GoMe!

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http://sddec19-03.sd.ece.iastate.edu/

Team Introduction

Michael Arnold

Chief Engineer

Bailey Jensen

Lead Backend
Google Maps & Places Lead

Akaash Suresh

ML Lead
Backend Engineer

Jake Montgomery

Lead UI
Lead Frontend Engineer

Jaclyn Ralfs

Data Analytics
Meeting Scribe

Mark Marrano

Lead Optimization
& Test Engineer

Introduction

Market Survey

Current Scheduling Apps

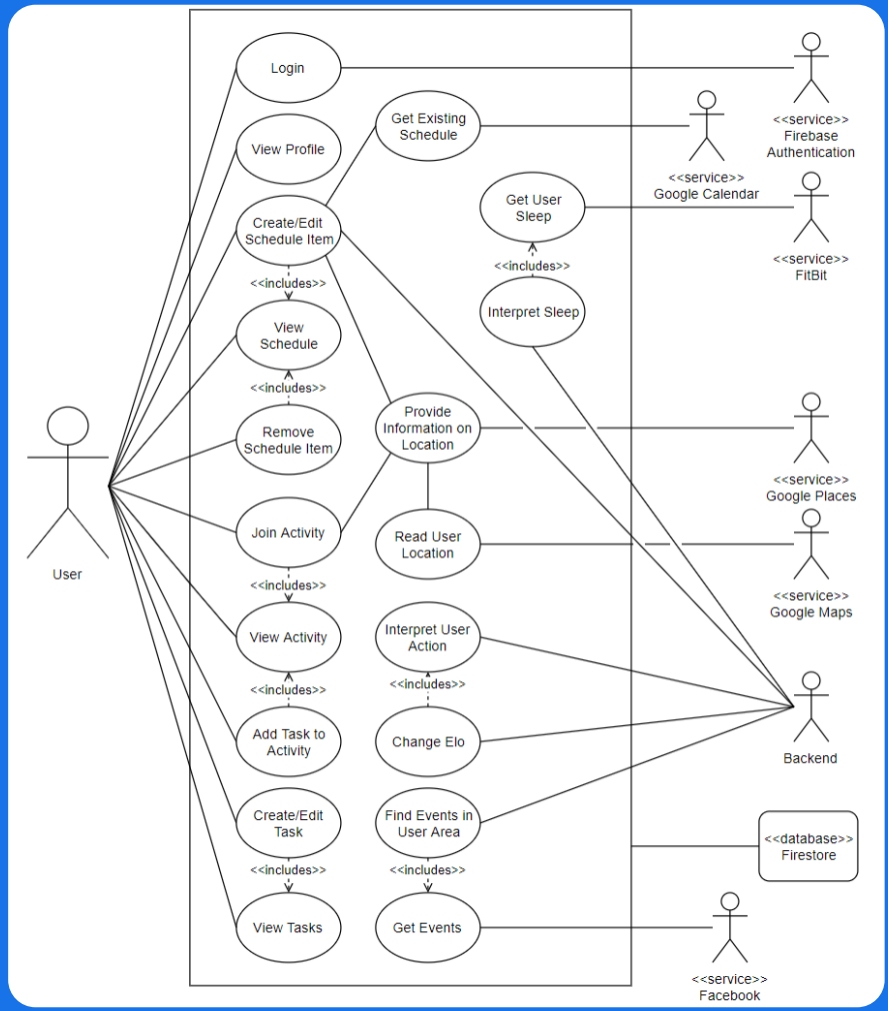
- Static
- Boring, basic features
- Manual input creates inconvenient use

Our Implementation

- Dynamic
- Motivational
- ‘Personal assistant’ type feel
- Collaborative

Conceptual Sketch

Use case diagram



Functional Requirements

- Tasks & Activities
- Dynamic Scheduling
- Location Recognition
- Collaboration & Notifications
- Recommendations
- Profile & Social Media
- Progress Logging

Non-Functional Requirements

- Performance
- Scalability
- Testing
- Security
- Privacy

Major Features

- Dynamic Schedule
- Social Media Platform
- Push Notifications
- Collaborative Schedule
- Analytics, Progress Tracking, & Recap
- Recommendations

