Apple HealthKit Integration with Accolade

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Accolade

Problem Statement

Current Accolade's iOS application requires users to manually check their personal health records through Apple Health, which increases a level of inefficiency. Furthermore, due to the inability to access to users' private data, Accolade's associated virtual medical team cannot provide full assistance during medical counseling service.

Goal

- Develop an algorithm for an iOS application that has access to user's EMR.
- Display user's health data with data visualization.
- Transfer EMR to Accolade Cloud Platform.
- Improve the convenience of the data communication.

Tools / Interfaces

- Xcode
- Apple HealthKit
- Accolade Interface
- Swift
- Python
- AWS with DynamoDB

HealthKit
aws

System Flow

Upload To Accolade Database / Get EMR Data From Accolade Database

Display EMR Data Authorize Sharing

Give Feedback to User

EMR Data From The Phone

HealthKit

Doctors Look at EMR Data

Implementation

Apple HealthKit

We developed an algorithm to enable authorization to grant an access to user's private health record.
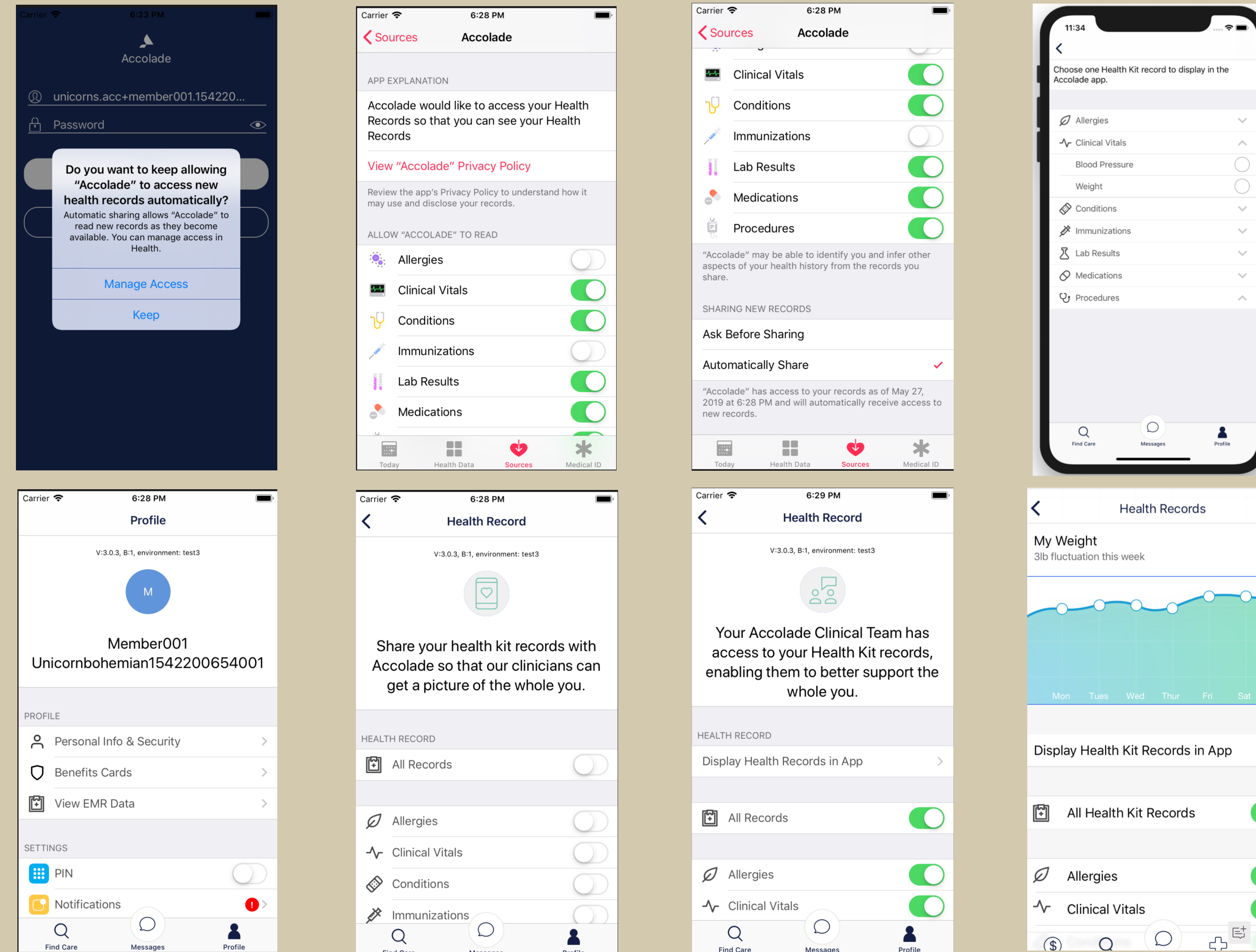
Storyboards

