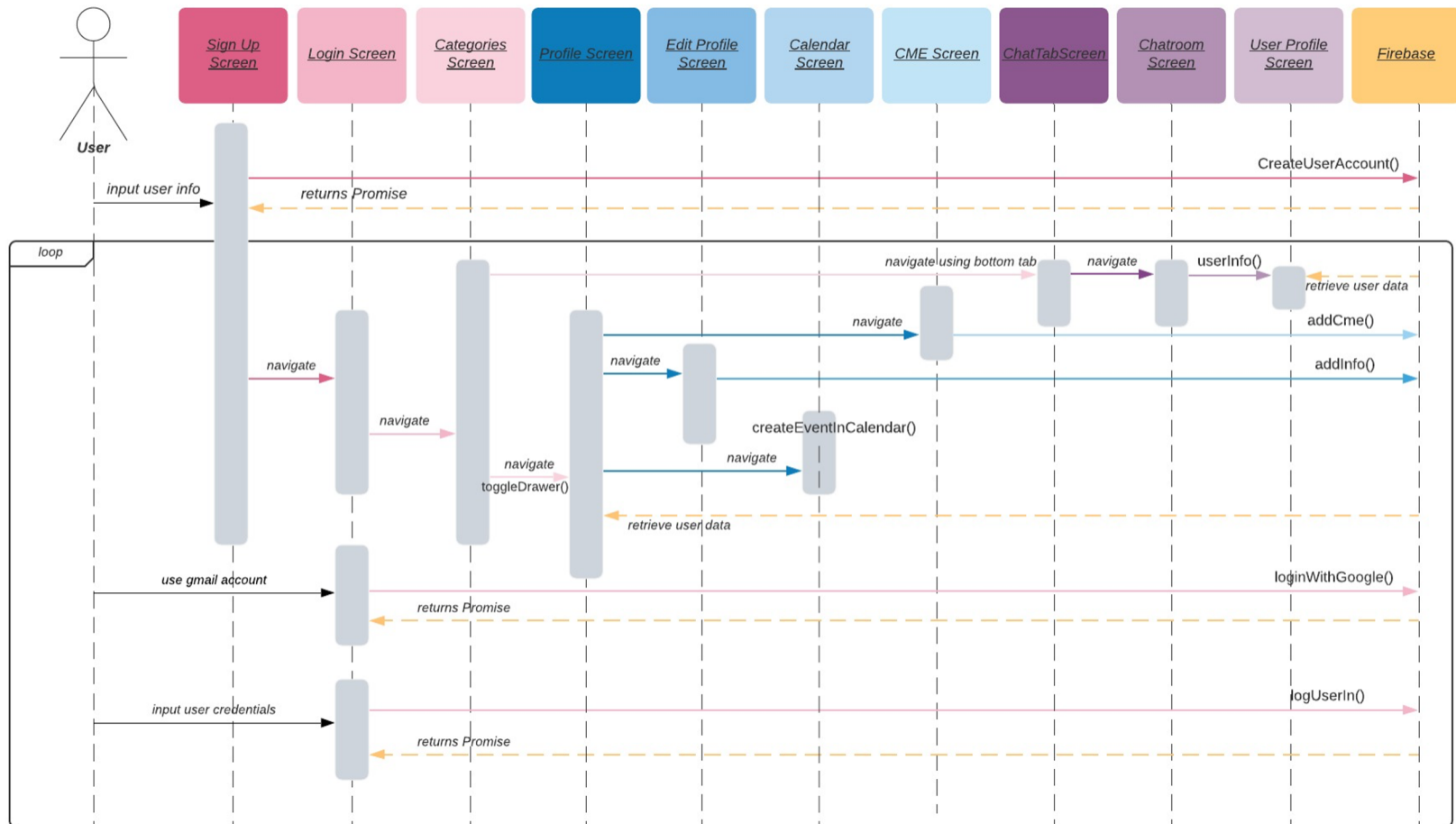
SEQUENCE DIAGRAMS (SANTIAGO DE IRLA MUT)

