



ReBoot.

IMATTER: MOBILE HEALTH APP

Team ReBoot.

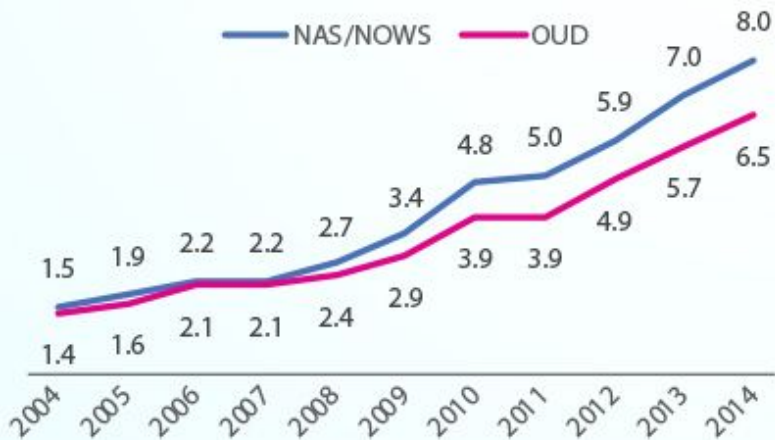
Members: Bianca Altman, Jennie Dallas, Victoria Leafgren,
Isai Martinez, Cindy Valentin

Clients: Dr. Emery Eaves and Dr. Eck Doerry

Mentor: Dr. Eck Doerry

OPIOID ADDICTION EPIDEMIC

NAS/NOWS and Maternal Opioid Use Disorder on the Rise
Rates per 1,000 Hospital Births



2+ Million Americans

Struggle with Opioid Use Disorder (OUD)

\$78.5 Billion

In annual costs for healthcare and more

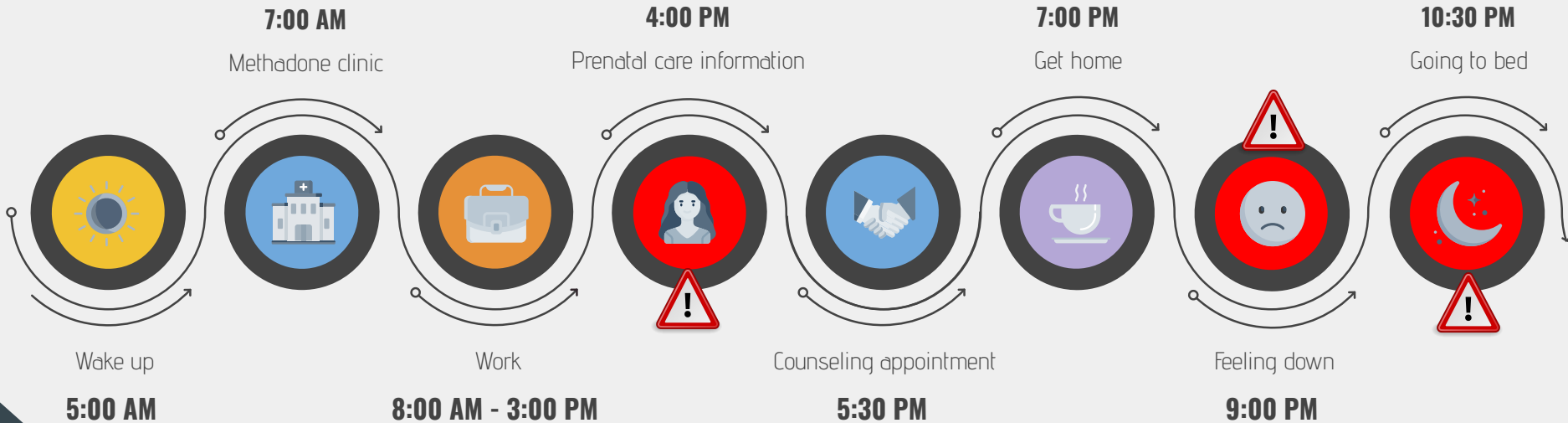
6.5 per 1,000 women

Opioid Use Disorder at delivery

56% relapse rate

For women 6 months postpartum

SUSAN'S DAY: THE CHALLENGES OF TRADITIONAL RECOVERY



Challenges:

- Many appointments and obligations
- Requires transportation and to live near clinics



DR. EMERY EAVES

Medical Anthropologist

Studies pregnant women
with opioid use disorder

MAJOR OBSTACLES:



Appointments



Lack of social support



Lack of information
access

GOAL:

