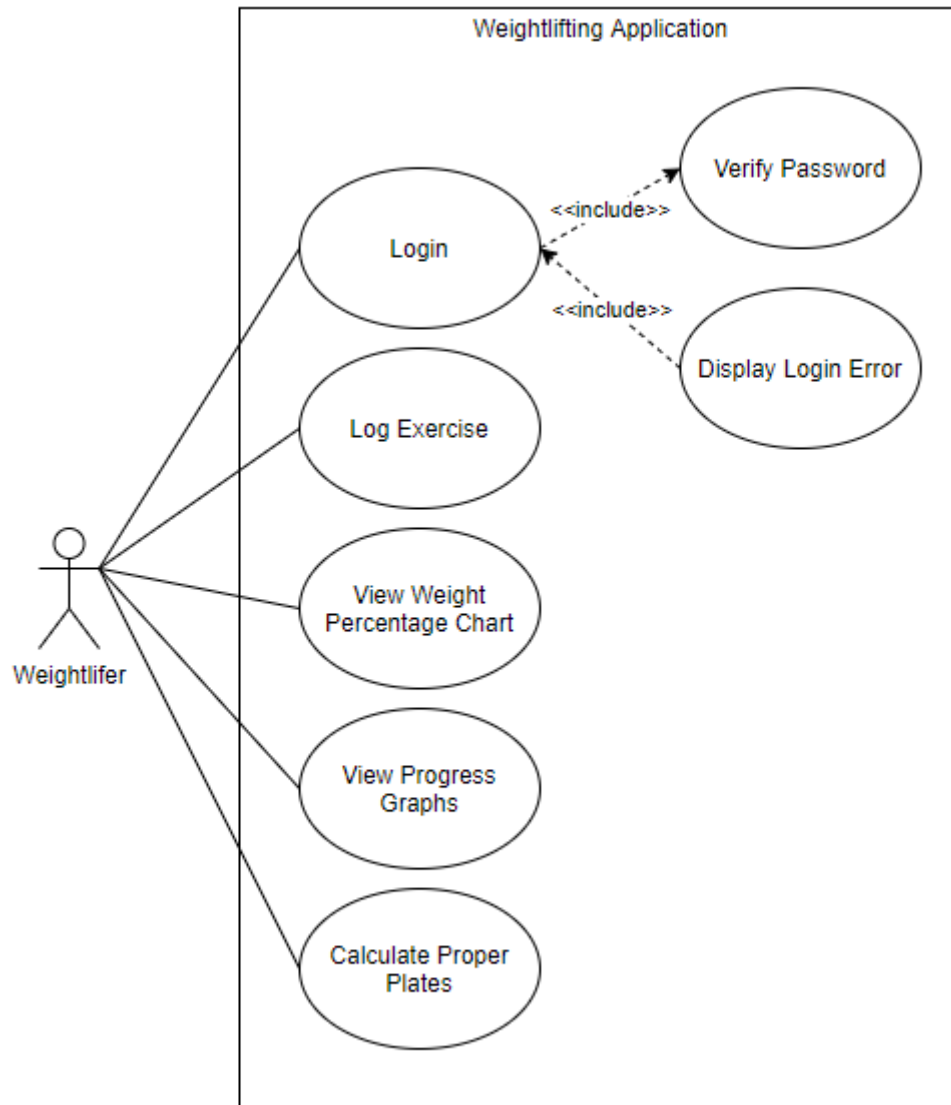


1. INTRODUCTION

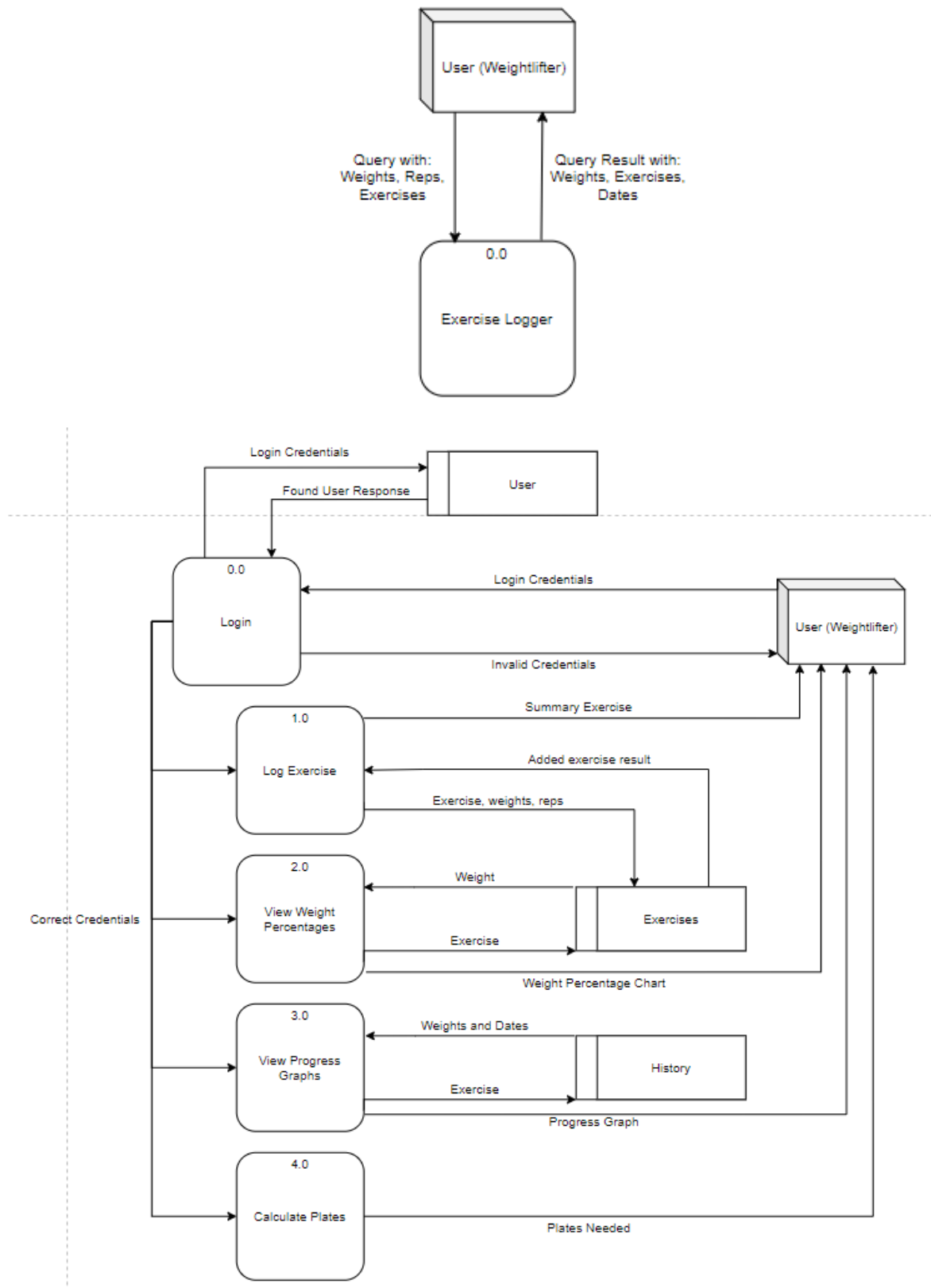
- a. Motivation - Since many of the COVID restrictions have loosened and have stayed that way, I have begun to work out at the gym again. Before COVID, I used pen and paper charts to know what I lifted each week. I was using the pen and paper because the applications available were not exactly what I wanted and were sometimes took too much time to record in. I want to be able to record exercises with weight, a 1RM percentage chart, a plate calculator, and an area to view graphs of selected exercises.
- b. Proposed System - I propose that I store the three main compound exercises and when a user completes a set of the exercise, the weight, reps and datetime are stored. The application will be able to pull this information to display the percentage chart and progress charts. To mediate between the application and the database, a web service will be run to handle requests and responses.
- c. Related Work - There are quite a few applications that can already store exercises and then display the data as a graph. My application will also have percentage charts, which are beneficial for selecting weights and reps, and a plate calculator, which is beneficial for beginner lifters. Some apps have this capability but require a paid subscription or extra purchase. Beginners are more likely the lifters needing these, but probably do not need a subscription.