Technologies Used

Android Studio

Mobile

Development

Framework

Node.js

Firebase Cloud

Functions API

Firebase

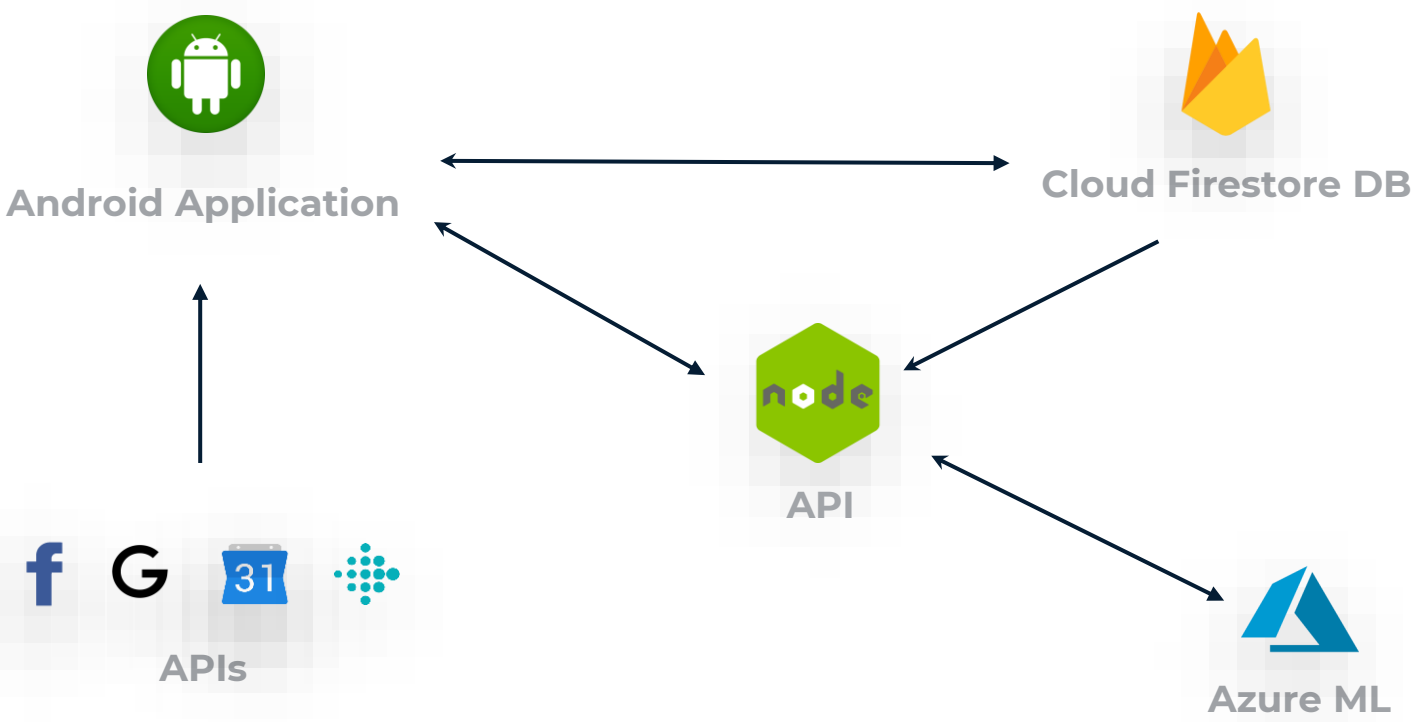
Database

Authentication

Image Storage

Azure ML

Neural Net for Sleep

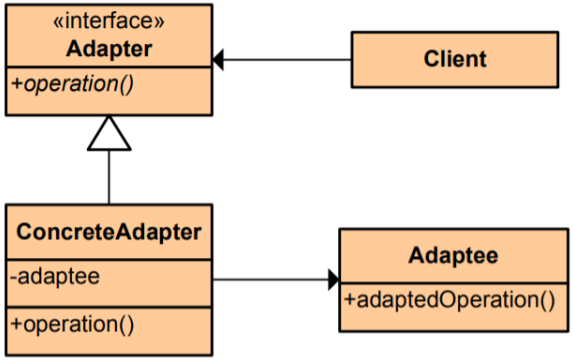


Overall System Design

External API Design

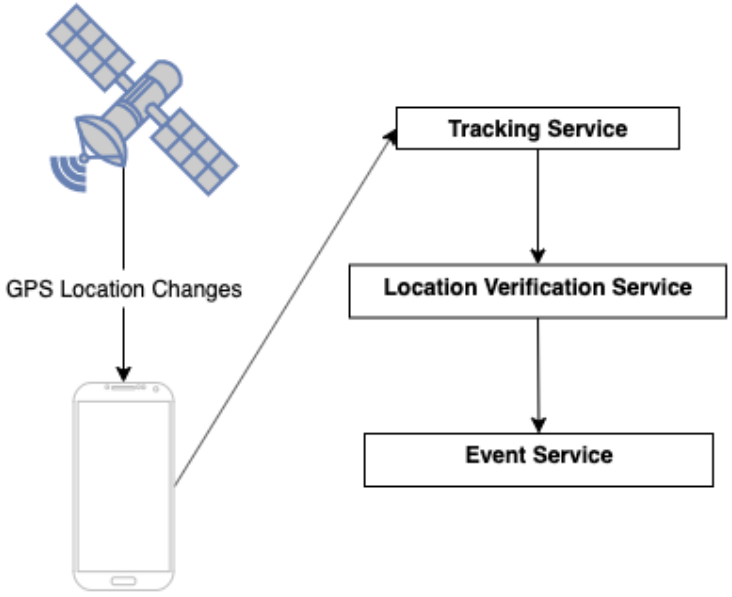
- Fitbit to obtain user sleep data
- Google Places to obtain information about addresses the user interacts with
- Google Maps to obtain location information on the user