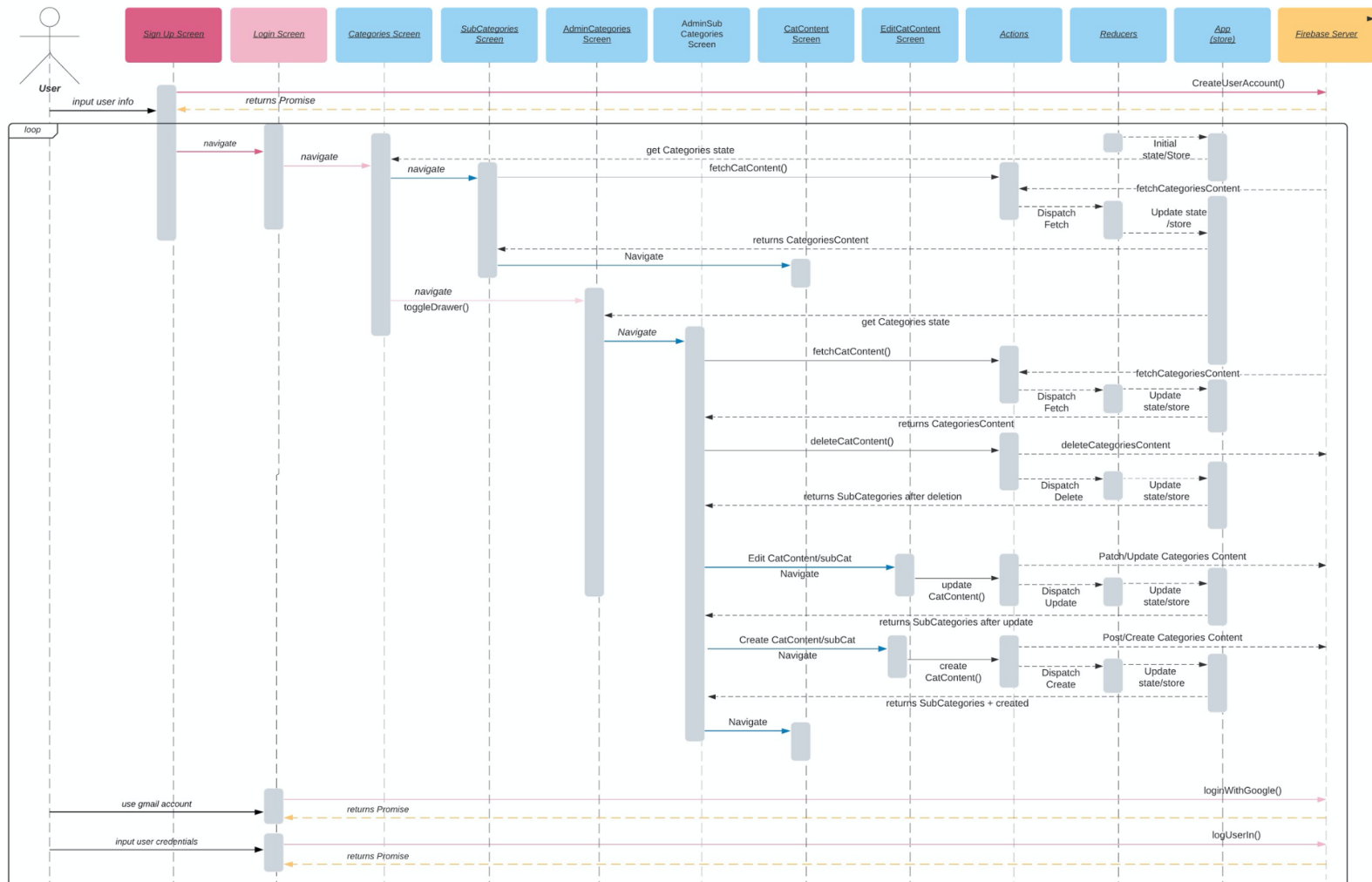


SEQUENCE DIAGRAMS (DIANET CRUZ)