2. STRUCTURED ANALYSIS

- a. Use Case Diagram -

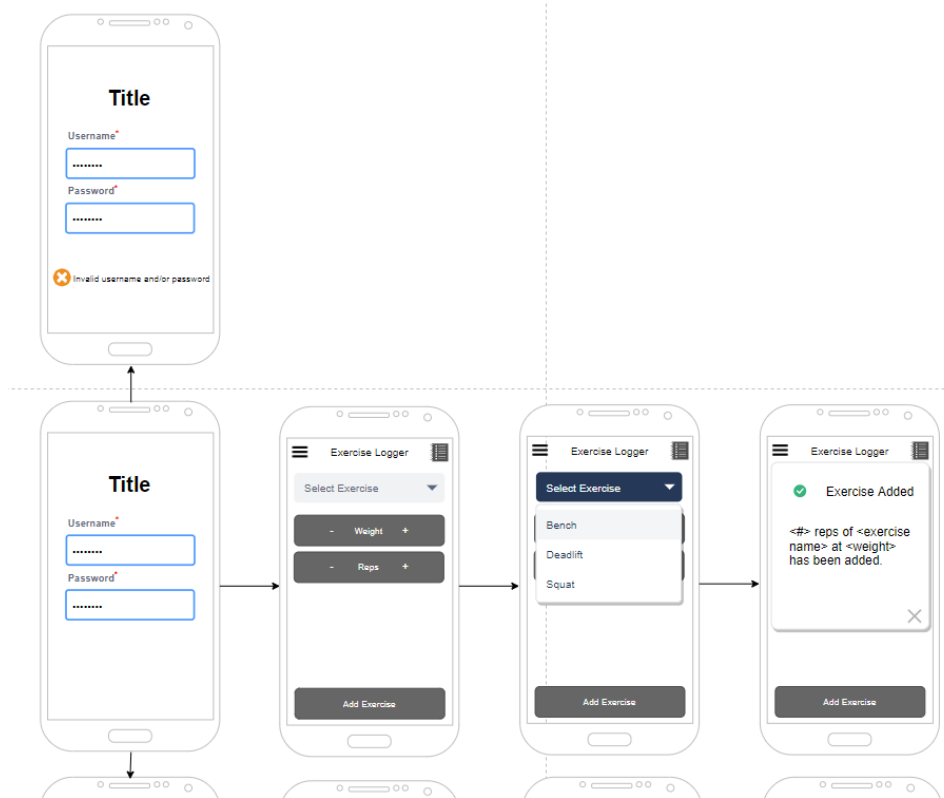


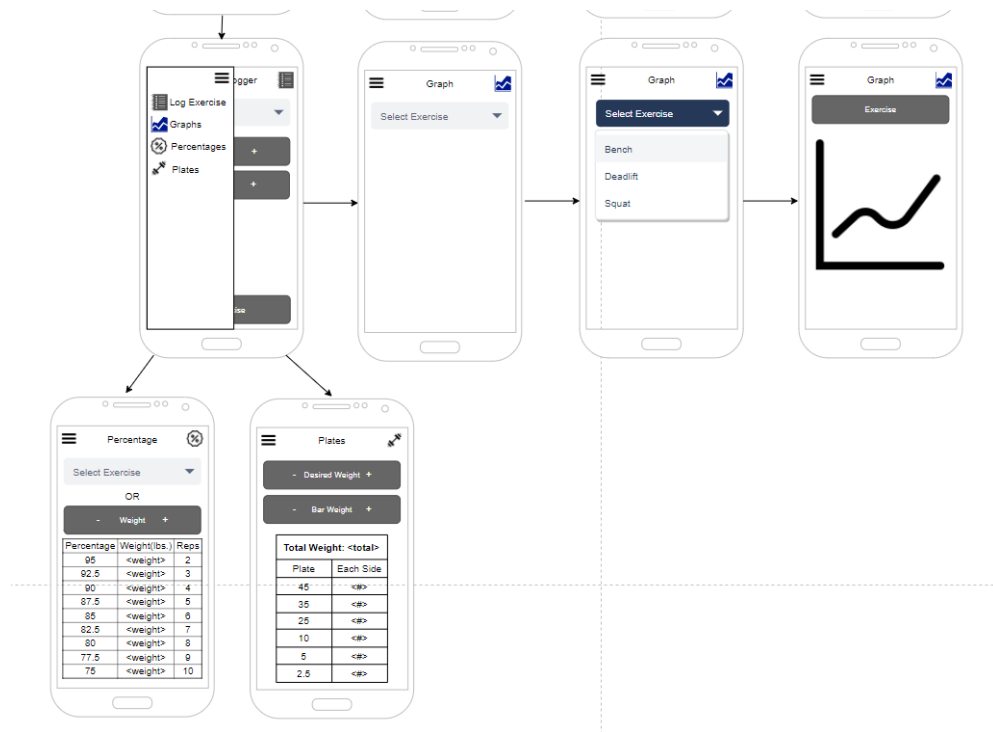
b. Data Flow Diagrams -



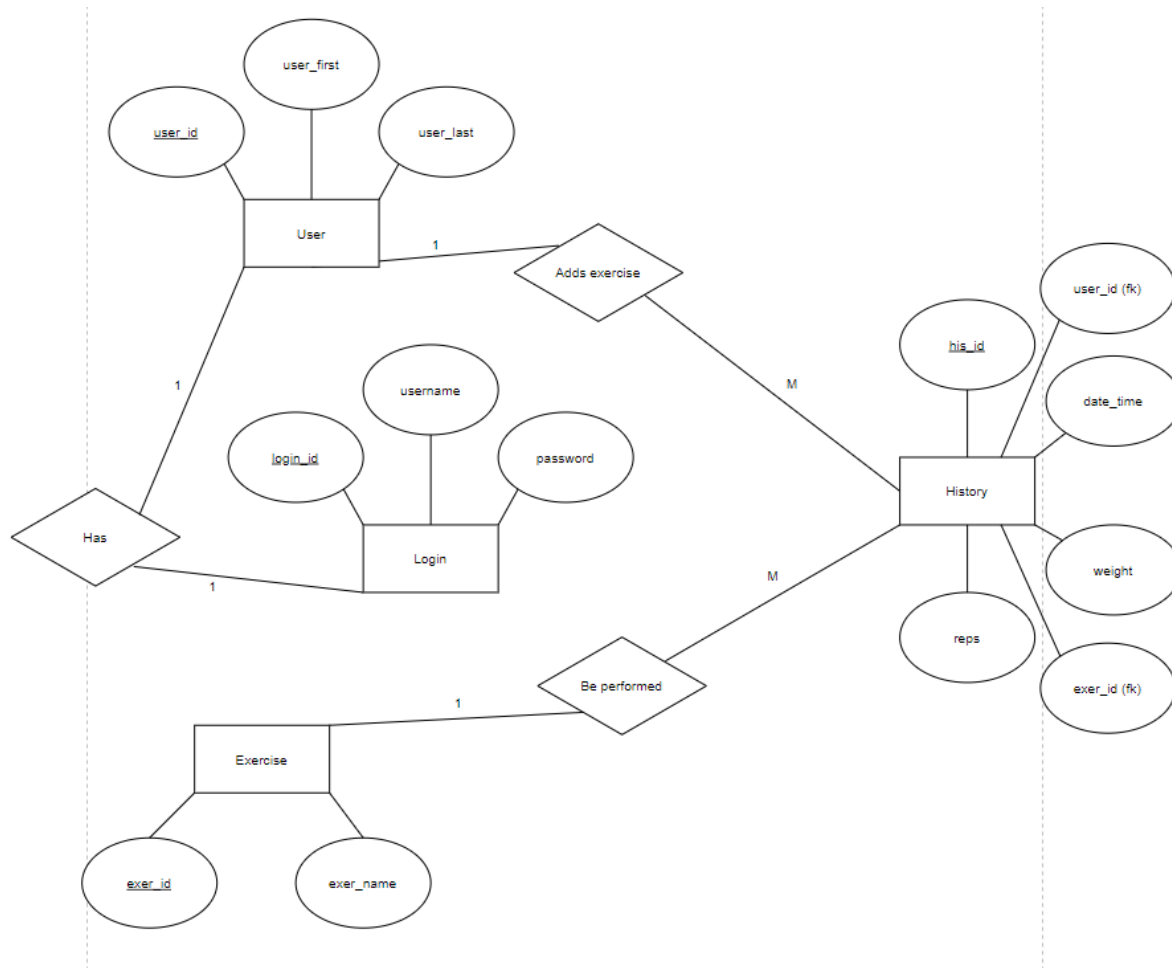
3. SYSTEM DESIGN

- a. User Interface - When the user loads the application, they will be met with a login screen. Upon providing credentials, the login screen will either display invalid credentials or will shift to the exercise logger. To navigate, there will be a left navigation panel that has the four functions of the application. The exercise logger screen will have a select exercise dropdown, weight field, and reps field. When adding the exercise, the user will either get that the item was added and rest the page or will display an error adding message. The Graph screen will have a select exercise dropdown. After selecting an exercise, the screen will display the exercise name as the title and the graph of the trend for that exercise. The percentage screen will have an exercise dropdown that will get the weight for that exercise and a weight field. The user will use one of these fields and there will be a percentage table displayed based on the weight provided. The plate screen will require the user to enter a desired weight and the weight of the barbell, the default barbell weight being set at 45. A table will be displayed with the plates needed per side.
- b. Prototyping

