PES University, Bengaluru

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Department of Computer Science & Engineering

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UE19CS353 – Object Oriented Analysis and Design with Java

Theory ISA (Mini Project)

Report on

Portfolio Tracker

By:

Team 17

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6th Semester 'B'

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2. Project Description

The Application will mainly consist of a Portfolio, Market, and a Home page. The portfolio will consist of Cryptos owned by the individual . In this page the user can also specify how many cryptos the user has sold. The portfolio will have an add button on this page that will take you to The Add Asset page where user will be able to enter the cryptos name, quantity of Crypto purchased and price at which it was purchased. The Market page will have market value of all cryptos to keep the user updated about the market, We will show the current value of crypto according to the market cap . Additionally, there will be a login or signup page to register the user and a Home page to show the Overall invested value and the current market value of the user's shares

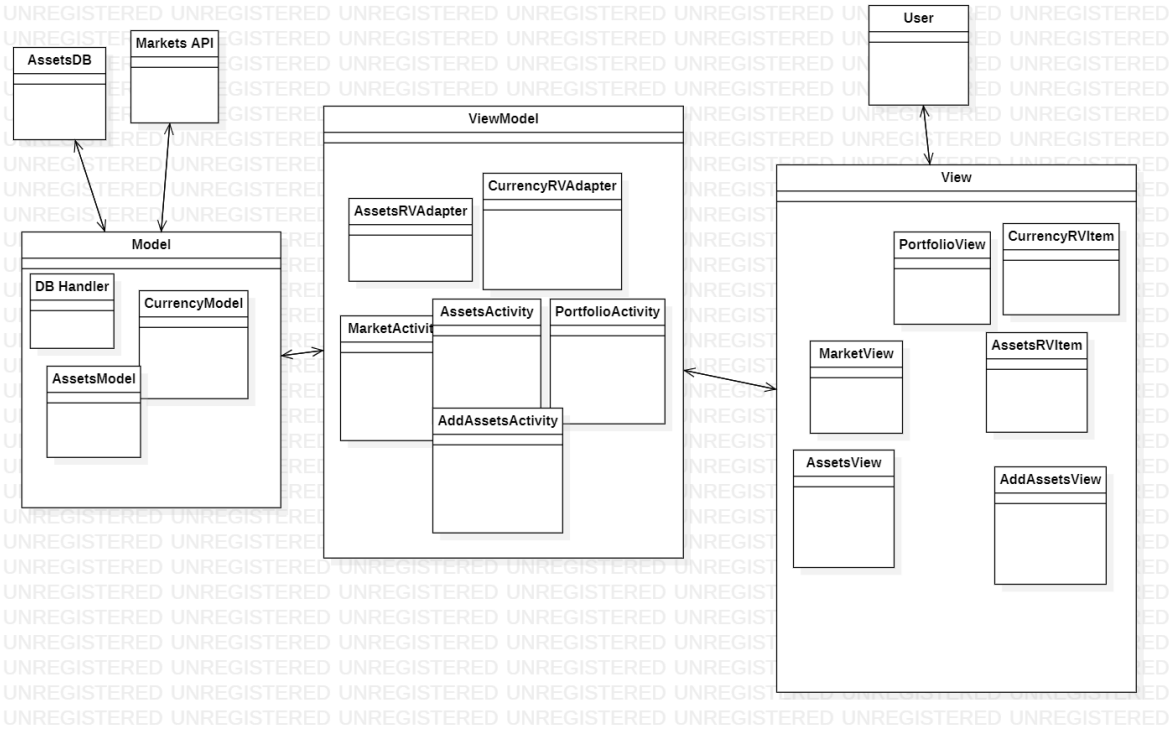
a. Link to Github repository

https://github.com/dishaprakash/PortfolioTracker

3. Analysis and Design Models

Since we are using Android Studio to make the Portfolio Tracker, the views are xml pages and these are implemented and initialized using java classes that as the ViewModel. The Model includes those java classes that connect to these java classes and the database. MVVM architecture offers two-way data binding between view and view-model. It also helps you to automate the propagation of modifications inside View-Model to the view. The view-model makes use of observer pattern to make changes in the view-model.

