CS 3354 Software Engineering
Final Project Deliverable 1

Smartshopper

Andres Uriegas, Anthony Tomsio, Giakhanh Hoang, Kevin Chen, Palak Sharma, Tien Quang

1. Draft Project Description

Final Project draft description

Title of Project: **SmartShopper**

Group Members:

- Anthony Tomsio
- Andres Uriegas
- Kevin Chen
- Giakhanh Hoang
- Tien Quang
- Palak Sharma

What will we be doing:

- Interior Grocery Shopping Map
  - Android App
  - User creates a shopping list and it will map out the best in-store route to get all items in the shopping list
  - For the prototype, we can just use sample data or we could take a real-world Walmart example
  - Give the user additional options for brand, type (if applicable)

Our motivation:

Too many times have we went shopping and spent an extra thirty minutes - or longer - trying to get our grocery shopping done. By having a route of where to get our groceries, we could finish in a much faster time. This would also give us the chance to try shopping for new things, because we would not have to worry about finding it in an unknown location.

Real-life applications:

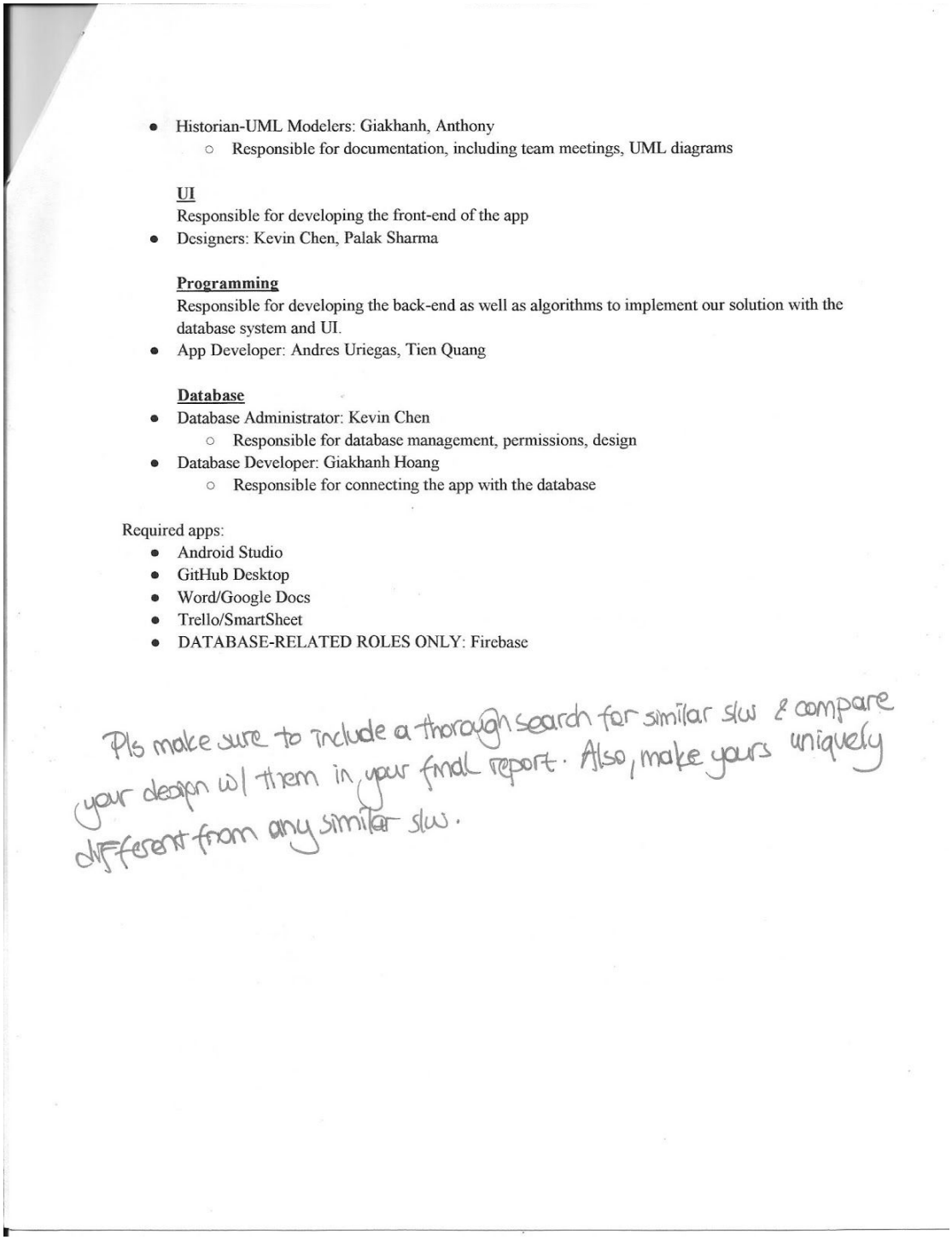
- For shoppers, it makes shopping quicker and more efficient
- Walmart, Kroger, HEB, Aldi, Costco, etc.
  - Grocery stores will also use data collected from what products people search and buy
    - Also will be able to use route data to place advertisements