Alleviate these challenges

SOLUTION OVERVIEW



Safe, Secure, Anonymous



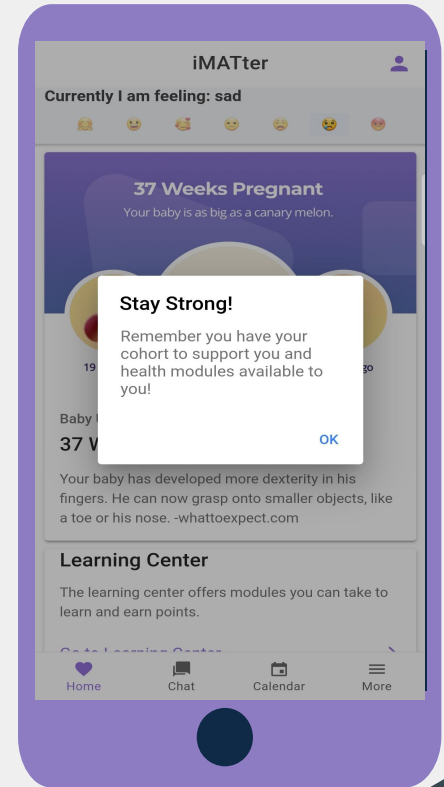
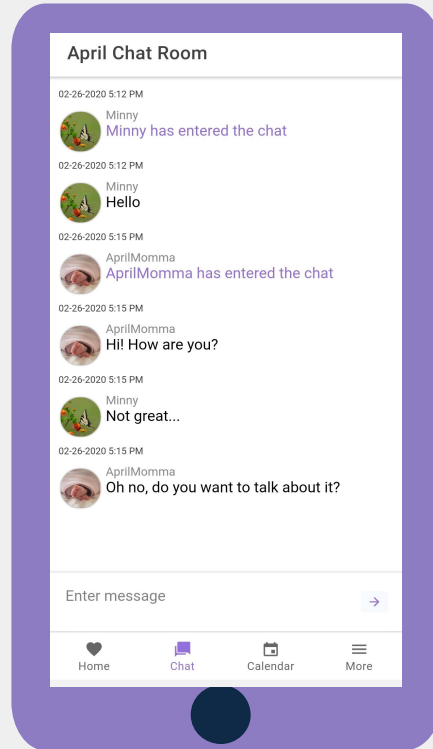
Active Learning



Receiving Support



Mobile: Anytime, Anywhere



SOLUTION FEATURES

- **24/7 Access to Key Medical Information**
 - Info desk forum, resources finder
- **Engaging Social Environments**
 - Cohort chat room, educational quizzes, info desk forum
- **Tailored to Pregnancy eJourney (pregnancy calendar)**
- **Personal Planning Tools - Calendar**
 - Medication reminders
 - appointment reminders

USER MOBILE APP - COHORT CHAT ROOM

iMATter 1:40 AM
iMATter Chat Room
There is a new message in the chat room


November Chat Room

Jasmine has entered the chat


MinnieMae is currently feeling overwhelmed

MinnieMae has entered the chat


04-21-2020 10:27 PM

 Jasmine
Hey, how are you?

04-21-2020 10:27 PM

 MinnieMae
Not great..

04-21-2020 10:27 PM

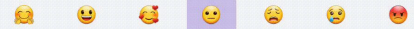
 Jasmine
Do you want to talk about it?


Enter message →

Home Chat Calendar More

iMATter

Currently I am feeling: indifferent





Week 36 Highlights

- You may feel unsteady moving.
- It's normal to feel increased pressure in your pelvis.
- You'll start seeing your healthcare provider weekly now.