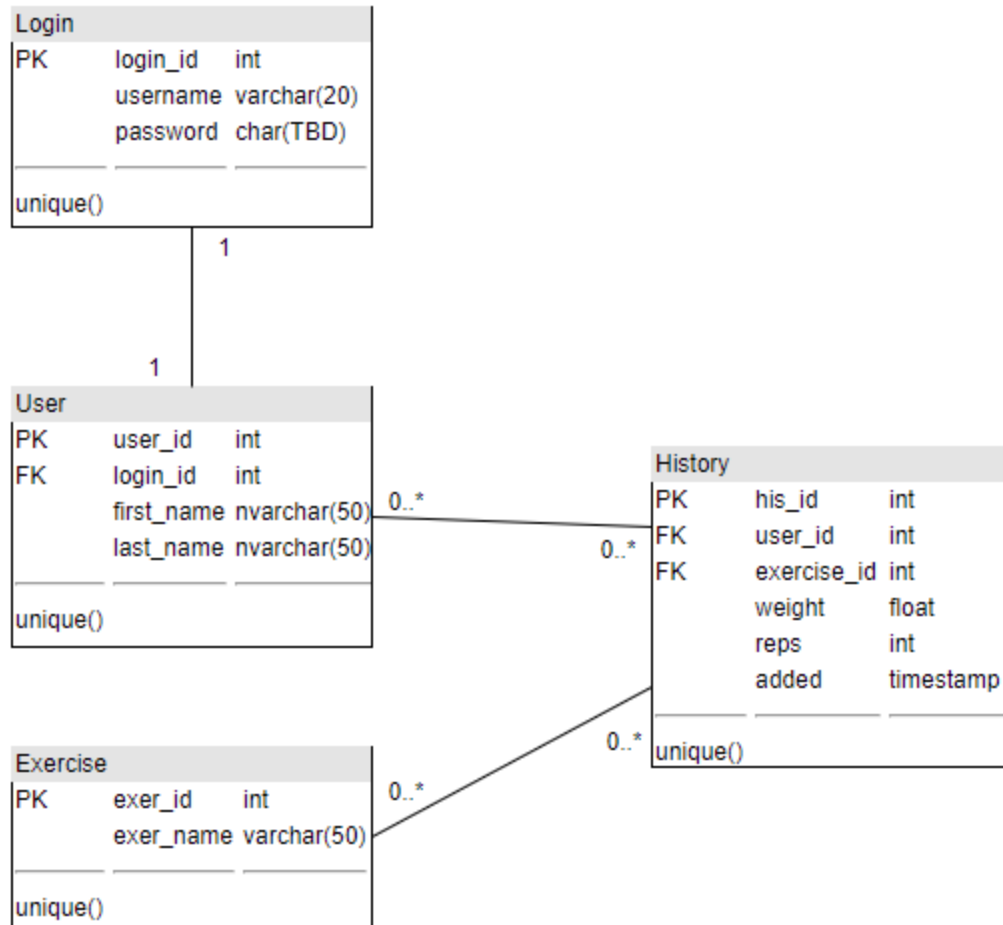




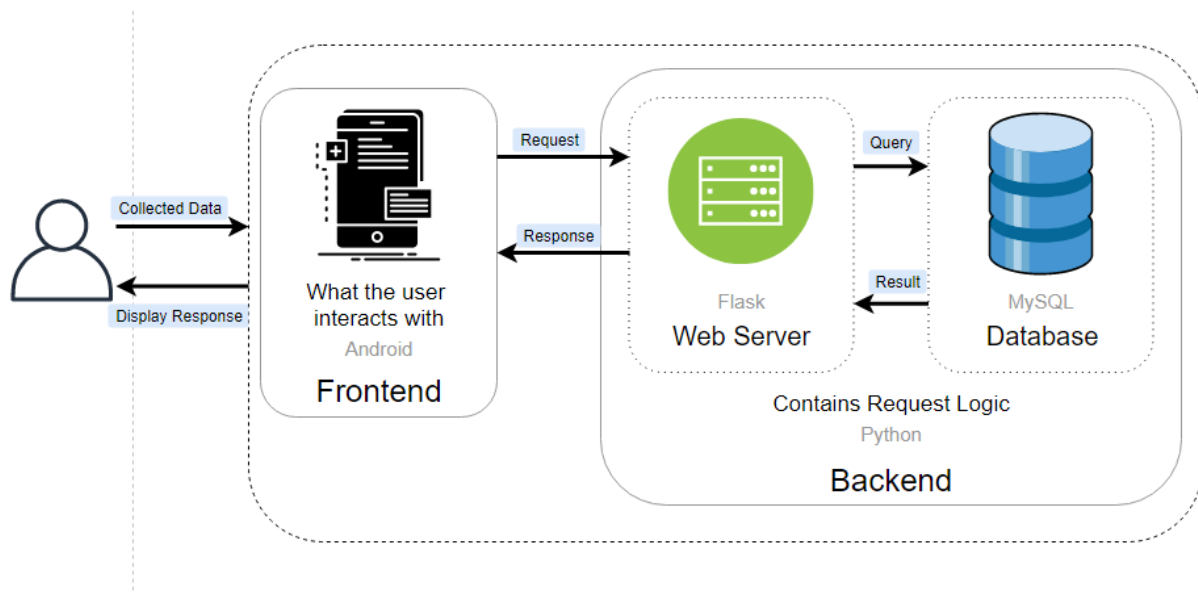
c. Entity Relationship Diagram



d. Class Diagram



e. Application Architecture Diagram



4. IMPLEMENTATION

- a. **Programming Languages** - Two programming languages will be used to create the application. Java will be used for the frontend user interface and the logic for sending requests to the Flask server. Python will be used to for the Flask server to send the requests to the database.
- b. **IDEs, Tools, and Technologies** - The two IDEs that will be used are Android Studio and Visual Studio Code. Android Studio will be to create and test the android application. Visual Studio Code will be used to set up and run the flask server. XAMPP will also be utilized for the creation of a MySQL database controlled with phpMyAdmin.
- c. **Milestones and Scheduling** - The milestones for this project will database and server setup, connecting database and server, android UI, and then connecting the server to the android application.