Delegated tasks:

- **KEVIN** - Add TA to the GitHub, setup the Android Studio project and share it via GitHub.
- **ANDRES** - 1.4. Make the first commit to the repository (i.e., a README file with [team name] as its content).
- **GIAKHANH** - 1.5. Make another commit including a pdf/txt/doc file named "project_scope". If you choose a predefined topic (one of the 4 topics described in the "Project Topic Ideas" section of this document), the contents of the file should be identical to the corresponding project in this section. If you choose other topics, the contents should follow a similar structure.

Management

- Team Leader: Kevin Chen
  - Responsible for ensuring everything is on schedule



- Historian-UML Modelers: Giakhanh, Anthony
  - Responsible for documentation, including team meetings, UML diagrams

UI

Responsible for developing the front-end of the app

- Designers: Kevin Chen, Palak Sharma

Programming

Responsible for developing the back-end as well as algorithms to implement our solution with the database system and UI.

- App Developer: Andres Uriegas, Tien Quang

Database

- Database Administrator: Kevin Chen
  - Responsible for database management, permissions, design
- Database Developer: Giakhanh Hoang
  - Responsible for connecting the app with the database

Required apps:

- Android Studio
- GitHub Desktop
- Word/Google Docs
- Trello/SmartSheet
- DATABASE-RELATED ROLES ONLY: Firebase

Pls make sure to include a thorough search for similar sfw & compare your design w/ them in your final report. Also, make yours uniquely different from any similar sfw.

Response to the feedback: We used crowdsourcing to differentiate out product from other products on the market. With crowdsourcing, when data about a product's attributes, such as location, type, etc. changes, customers will be able to go into the app to change the product's attributes.

URL of your team project repository: https://github.com/nich227/3354-smartshopper

2. Delegation of tasks

Management: Kevin Chen

- Responsible for ensuring everything is on schedule

Historian-UML Modelers: Giakhanh Hoang, Anthony Tomsio

- Responsible for documentation, including team meetings, UML diagrams

UI Designers: Kevin Chen, Palak Sharma

- Responsible for developing the front-end of the app

App Developers: Andres Uriegas, Tien Quang

- Responsible for developing the back-end as well as algorithms to implement our solution with the database system and UI.

Database Administrator: Kevin Chen

- Responsible for database management, permissions, design

Database Developer: Giakhanh Hoang

- Responsible for connecting the app with the database

3. Software Process Model employed

The software process model that we're utilizing for our project is Scrum. It is an agile based software methodology which utilizes an online tool called Trello to keep track of To-do and Done tasks. Agile software development, specifically Scrum, helps the team to keep track of features that need to be implemented into the final product and allows for faster development. Every week, we conduct a meeting to work on certain documentation, figure out what we need to be working on, and then before we adjourn the meeting we record the tasks that need to be completed by the next meeting. This is completed through a sprint process. Agile also allows for faster releases; so, if there is a known issue during a release, it can be fixed on the next release.