- Google Calendar to see already existing schedule items/obligations/tasks
- Facebook Events to see what events are going on in the user's area

Adapter Pattern

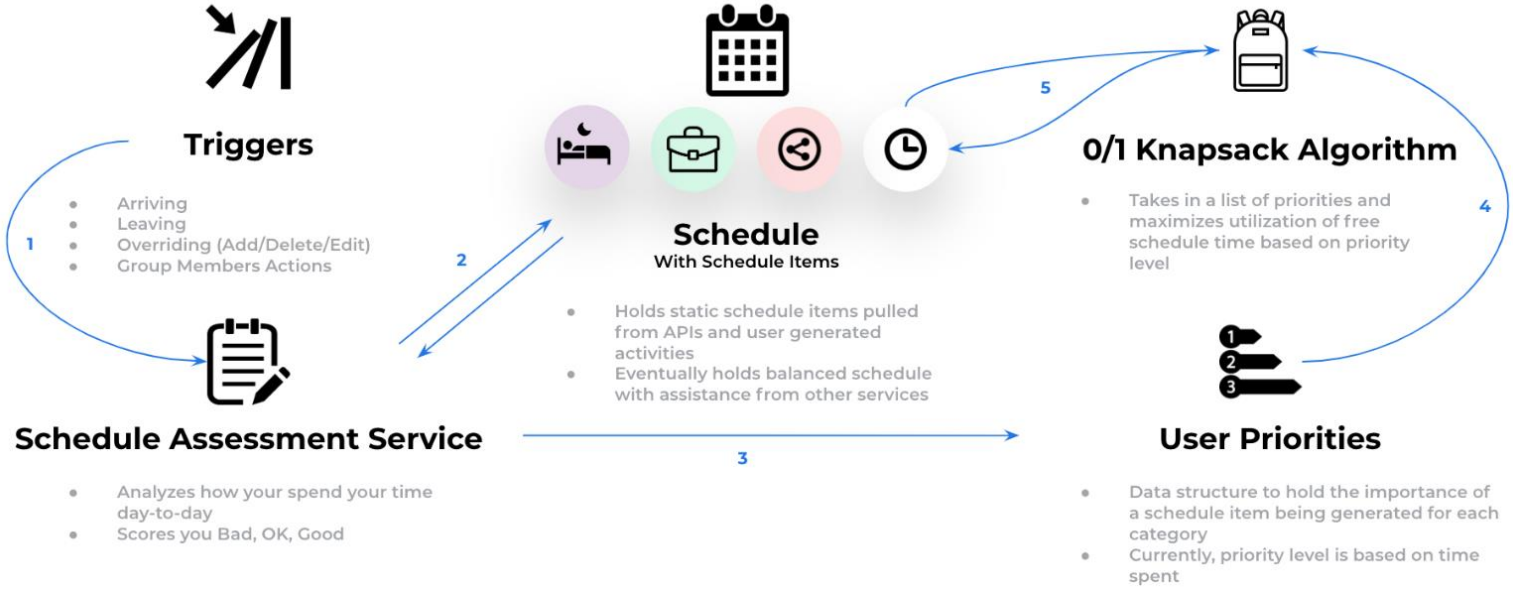


Location Verification Design

- Location Listener executes on location changes
- Compares user's actual location to the location stated in their schedule
- Some cases:
  - User arrived to next event
  - User is too far to arrive at next event on time
  - User left current event
- Depending on case, make a series of function calls to the event service to alter schedule accordingly