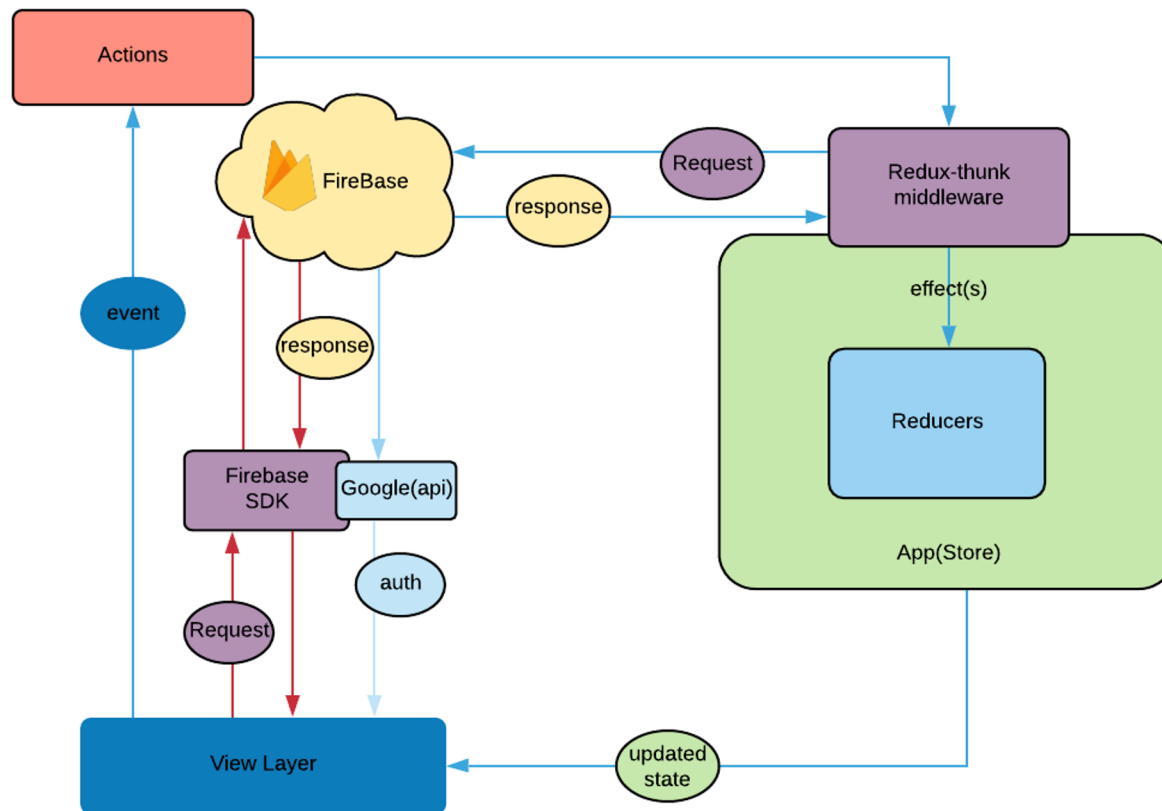


SEQUENCE DIAGRAMS (YEILYS FUNDORA)



The logo for Florida International University (FIU) features the letters "FIU" in a large, bold, blue serif font with a yellow outline. Below the letters is a stylized yellow and blue panther mascot in a pouncing pose. The panther has a yellow body with blue stripes and a blue outline. It is shown in a dynamic, forward-leaning position with its mouth open, revealing sharp teeth and a yellow tongue. The panther's eyes are blue and intense. The entire logo is set against a white background.