4. Software Requirements

4a) Functional Requirements

- Get grocery list from user, look through products in the store through a database
- Find best-fit-route based off of an algorithm such as Kruskal's
- Authenticate user logins using the database
- Display store map to the user
- Data for each of the products can be modified by the users

4b) Non-functional Requirements

Product requirements

- Usability requirements
    - User-Friendly
- Efficiency requirements
    - Performance requirements
        - Retrieves data from the database with as little overhead as possible (at worst 3 seconds)
        - Phone app does not bog down the phone's RAM (<512 MB ideally)
    - Space requirements
        - Minimize phone storage by using database storage of most data
- Dependability requirements
    - Offline mode for spotty store connection
- Security requirements
    - Don't let unauthorized users access database
    - Encrypt private user information

Organizational requirements

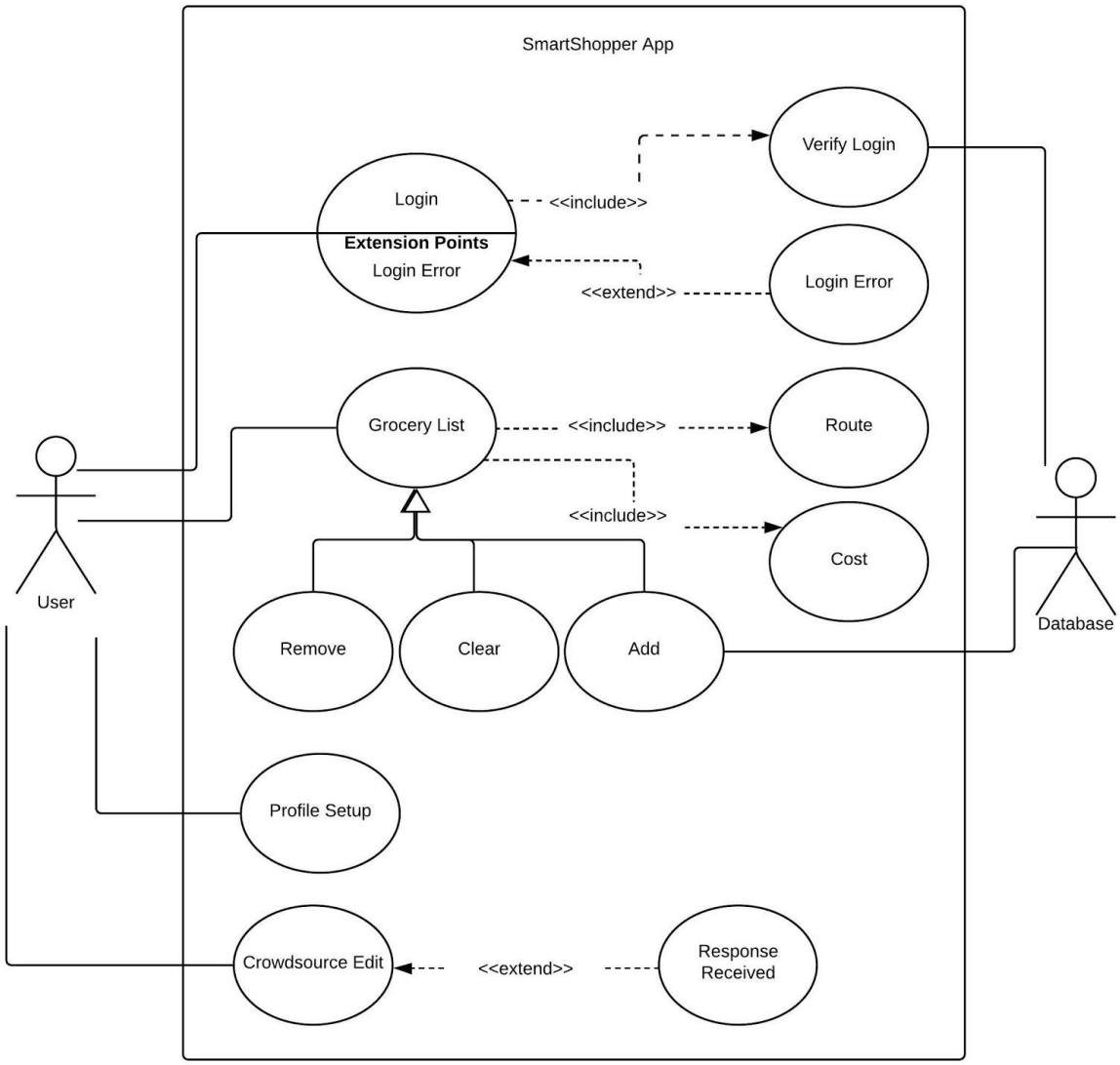
- Environmental requirements
    - App, interpretation of data on a smartphone
    - Database in a Google Cloud server
- Operational requirements
    - Compatible with all smartphones running Android 5.0-9.0
- Developmental requirements
    - Android Studio on Windows, Mac
    - Pair programming for collaboration