MVVM implemented on classes



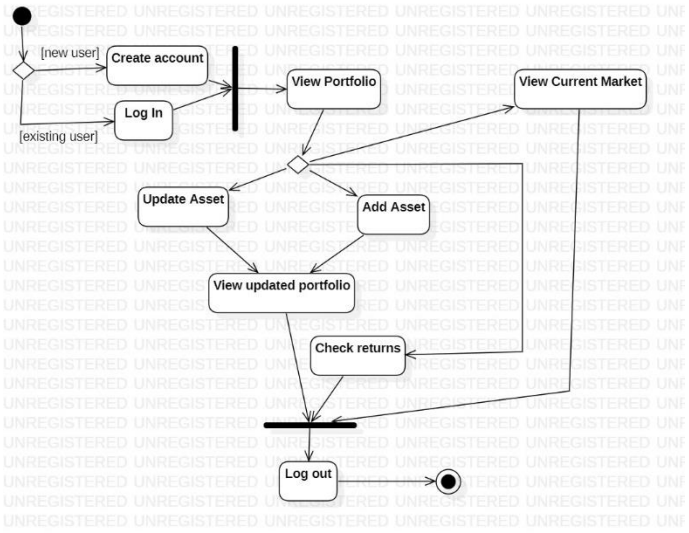
4. Tools and Frameworks Used

Used Android Studio as Platform to develop the app. Used Java for the controller classes and xml for the views. We also used sqlite3 for the Database for ease of connectivity and coinmarketcap for the API.

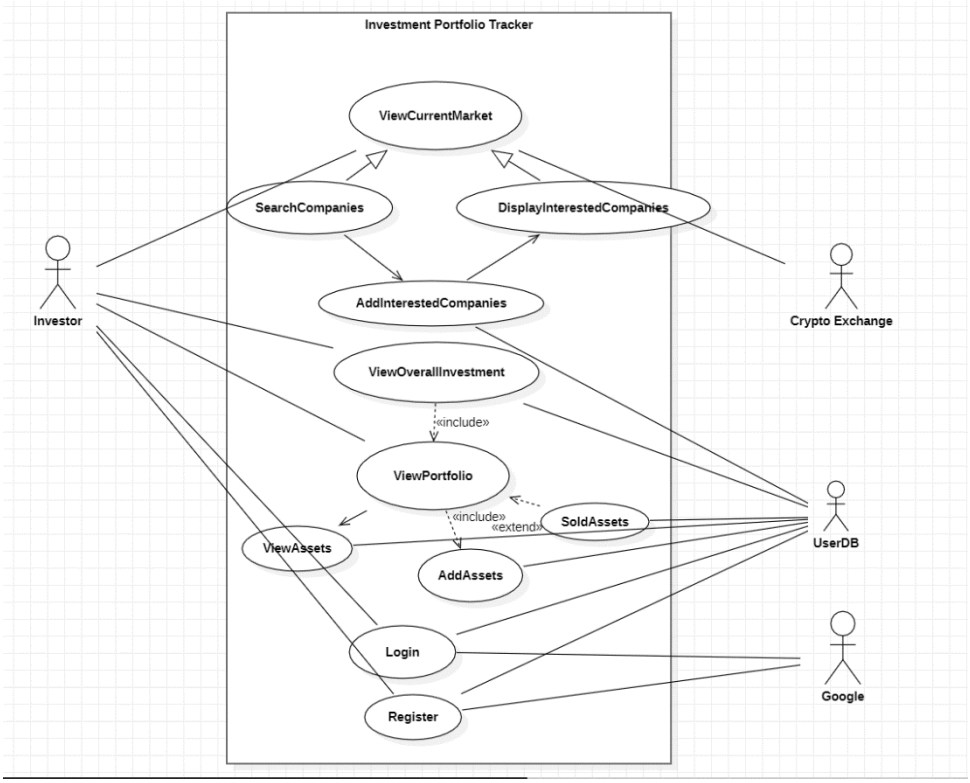
5. Design Principles and Design Patterns Applied

We are applying single responsibility solid principle by applying singleton as Design Pattern on the DB Handler class. As seen in the architecture, A DBHandler is responsible only for the Assets Database FetchingAndUpdating Function. DBHandler is also persistent. Hence, singleton and SRP is applied on this class.