SYSTEM DESIGN: ARCHITECTURE & DEPLOYMENT



SYSTEM DATA DESIGN



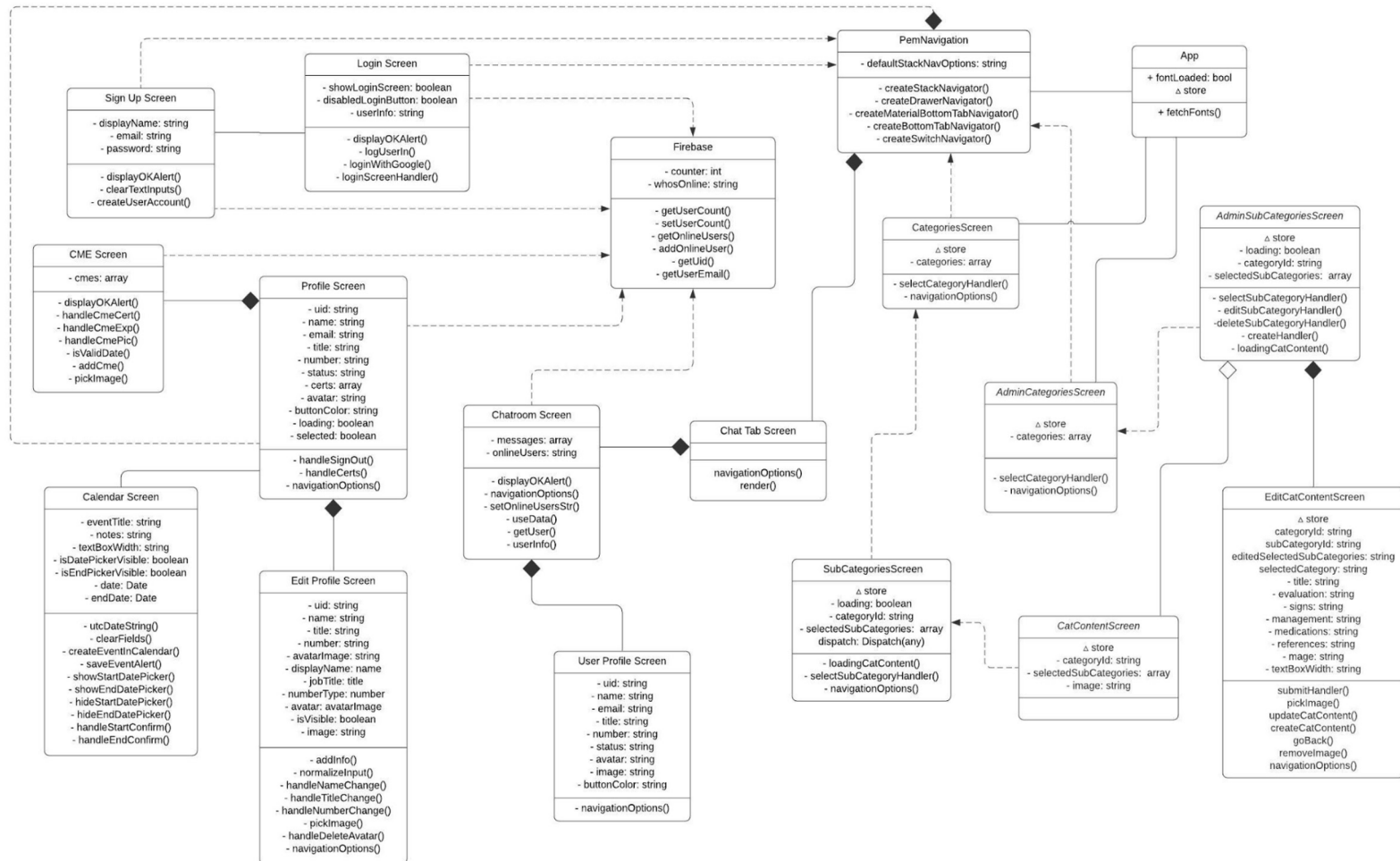
- All data in the application, except authentication-related data (passwords, emails, etc) is stored in Firebase Realtime Database.
- Ideal for dynamic data such as messages, CMEs, user profile info and categories content.