External requirements

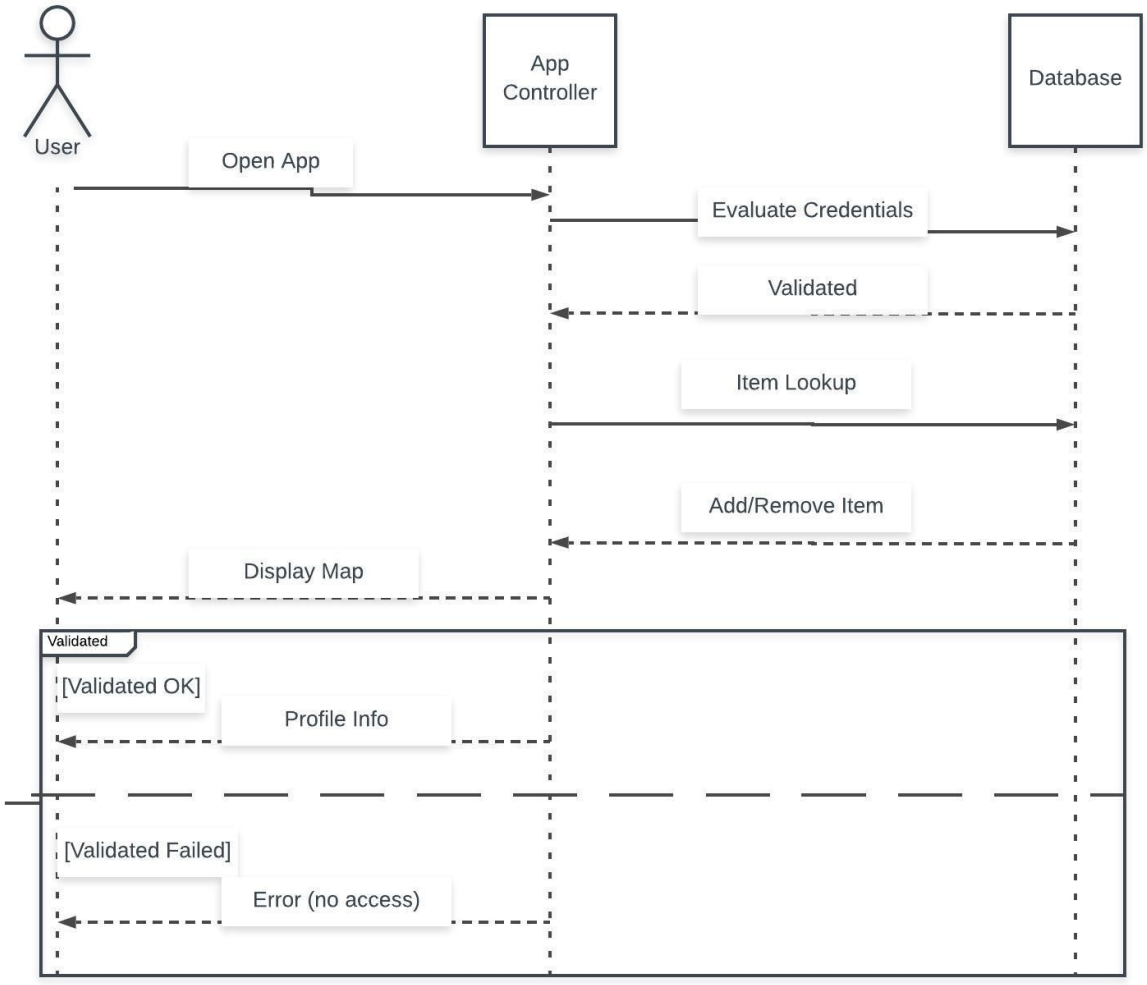
- Regulatory requirements
    - Ensure that user's privacy is respected
    - Don't share internal data for companies with the world
- Ethical requirements

