Planning/Analysis

Client: Mr. Srinivasamurthy Acharya, my grandfather
Advisor: Ms. Ravneet Kaur, Computer Science teacher

Defining the problem

The client, my grandfather, takes various medications on a daily basis. Often, there are changes to the medication schedule. To log vitals such as heart rate or blood pressure, the client **currently** uses several instruments, upon which he records this data on a sheet of paper.

After inquiring with the client, I found the current system to be **inefficient** as it is time-consuming to find older data. Moreover, it is difficult to track trends in health data, which may become more and more irregular, considering the instruments used to track heart rate etc. are not working well anymore. Without proper reminders, it may be difficult for the client to take medications on time.

Hence, the real-world problem that I chose was the use of **archaic systems to track health data**, such as medicine intake, heart rate, blood pressure etc, knowing that solving this problem would encourage the client to be more proactive with his health.

Rationale for the proposed product

Writing an application **dedicated to health tracking** rather than make a website, because the code I wished to implement **requires fast-processing**.

I decided to use **Swift**, a programming language designed by Apple **targeted to iOS and macOS platforms** because:

- Swift is an incredibly **comprehensible language** which I have been comfortable with since its release. It is closely related to Objective-C, which I have been using since I was 10.
- It is **free to deploy** on macOS; even though deployment on iOS requires a license, I am licensed for application development on iOS
- iOS development promises **many frameworks and SDKs** which I can use to make my application more detailed.

The only shortcoming of using Swift is that the application **can only operate on Apple devices**. This should not be a problem as the client is able to operate with Apple devices i.e. the application will be operable only as long as the client keeps an iOS and macOS device.

Success criteria

1. Design a **reader** for **heart rate and other vitals** whose input is from a mobile phone's camera
2. A **data entry form** that optionally allows these vitals to be manually entered, stored in a .csv or .db file
3. The processing of the vitals data into a meaningful form (graphs, max/min etc.)
4. A **data entry form**, or a natural text interpreter, that allows the user to enter a **medication**

details and supporting details (priority, for what treatment? etc.) into a **database**, stored in a .csv or .db file

5. An **option** to sort medication by the supporting details.
6. Use a **cloud-based database** that **syncs health data** between the mobile application and computer application
7. Provide a **minimal, yet detailed user interface** with easy understanding targeted to the elderly.