SYSTEM SECURITY DESIGN

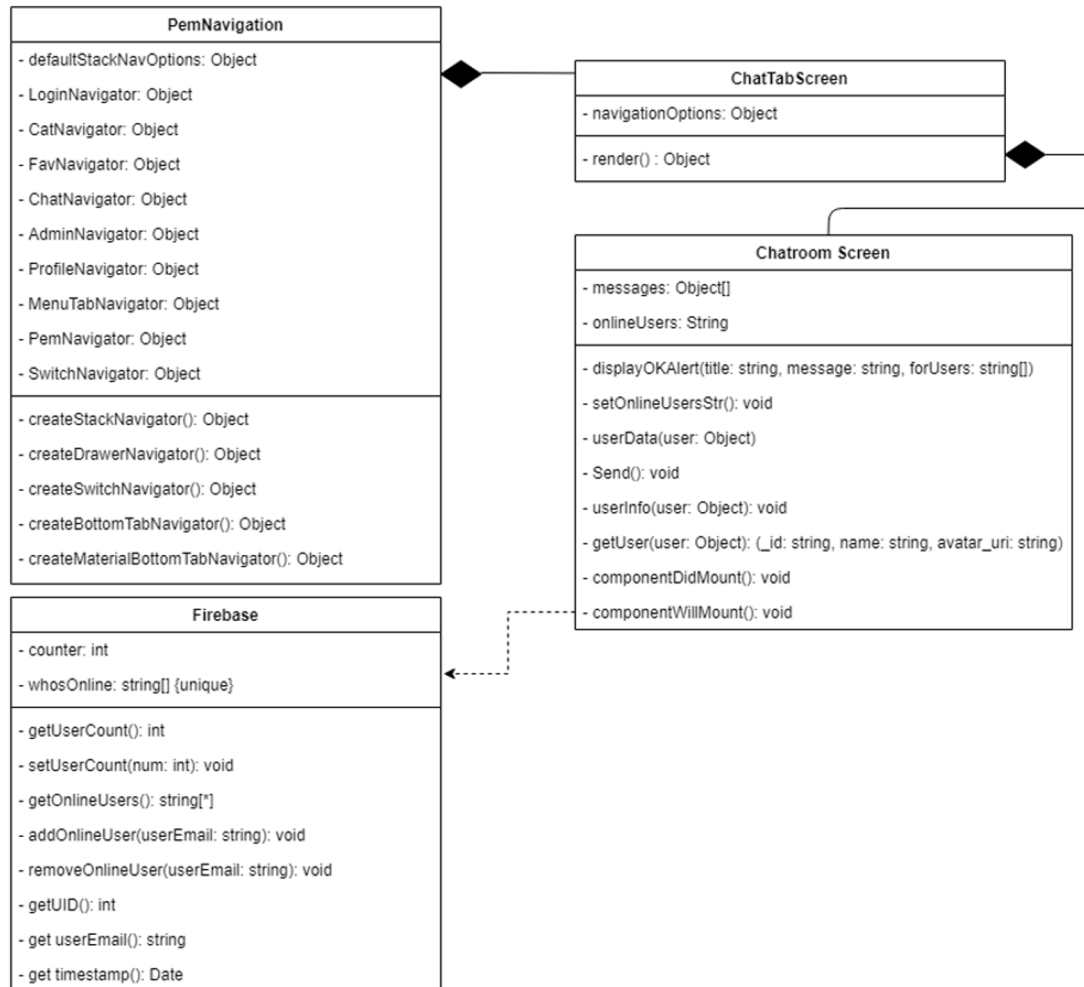


- Firebase Authentication used for secure log-in with a variety of different methods like email/password & google login.
- User accounts are securely stored by Firebase.

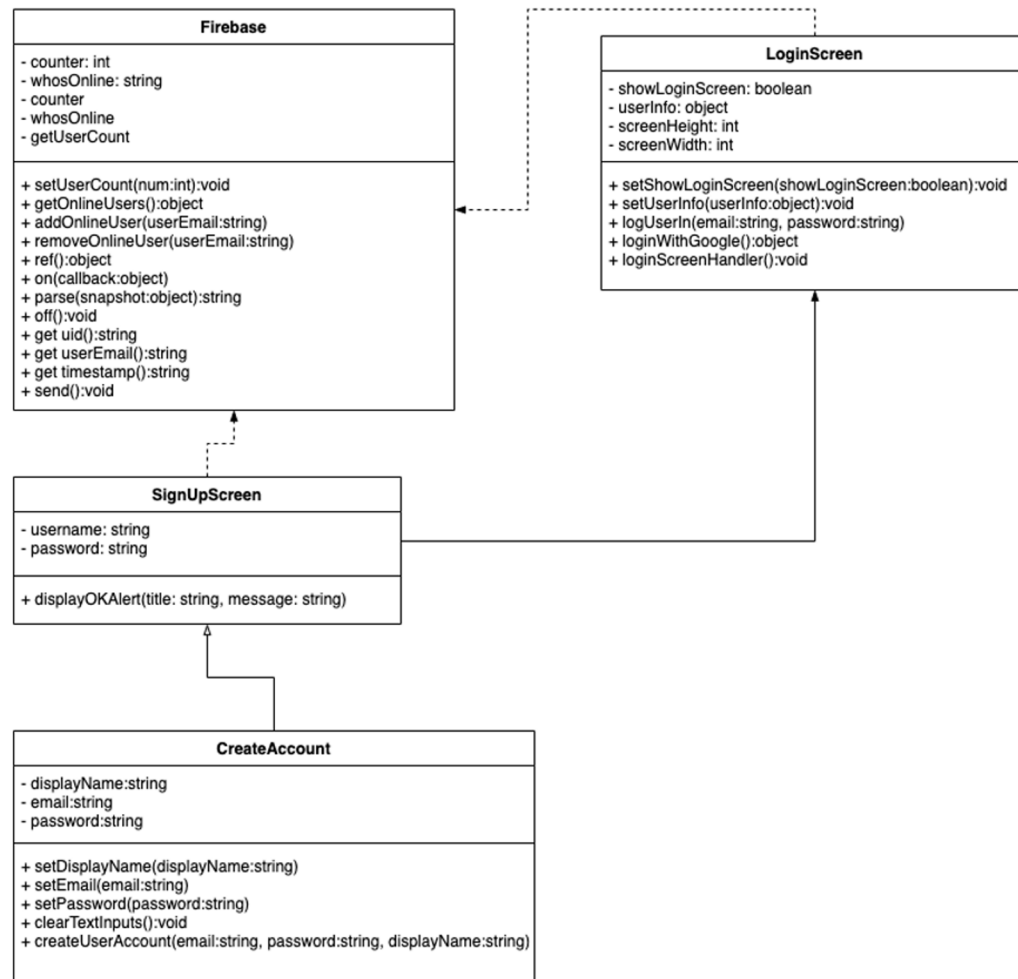
CLASS DIAGRAM (WHOLE PROJECT)