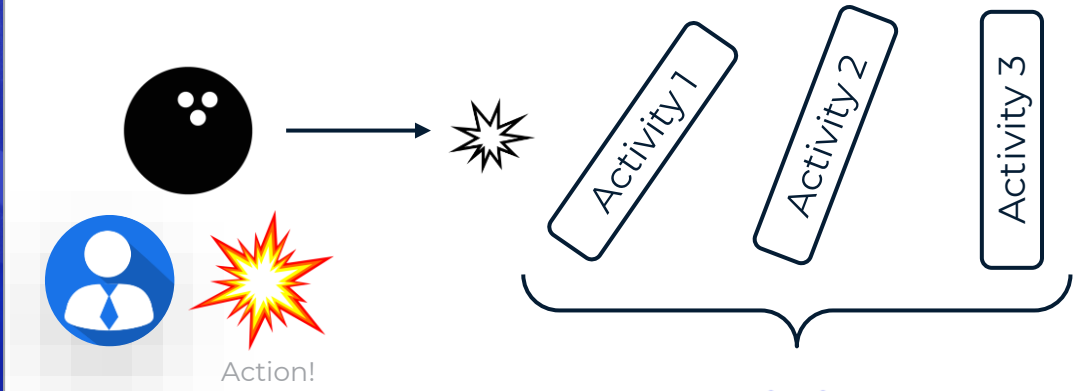


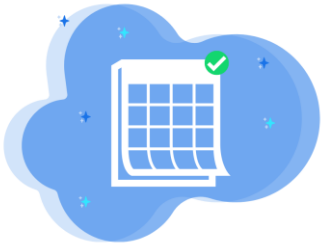
Dynamic Schedule



Collaboration

Every user action has the possibility to impact another user's time





Collaborative Schedule

- Cascading effect on user's schedule from user action
- Uses location verification
- Pushes activity start times back if app determines user will arrive late (or not arrive at all)

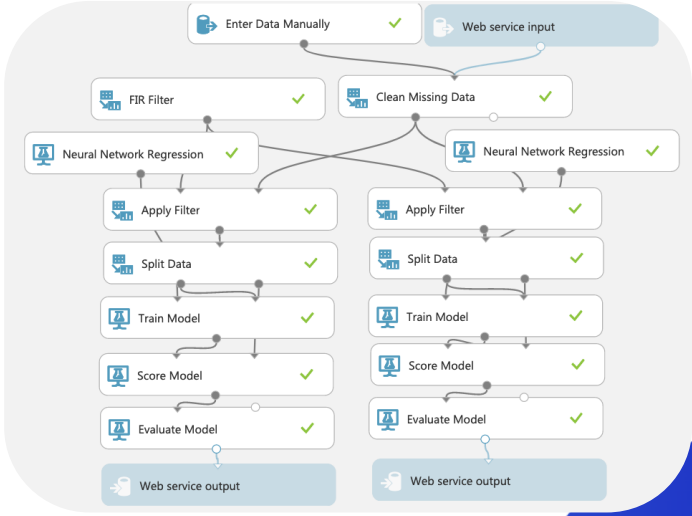
Collaborative Tasks

- Ability to invite other user's to work on tasks with you
- Automatically deletes the task when one included user checks the task complete
- Removed from all user's schedules and priorities

User Collaboration

Machine Learning Design

- Multiple models
  - Attributes might be slightly different
- Input
  - Day of the week
- Output
  - Sleep time
  - Wakeup time



