Sprint 2 Project Design and Implementation: Reducing the Mortality Rates of African American Women in Childbirth

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1 AREAS OF FOCUS

Unit(s) of Focus: Unit 1 and 3

External Mentors: Tia Pope

GT Topic's Primary Area of Focus Domains: Patient Centered Care

2 DESIGN YOUR PROJECT

Our project design will try to accomodate and support pregnant women during the critical time of pregnancy and postpartum, especially in the minority community.

The project was design because Centers for Disease Control and Prevention reserach shows that African American women are three to four times more likely to have pregnancy-related deaths compared to white women, CDC, 2019. These findings suggest that the disparity observed in pregnancy-related death for minority women is a complex national problem that needs to be addresed seriously. In past decades, the overall rate of pregnancy-related deaths has keep climbing over in the US, thus making maternal mortality rate in the United States the worst in any industrialized country. Thus, having a way to be able to reduce this maternal mortality with the help of current technology would be a very significant task that could prevent detahs and reduce the health disparity.

3 PROJECT SUMMARY

Our project aims to increase the trust of pregnant African American women towards healthcare system. By having higher trust I hope to increase the compliance of the medical procedure. Increase in compliance should be helpful towards having a better health outcome for pregnant African American women.

The project plans to increase trust by having African American women to be able to communicate with people they trust in their own community and com-

municate with people with medical knowledge in the community to help foster verifiable and trustworthy information. The information deemed important for this projects are the information related to daily task/struggles pregnant women needs to face, the facility/maternity wards needed by the pregnant women, and emotional support from community that understand the feeling of pregnant women coming from the same minority groups.

In order to help with the security and increasing trust, I'm planning to have the communication to be just in time and only shows the latest status (like Slack in early days that deletes messages after a while). The idea is so that each member of the group doesn't have to scroll just like in chat app, but can see what other people are saying in real time. The other features that I'm planning to do is the rating for maternity ward. This is used so that people from a specific minority groups can rate hospital/maternity ward that might be more emphatetic to the community. It's close to Yelp, but since the member of each communication channel are from the same minority groups, hopefully this information can be trusted more. The last features I'm planning to have is a note to help goes to the daily tasks or to save important messages from the just in time message from others that my app user think is important.

4 TOOLS AND TECHNOLOGY

Programming languages/frameworks:

1. HAPI Server
2. Pusher
3. JavaScript
4. Python

Visualization software and/or libraries:

1. CSS
2. Boostrap

Hosting or delivery method: Heroku App

4.1 Data Sources

Datasets that will be used will be mostly from free HAPI FHIR servers. For the your data sources needed for the chat communication I'm planning to use

free trial from Pusher that allows us to open a free channel and use it to save temporary communication messages.

4.2 Diagrams

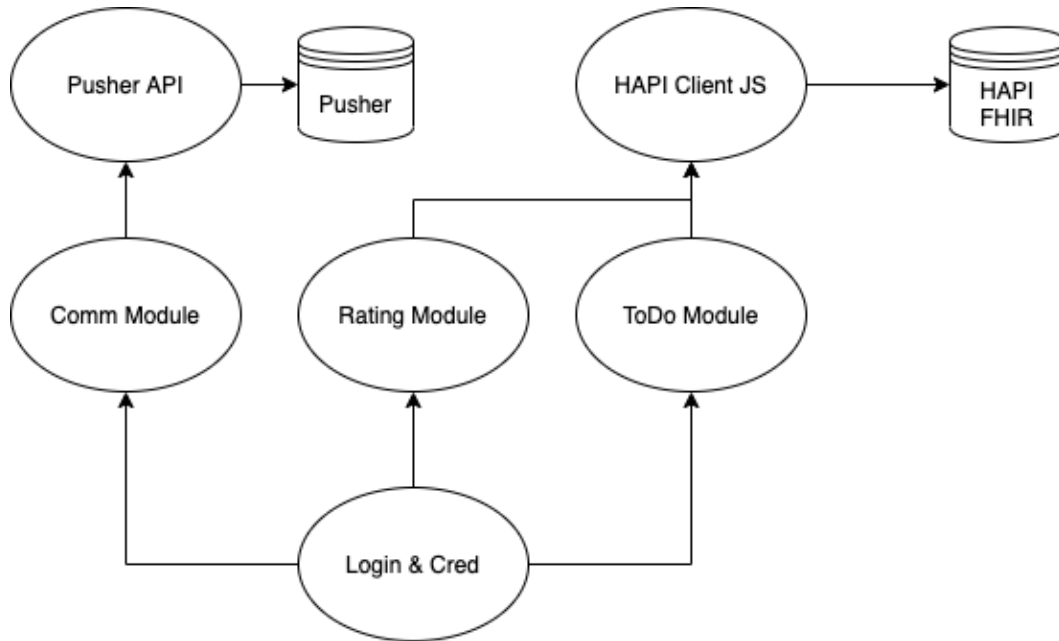Architecture diagrams of the planned app can be seen in Fig. 1