verywell

Baby Update: 278 Days

39 Weeks and 5 Days

Here is some info

Learning Center

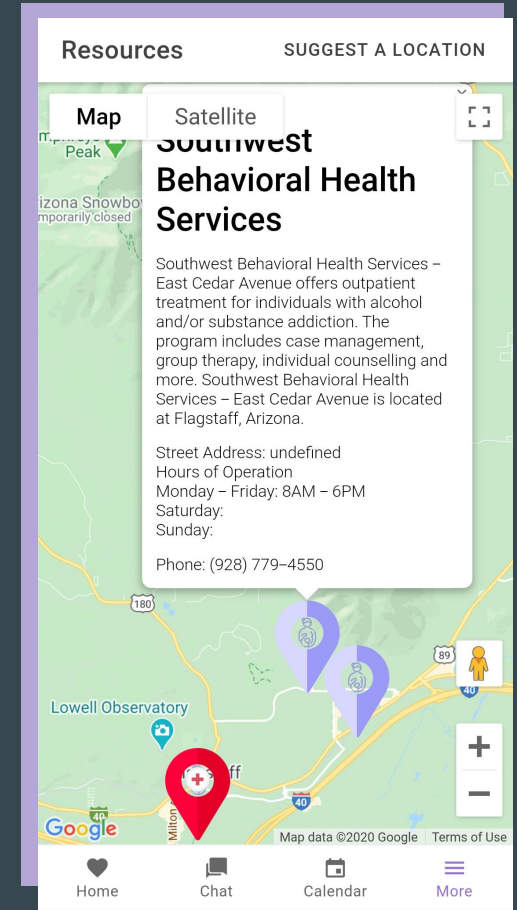
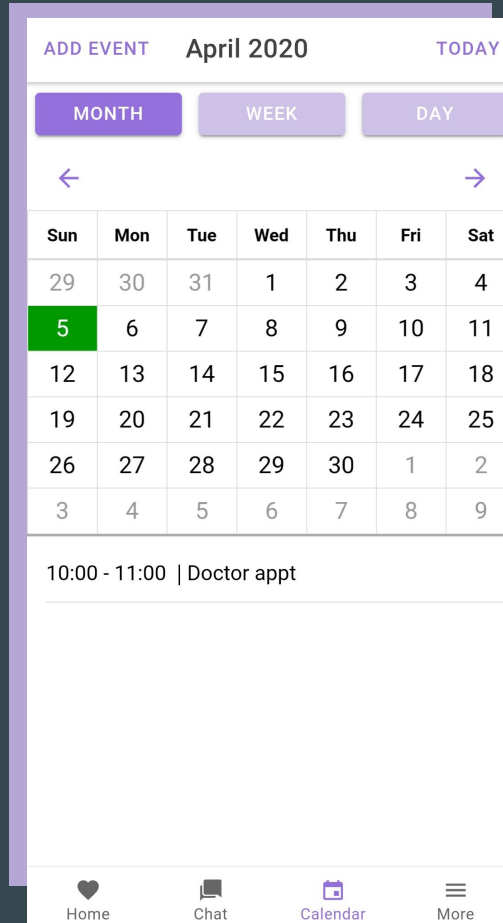
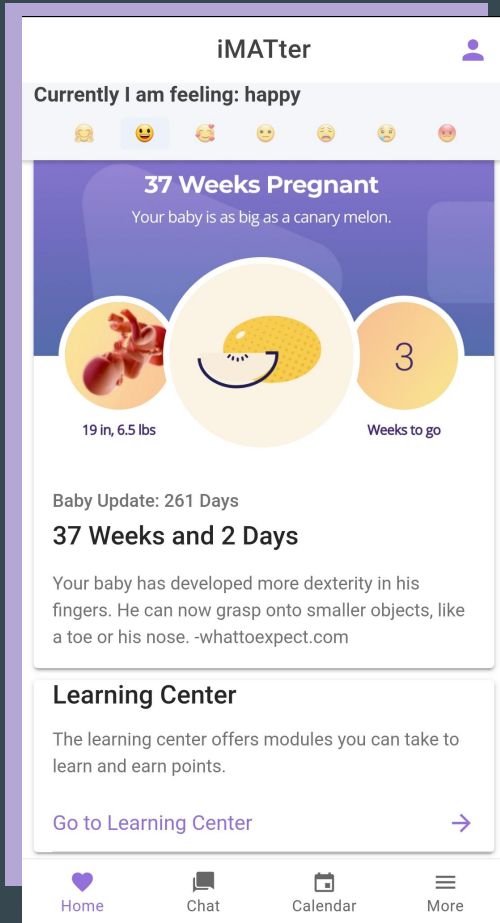
The learning center offers modules you can take to learn and earn points.