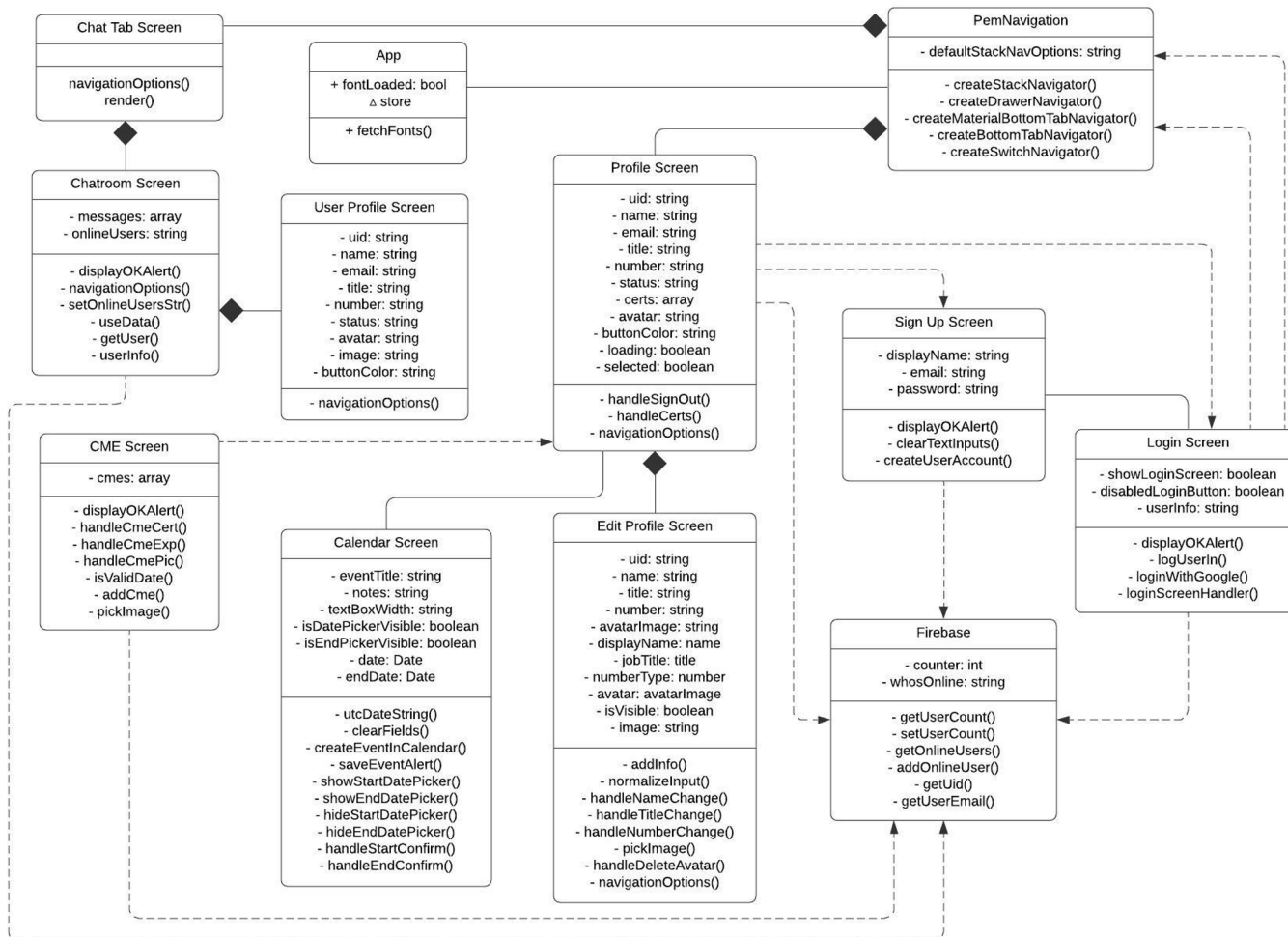
CLASS DIAGRAM (SANTIAGO DE IRALA MUT)