Figure 1—CS6440 Project Architecture Diagram

4.3 Screen Mock-ups

Screen mockup diagrams and the planned interaction can be seen in Fig. 2

5 IMPLEMENTATION PLAN

5.1 Project Tasks

There are 3 main features in this projects (1) Having a way to share the communication, (2) rating the maternity wards, and (3) noting down to do list for future tasks.

For the first sharing communication task in order to be able to finish this the thing that needs to be done is

1. Open communication channel using Pusher
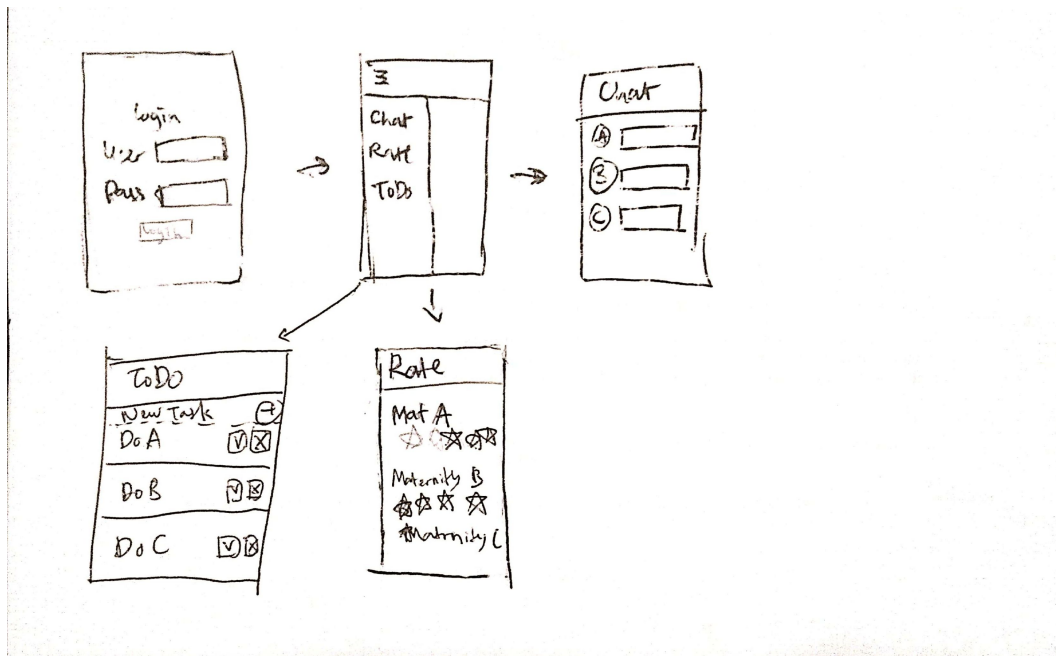2. Create a client from JS to be connected to the channel

Figure 2—CS6440 Project Mock Up Interaction

3. Create a view for the client so people can communicate

This will be done in Week 11 to Week 12

For the task of rating the maternity wards

1. Open a FHIR link with the client
2. HAPI Client JS connect to maternity ward with Location resources
3. Create an extension in Location Res to save the maternity ward ratings

This will be done in Week 13 to Week 14

For noting down to do list for future tasks, I was thinking that maybe noting down contraction might be useful. However I think putting it in Observation Resource might limit the use. So I think I'll just put them as extension.