    - Must not use user's data without authorization
- Legislative requirements
    - Accounting requirements
        - Report general app statistics and usage data
    - Safety/Security requirements
        - Confidential integrity for each user's personal data

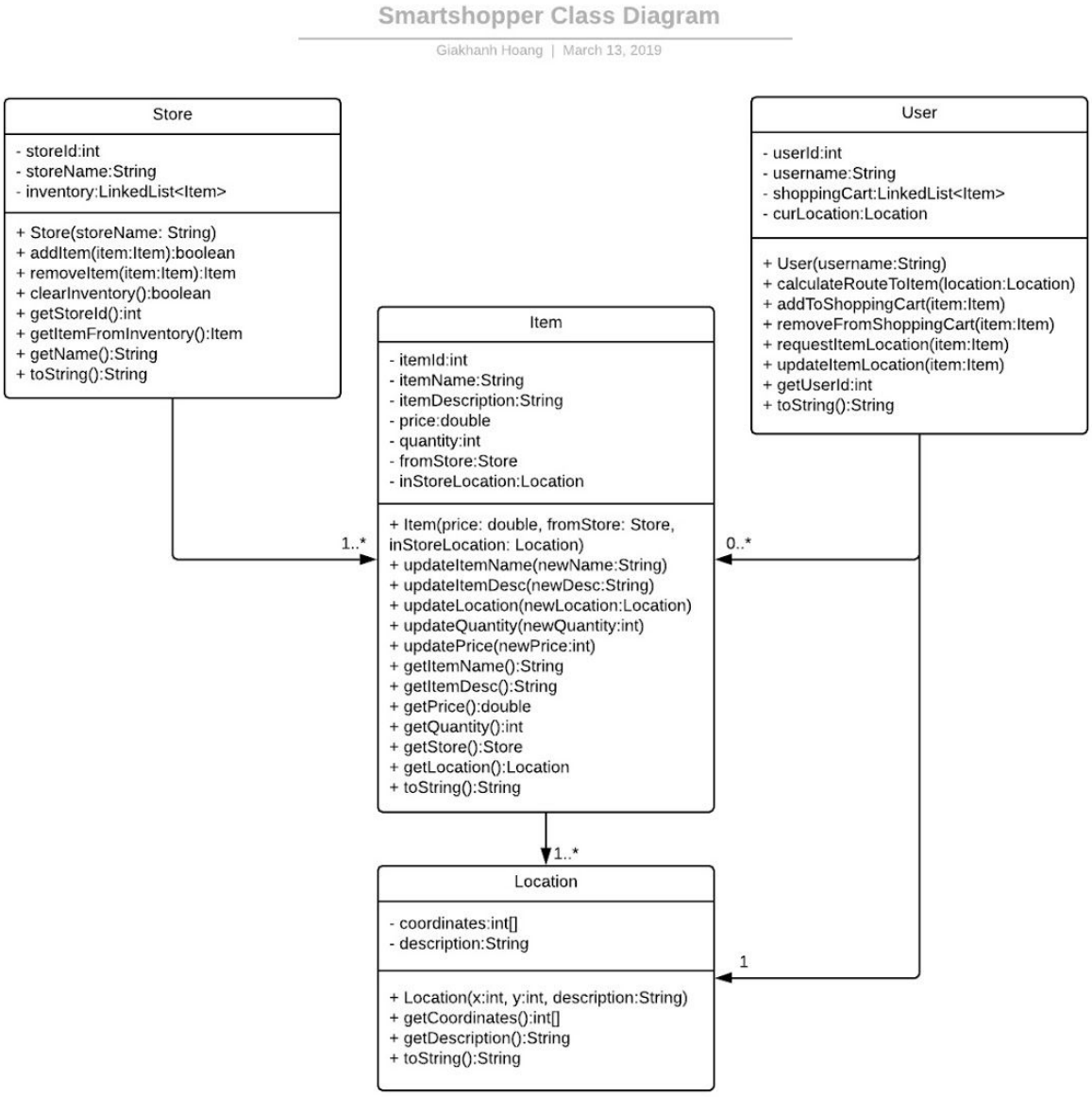
5. Use case diagram