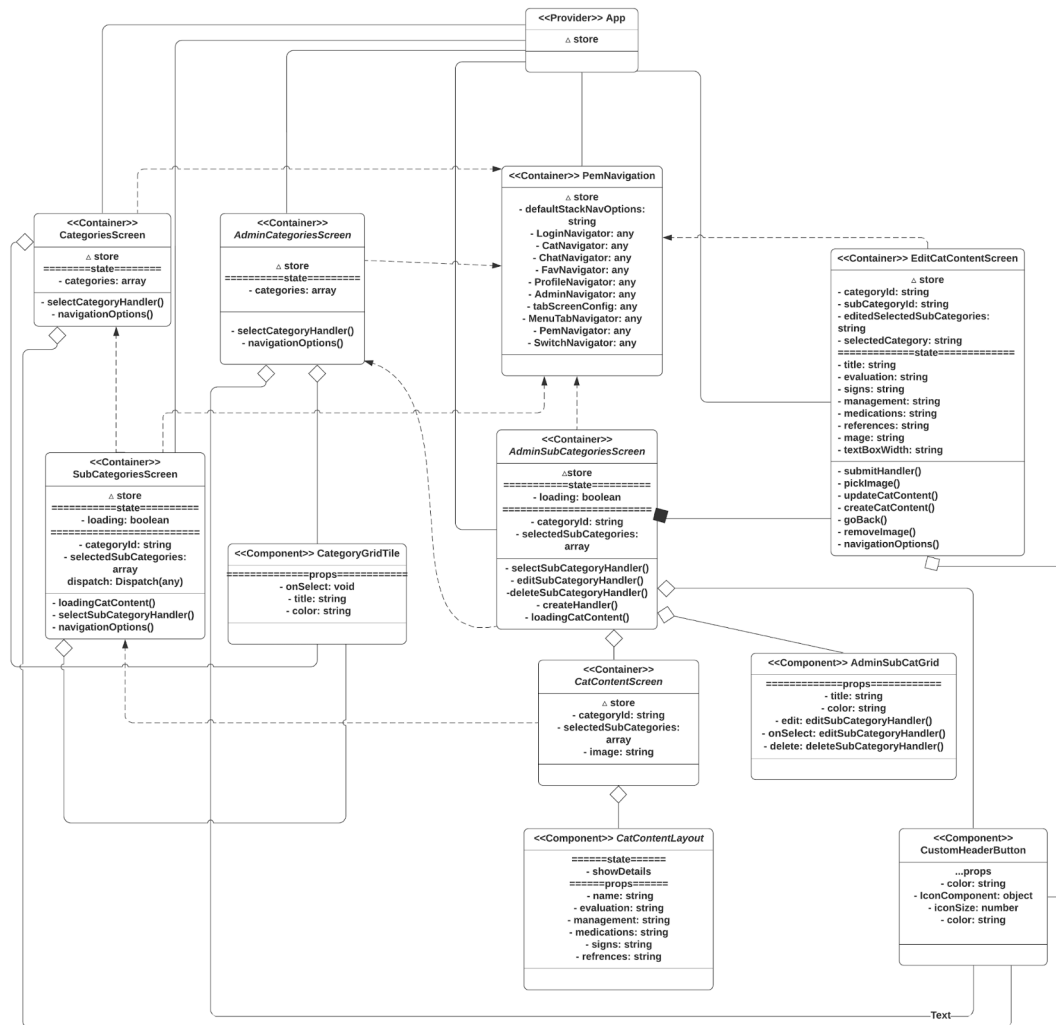
CLASS DIAGRAM (DIANET CRUZ)