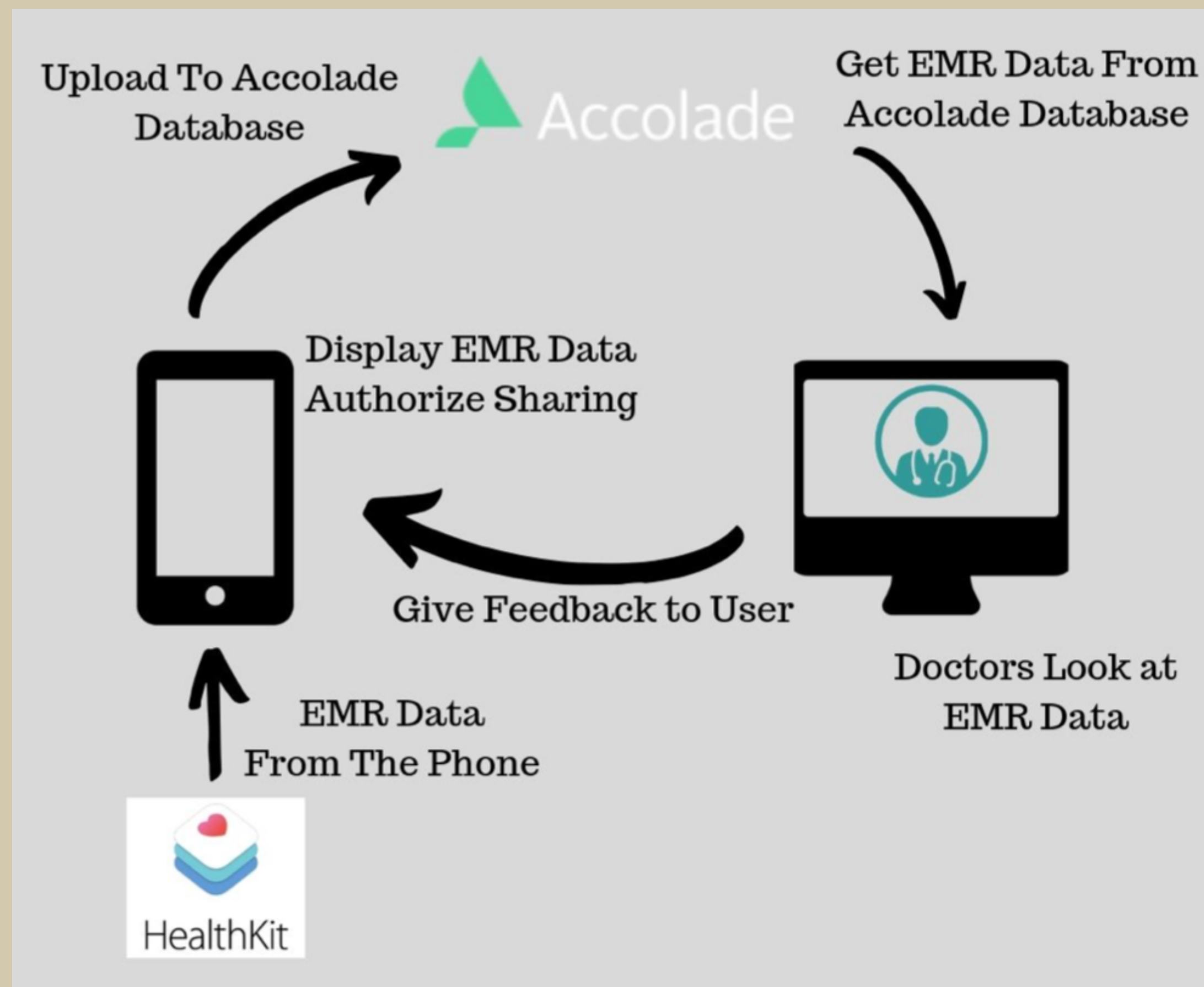We made clear table views and options for user's selections.

Amazon Web Services

- We requested HTTP data posting and designed AWS lambda.
- We uploaded data to Dynamo Database.

Data struct

We fetched JSON data from Apple HealthKit and parsed each data to build the struct.

Testing/Analysis

- Conducted a UI test with 20 participants to test on the functionality and communication.
- Participants : UW engineering students

UI Test

- Condition : Given the prototyped UI with following tasks:
  - Enable the authorization of accessing all data categories
  - Enable sharing access of all data categories to Accolade cloud
  - Display weight from clinical vital records
  - Disable sharing clinical data with Accolade but keep the authorization of access
- 16 succeeded but 4 needed further instructions
- Suggestions:
- Improve language for clear instruction
- Have another display for the better flow

Connection between users

- Situation A : Under the same health condition, users need to manually share each record with a doctor with a delayed response, and then get a prescription.
- Situation B : Under the same health condition, the doctor directly gives a perscription.
- All users reported better experience with the situation B.
- 7 raised concerns with privacy for situation B.

Future Direction

UI

Further User Testing is needed to improve the user experience. Different data visualizations is possible to make accolade app unique, and stand out.

General

Having the option of giving access to share EMR data during chatting with doctors may improve user experience further. Data visualization on the doctor's side is required to complete such communication.

Conclusion

The lack of access to users medical records posts a burden and inconvenience to both the users and the doctors to form a easy communication for a prescription. We try solving this issue by automatically sharing users medical record from apple health kit to our database so that the doctors will have access to the records without having the users manually upload their records. Our approach effectively enhances user experience with accolade and provides easier communication between users and doctors.

Acknowledgement