[Go to Learning Center](#) →

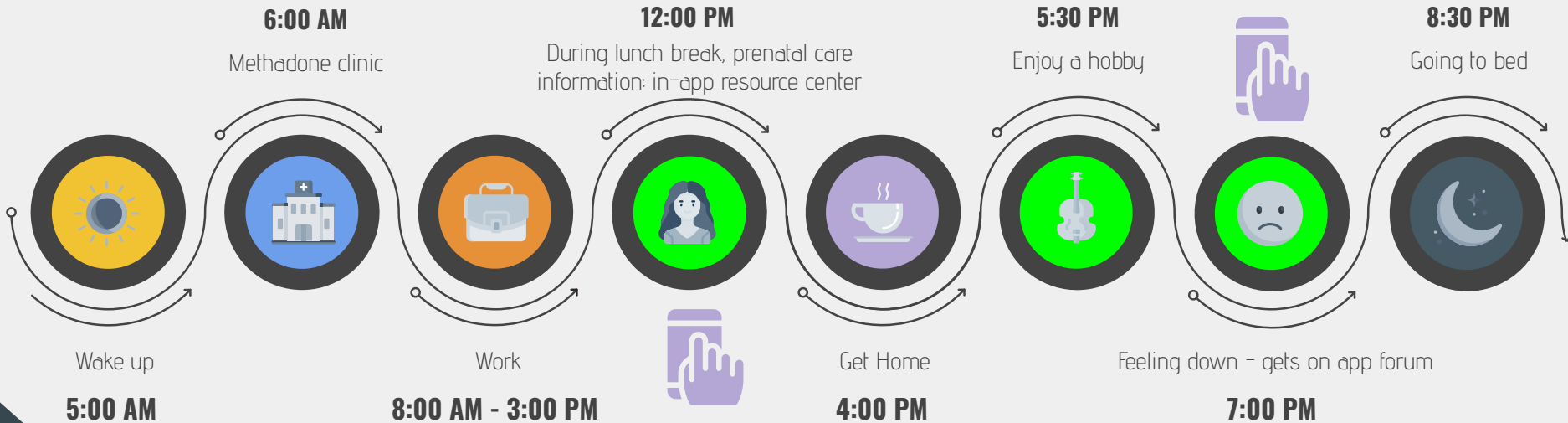
Surveys

Home Chat Calendar More

PROTOTYPE REVIEW - MOBILE APP



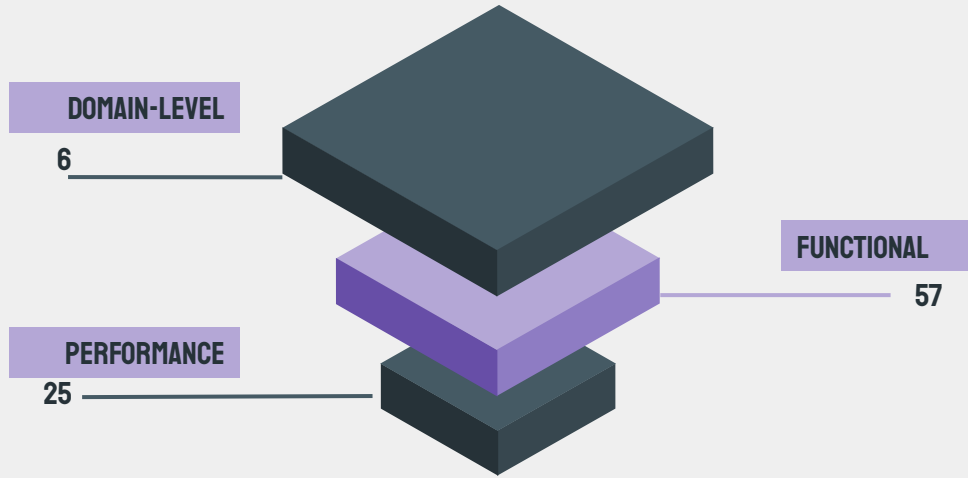
SUSAN'S DAY WITH IMATTER



What iMATter solved:

- Susan now has time for herself
- Being alone at night is now a night spent with the support of a cohort

REQUIREMENTS OVERVIEW



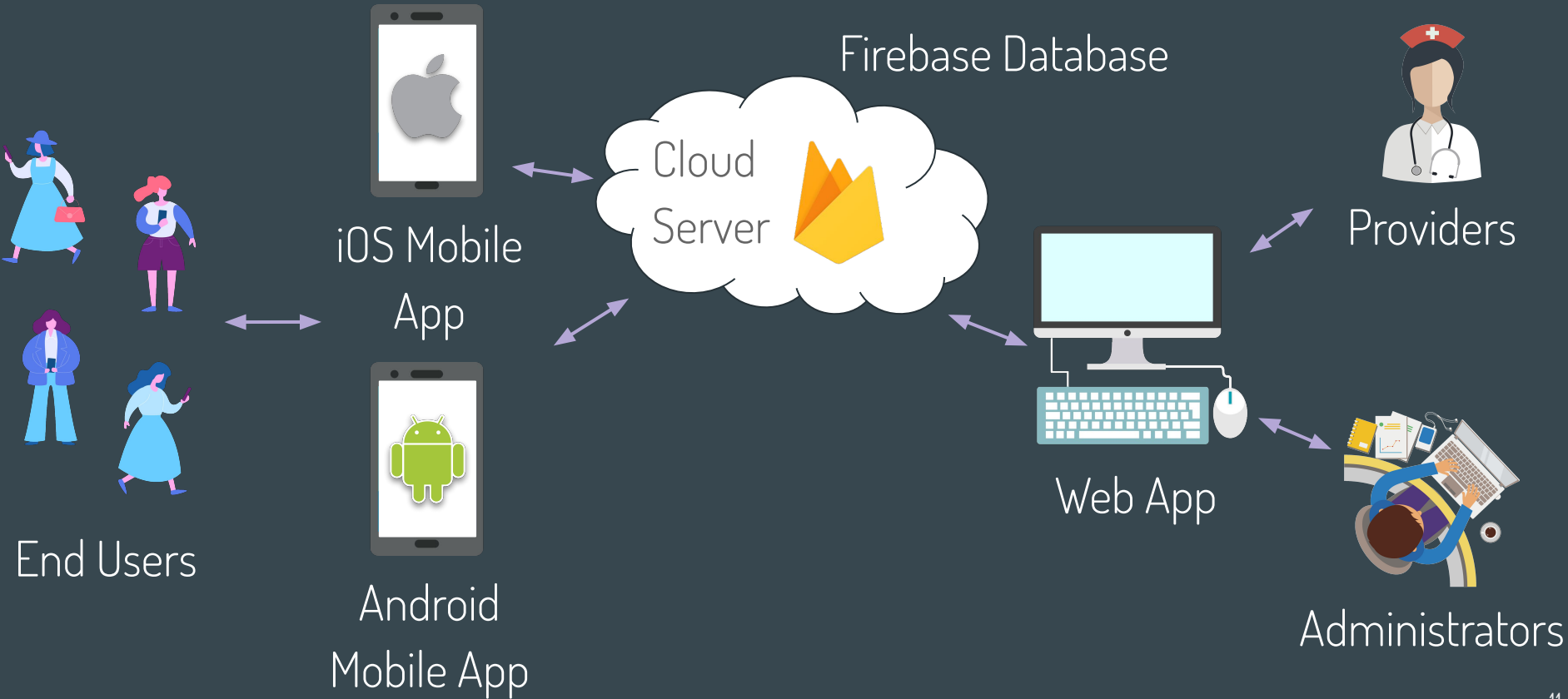
REQUIREMENTS ACQUIRED BY:

- Client Meetings
- Use Cases
- Iterative Refinements

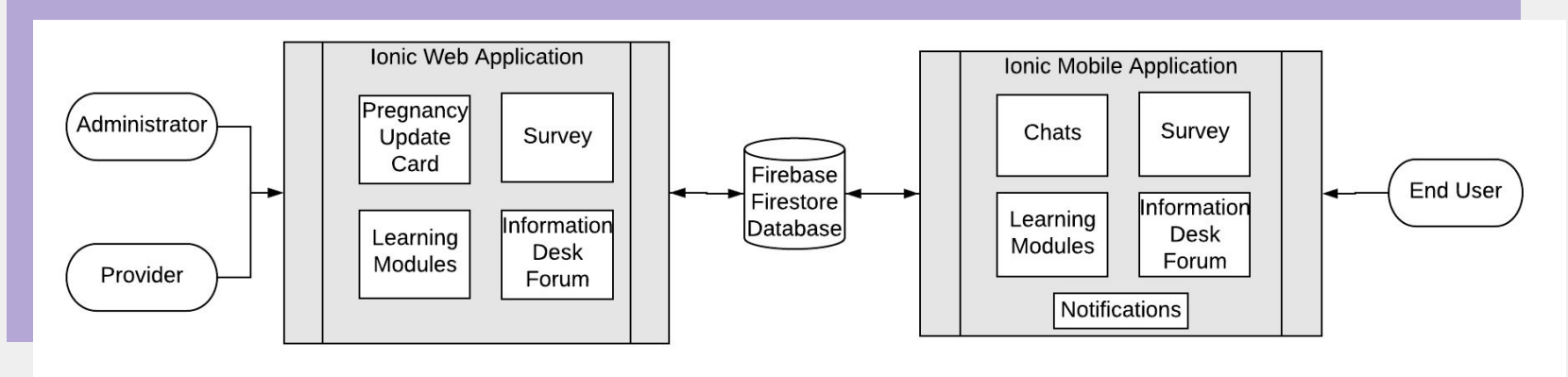
HIGH-LEVEL KEY REQUIREMENTS

1. Support Accounts
2. Chat Room
3. Learning Center
4. Information Desk Forum
5. Surveys
6. Resource Center
7. Calendar
8. Notifications