1. HAPI Client JS connect to Observation resources
2. Create an extension to Observation resources to note the contraction

This will be done in Week 15. In last Week 16 I'll focus more on the report of the

applications.

5.2 Project Timeline

For timeline to go with each task with as start date and an end date I'm using a Gantt Chart and it can be shown in Fig. 3
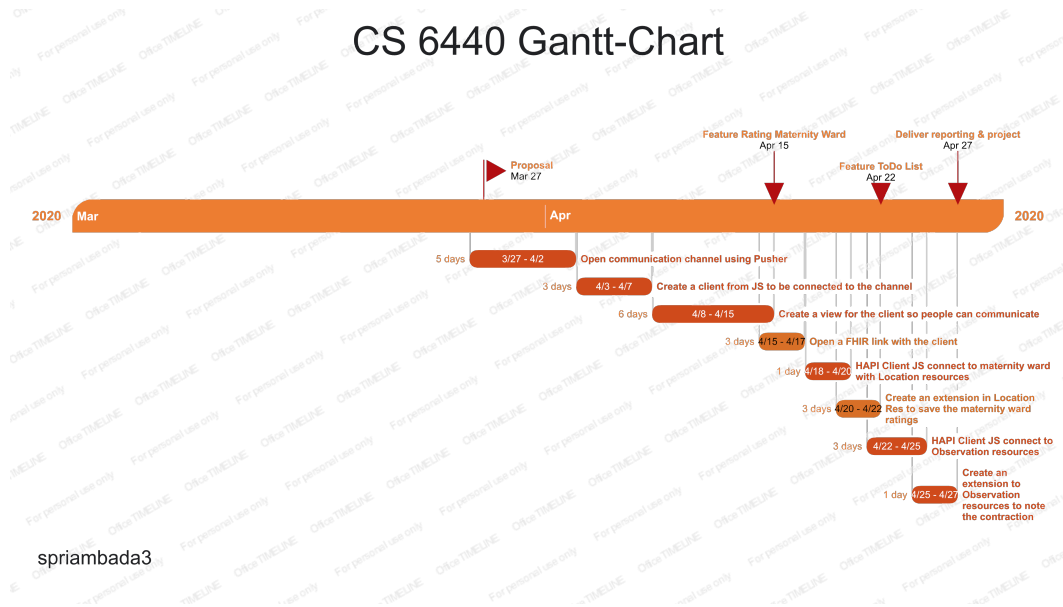
CS 6440 Gantt-Chart

Figure 3—CS6440 Project To-Do-List

5.3 Needs/ Risks

For the first task I'll need some time to learn about the Pusher API. This Pusher API will provide a communication channel that people can use to chat. The associated risks involved is if I didn't manage to open the communication channel in the Pusher app. Without channel this communication features might need to be not implemented.

For the second and third task I'll need to learn how to connect using HAPI Client JS related to location. I'm planning to use the open HAPI server. The associated risks involved is if I didn't manage to write resources of Location and Observation. I'm thinking of changing resources if it turns out I'm having difficulty to do this as planned using Observation and Location.

As for the HTML, CSS, JS task I think the risk is only if I didn't have enough time to implement them. There shouldn't be too much technical issues with this.

6 REFERENCES

[1]   CDC (2019). "Racial and Ethnic Disparities Continue in Pregnancy-Related Deaths". In: URL: https://www.cdc.gov/media/releases/2019/p0905-racial-ethnic-disparities-pregnancy-deaths.html.