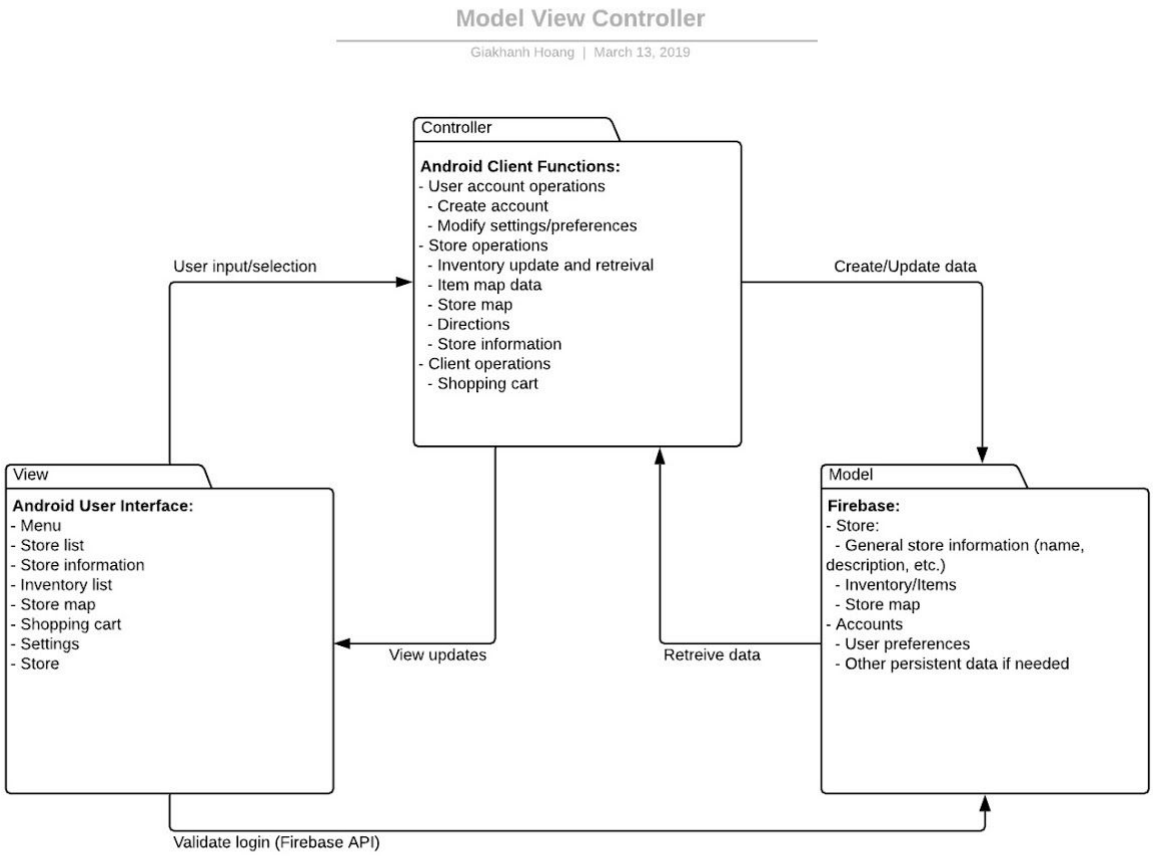
6. Sequence diagram



7. Class diagram



8. Architectural Design



Our team does believe the “Model View Controller” is best for our software needs since the Firebase database is a Model while the Android app UI is a View and the Controller would be the backend part of the Android app.