OVERALL IMPLEMENTATION



ARCHITECTURE AND IMPLEMENTATION



TECHNOLOGIES USED

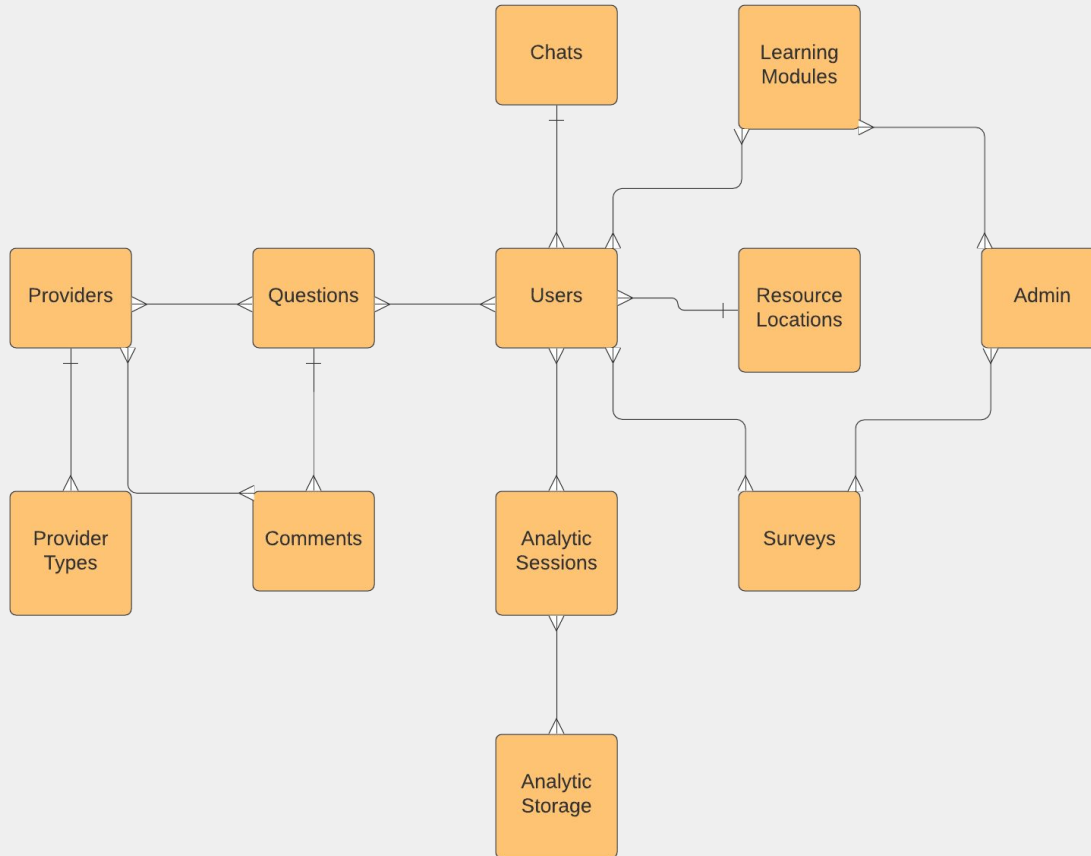


- **Ionic Framework**
 - Cross Platform
 - Typescript, HTML, CSS



- **Firestore**
 - Database
 - Cloud Functions (JS)
- Push Notifications
- Scheduled Functions

DATABASE IMPLEMENTATION



- Firebase DataBase
- 24 Collections or “Tables”
- Live Synchronization and updates
- Built on Google Infrastructure

PROTOTYPE REVIEW - WEB APP [ADMIN PORTAL]

← Mothers and Methadone Module Details

Module is Active

About Module

Module Title
Mothers and Methadone

Module Description
This is a video about taking methadone while being pregnant.

Display Module During Weeks (enter 0 for always visible)
0


Days Visible Before Expiration (enter 0 for never expires)
0

Module Reward Points (Total Quiz Question Points)
6

Module Contents
Please watch this video to learn more about what it is like to take methadone during your pregnancy.

Module Media

Module Video ID (YouTube Video ID)
LjT8WvuaFUE



Module PowerPoint URL (src)

Module Quiz

Withdrawal can cause miscarriage

The mother should monitor the baby for signs of withdrawal with the nurse

ADD QUIZ QUESTION

Link to Another Learning Module

Next Module None

✓ ADD LEARNING MODULE

Module Quiz Question

Question Information

Quiz Question
Withdrawal can cause miscarriage

Points Worth
3

Answer Choices

A
True

B
False

C

D

Correct Answer
A

DELETE **SAVE**

USER VIEW OF ADMIN CREATED LEARNING MODULE

← Learning Center

New Modules

Care for Pregnant Women With Opioid Use Disorder

Description: Describes the standard ways pregnant women with opioid use disorder are treated during recovery.

Mothers and Methadone

Description: This is a video about taking methadone while being pregnant.

Viewed Modules

Rise in Neonatal Abstinence Syndrome

Description: Presents some general statistics on the increase of pregnant women with OUD and the rising rates of babies born with NAS

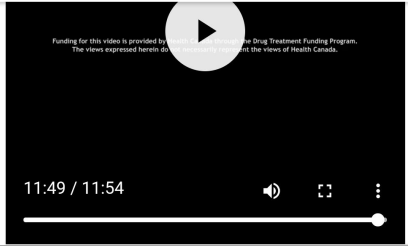
1 out of 3 Quiz Attempts Taken

Mother With Opioid Use Disorder

Description: A pregnant mother with opioid use disorder (OUD) talks about her journey.

0 out of 3 Quiz Attempts Taken

← Mothers and Methadone Mod...