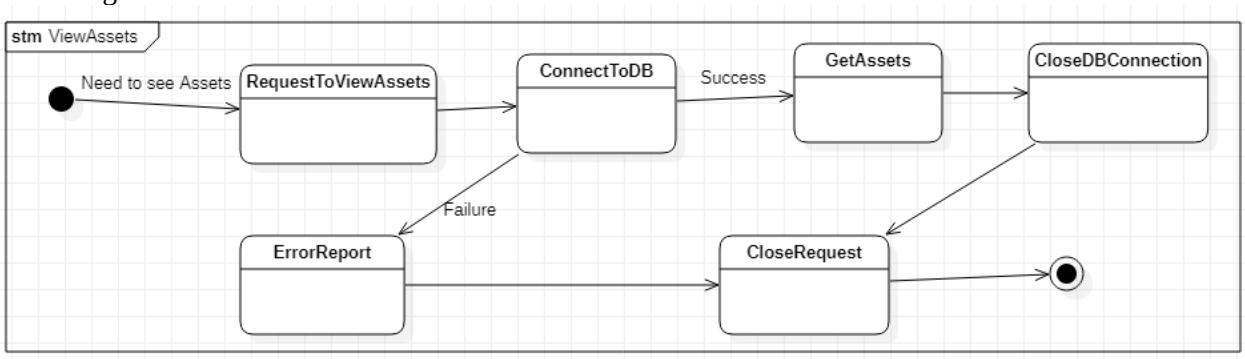
Activity Diagram

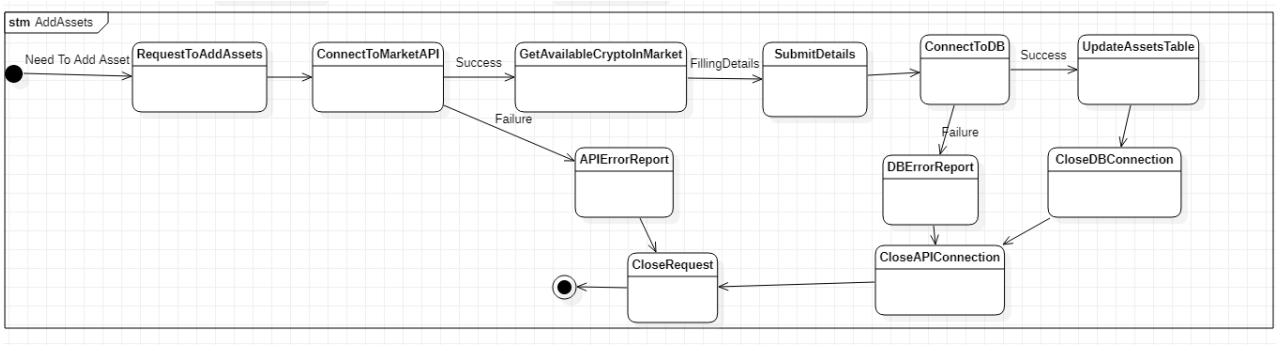


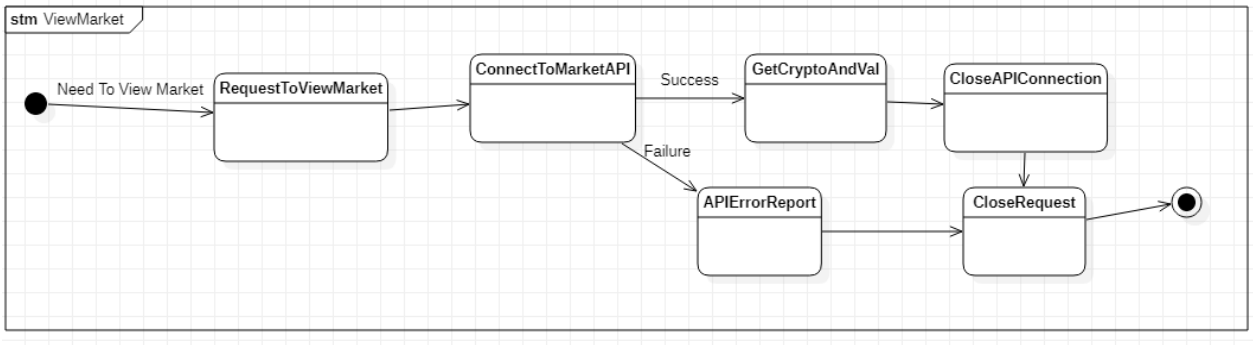
Use Case Diagram



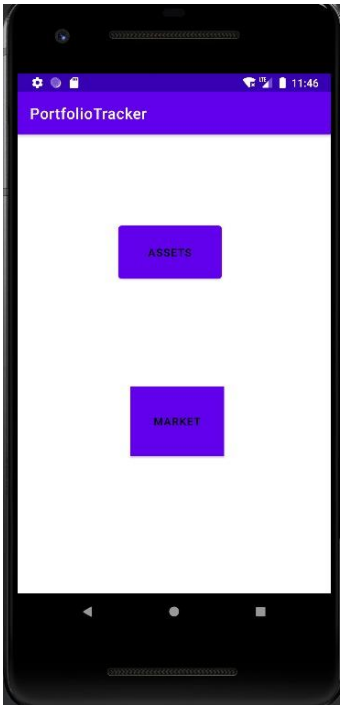
State Diagram





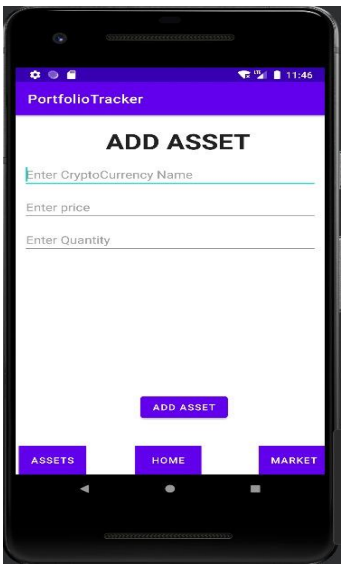


6. Application Screenshots (3-4 important pages)

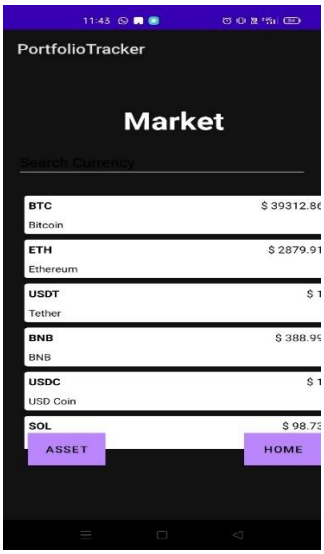


The portfolio Main Page has 2 buttons, Assets which on Clicking takes user to Assets Page, and Market which goes to The Market Page.

The Assets Page displays the user's invested Assets by getting data from the db, the name of the crypto and its quantity. It has an add asset which goes to addassets for adding assets.



The addasset Page has a Spinner for choosing a crypto from the options. It has numberfields to enter price, and quantity. On clicking Add Asset button, the data is entered in to the sqlite3 database.



The Market Page displays the cryptos available in the market and their current value by connecting to the market API.

Each of the above pages, except for the main page can navigate to the home, market and assets page.

7. Team member contributions

Aryan	Worked on XML views, and ViewModels
Deepthi	Worked on XML views, and ViewModels
Disha	Worked on Models, API

8. Conclusion

In this project, we understand that MVVM Pattern can be used as a way to implement Android projects similar to this. It helps 2 way binding between view and viewmodel which helps easy transmission of data to model, and in turn the database and vice-versa.

9. References

MVC vs MVVM: Key Differences with Examples (guru99.com)
MVVM (Model View ViewModel) Architecture Pattern in Android - GeeksforGeeks