CLASS DIAGRAM (YEILYS FUNDORA)



CLASS DIAGRAM (ABEL GONZALEZ)



MAIN ALGORITHM



Display search results (subcategories)

```
let results = []
subcategoriesList.forEach(
  subcat => if(subcat.title.contains(userInput)){
    results.append(subcat)
  }
)
displayResultsList(results)
```

***Note:** This main algorithm is from the previous version of the Pediatric Emergency application to search for titles in the categories. It was tested thoroughly with all the new added functionality and changes to the application.*



TEST SUITES AND TEST CASES

Sunny Day

Purpose	To make sure that the profile of the user is displayed correctly when someone accesses it from the chat.
Preconditions	User being clicked on has set up their profile and it's connected to the chatroom
Expected Results	User is able to see the profile of the person, including name, CME and similar information, as made available by the other user. The user clicking is NOT able to edit the information.
Actual Results	User is able to see the profile of the person, including name, CME and similar information, as made available by the other user. The user clicking is NOT able to edit the information.
Status	Pass

Rainy Day

Purpose	To make sure that the profile of the user is displayed correctly when someone accesses it from the chat.
Preconditions	Two or more users are connected to the chatroom. One user has not set up the profile,
Expected Results	The user sees a default profile for the other user with just the name and the email, everything else blank or default. The user clicking is NOT able to edit the info.
Actual Results	The user sees a default profile for the other user with just the name and the email, everything else blank or default. The user clicking is NOT able to edit the info.
Status	Pass

TEST SUITES AND TEST CASES



Sunny Day

Purpose	Guarantee that accounts are created properly with Google Login
Preconditions	Firebase & Google API services are configured correctly and running well
Expected Results	Users successfully Login with Google Account and are welcomed
Actual Results	Users successfully Login with Google Account and are welcomed
Status	Pass

Rainy Day

Purpose	Guarantee that accounts are created properly with Google Login
Preconditions	Firebase & Google API services are not configured correctly.
Expected Results	User is unable to login to the app with their Google Account and is shown a relevant error message.
Actual Results	User is unable to login to the app with their Google Account and is shown a relevant error message.
Status	Pass



TEST SUITES AND TEST CASES

Sunny Day

Purpose	Check that a user can successfully set up and edit their profile and save the changes.
Preconditions	Firebase Real-time Database is connected and the user is correctly logged in.
Expected Results	The user is able to change and edit all their information on the app, such as profile picture, full name, email and CMEs.
Actual Results	The user is able to change and edit all their information on the app, such as profile picture, full name, email and CMEs.
Status	Pass

Rainy Day

Purpose	Check that a user can successfully set up and edit their profile and save the changes.
Preconditions	Firebase Real-time Database is not connected and the user is correctly logged in.
Expected Results	The user is unable to change and edit all their information on the app, such as profile picture, full name, email and CMEs. They are given a relevant error message.
Actual Results	The user is unable to change and edit all their information on the app, such as profile picture, full name, email and CMEs. They are given a relevant error message.
Status	Pass

TEST SUITES AND TEST CASES



Sunny Day

Purpose	Make sure the admin is able to access the app to add information to the relevant categories and subcategories.
Preconditions	The admin-user's account has been marked as an admin account.
Expected Results	The admin-user is able to access and edit all the information for each category and sub-category.
Actual Results	The admin-user is able to access and edit all the information for each category and sub-category.
Status	Pass

Rainy Day

Purpose	Make sure the admin is able to access the app to add information to the relevant categories and subcategories.
Preconditions	The admin-user's account has not been marked as an admin account.
Expected Results	The admin-user is unable to access anything further than what a normal user is able to access.
Actual Results	The admin-user is unable to access anything further than what a normal user is able to access.
Status	Pass

SUMMARY



- The PEM App will be available, once released, for both Android and iOS devices, allowing a broad spectrum of medical staff to have access to it, worldwide.
- Contact:
 - Santiago de Irala Mut: sdeir001@fiu.edu
 - Dianet Cruz: dcruz090@fiu.edu
 - Yeilys Fundora: yfund005@fiu.edu
 - Abel Gonzalez: agonz943@fiu.edu
- Please let us know if you have any questions, suggestions or comments.
- Thank You!