Questions

Withdrawal can cause miscarriage - 3 point(s)

A. True

B. False

The mother should monitor the baby for signs of withdrawal with the nurse - 3 point(s)

A. True

B. False

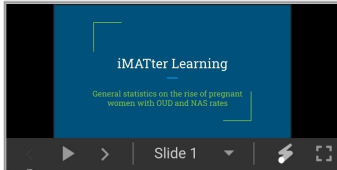
SUBMIT RETAKE QUIZ

Quiz Results: 1 out of 2 question(s) correct

Number of Attempts: 1 out of 3

← Rise in Neonatal Abstinence S...

Please look through the following PowerPoint and answer the quiz questions.



Questions

Which of the following are symptoms of a baby born with Neonatal Abstinence Syndrome? - 2 point(s)

A. Poor feeding

B. Breathing problems

C. Body shakes

D. All of the above

Which is NOT a potential long-term effect of NAS? - 2 point(s)

A. Cognitive issues

CHALLENGES AND RESOLUTIONS

CHALLENGE

SOLUTION

Synchronizing Data
Between Mobile Apps
and the Web App

Google's Firebase and Firestore database



Timed Events Triggered When
User Not In App

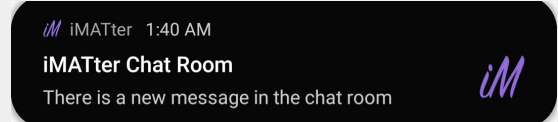
Scheduled jobs with Firebase scheduler

A screenshot of the Google Cloud Scheduler 'Jobs' page. The interface shows a table of scheduled jobs. The table has columns for Name, State, Description, Frequency, and Target. One job is listed: 'learning_module_notification' with state 'Enabled', description 'calls cloud function to send learning module notifications', frequency '0 8 * * * * (America/Phoenix)', and target 'URL : https://us-central1-techdemofirebase.cloudfunctions.net/newLearningModuleNotification'. The interface also includes buttons for 'CREATE JOB', 'REFRESH', 'EDIT', 'PAUSE', 'RESUME', and 'DELETE'.

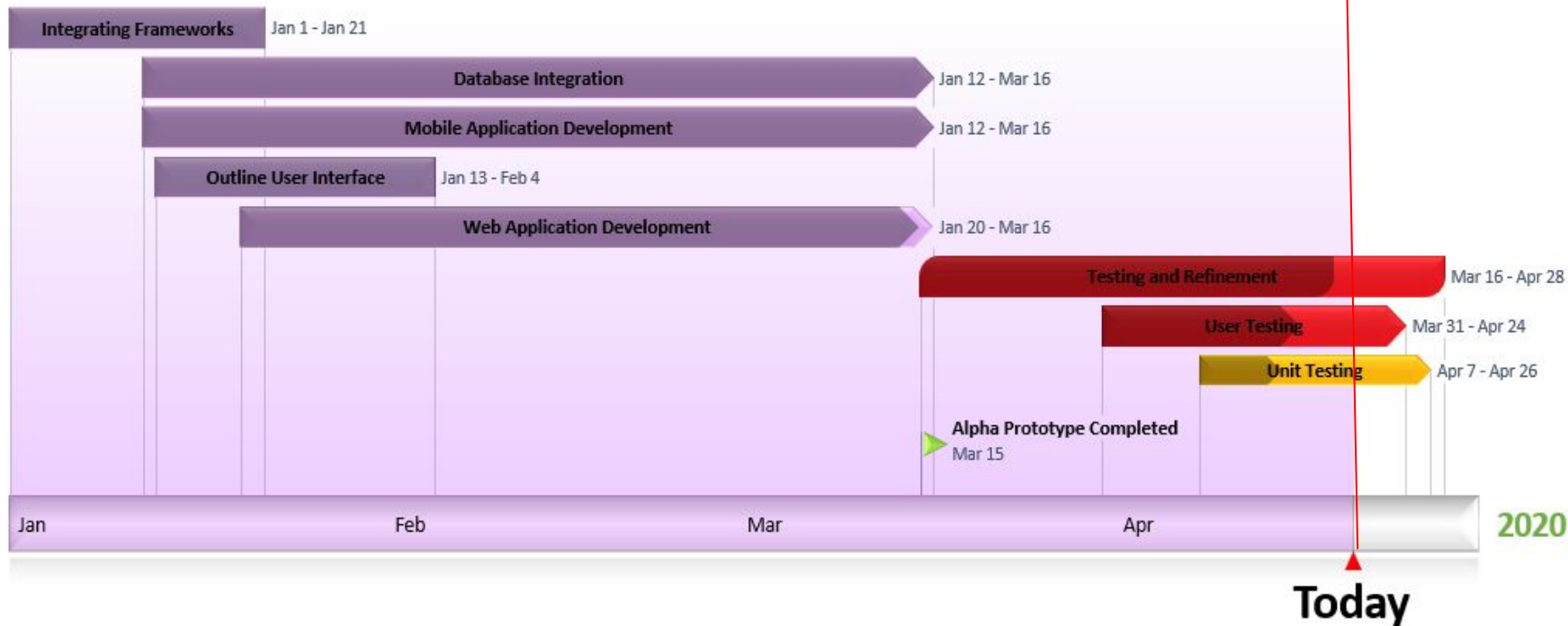
Name ↑	State	Description	Frequency	Target
<input type="checkbox"/> learning_module_notification	Enabled	calls cloud function to send learning module notifications	0 8 * * * * (America/Phoenix)	URL : https://us-central1-techdemofirebase.cloudfunctions.net/newLearningModuleNotification

Push Notifications

Firebase Messaging service with Cloud Function.



ReBoot.



TESTING PLAN

Unit Testing

Testing Individual
Components

Tested Modules:

14 units

Unit Test:

20 tests

Integration Testing

Ensuring web, mobile and
database components
communicate

Integration Tests:

14 tests

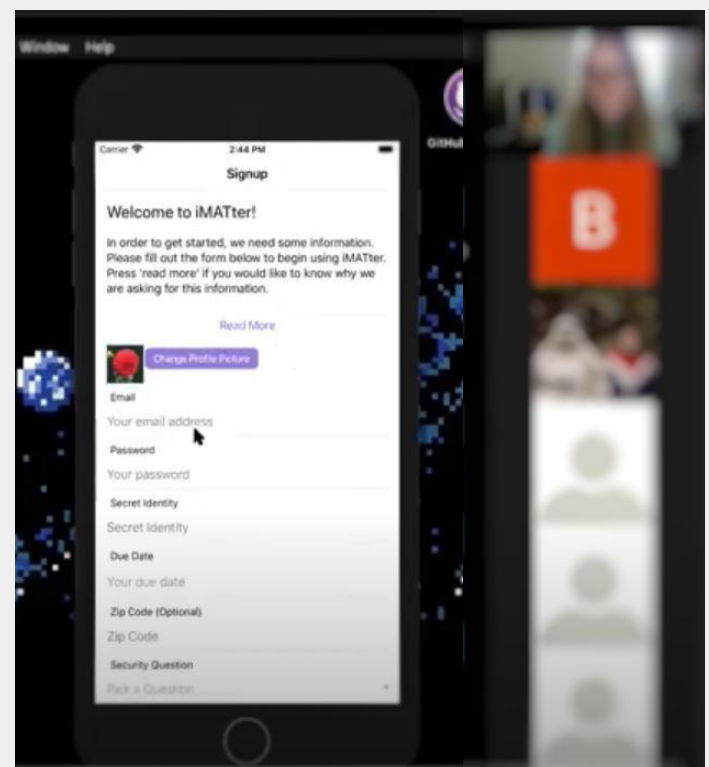
TESTING PLAN

Usability Testing

Our Main Focus

User Pair Testing:
2 sessions

Video call walk through
with user manual



*blurred subject

Changes:

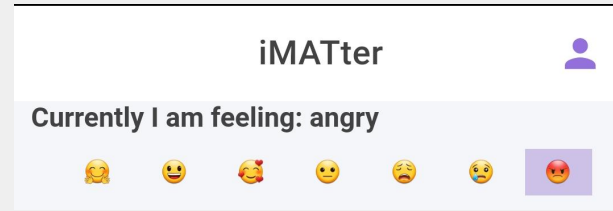
- User Interface communication
- Improve Validation forms

User Interface

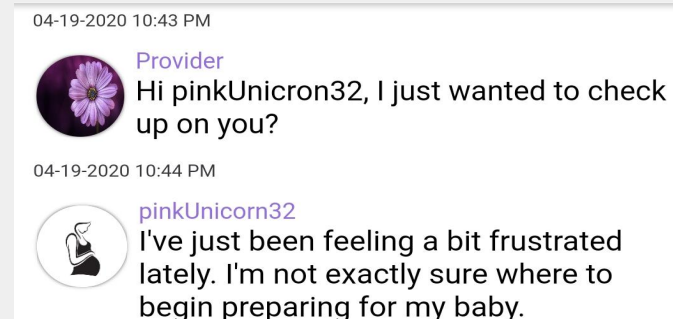
Layout of Information
Increase in Users

Private Messages

User:



Individualized
Interaction :



CONCLUSION

Solution:

Mobile application with:

- Forum
- Interactive Components
- Information Desk
- Learning Center
- Notifications
- Research Analytics



Problem:

Pregnant women with opioid addictions have a hard time with recovery programs



Mobile Application:

Safe environment, social forum, information and support

For more information : <https://www.cefn.s.nau.edu/capstone/projects/CS/2020/Reboot-S20/>