User Interface Design

Go Page

Time Usage Chart

Activity Page

Social Events
Activity Recommendations

Task Page

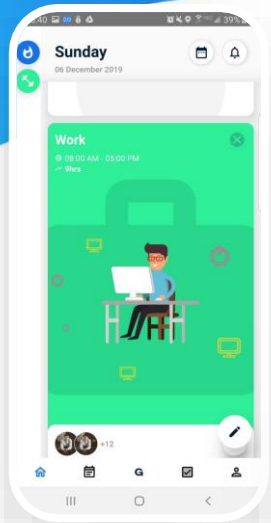
Tasks

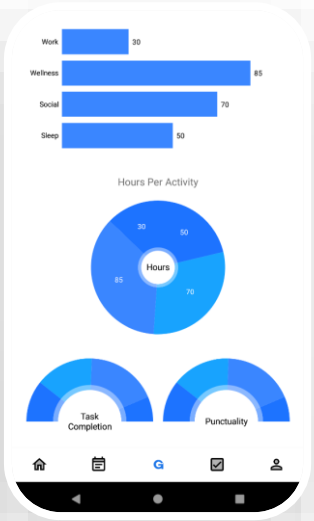
Home Page

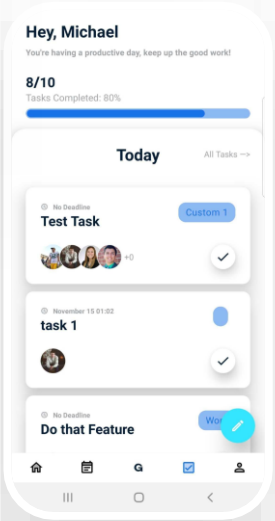
Schedule
Daily Activity
Social Feed

Profile Page

User Profile
Group Scheduling







UI Screenshots

Test Plan

Simulation Testing

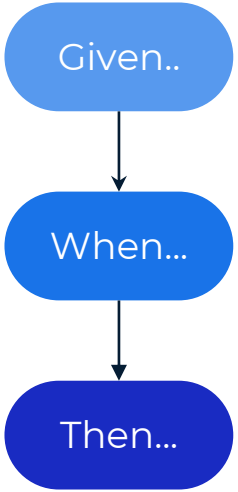
- Used to fake thousands of random scenarios on our scheduling algorithm to ensure it is running correctly
- Scalable to millions of fake users and fake days
- More complexities can be added to test other features throughout our application

Integration Testing: Jenkins

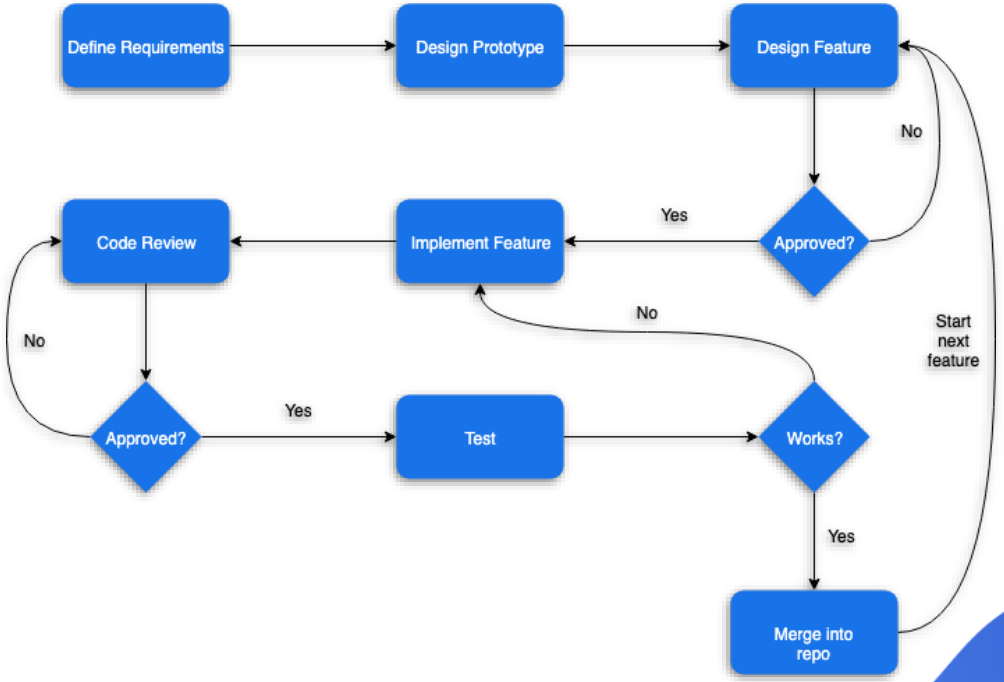
- Locally hosted Jenkins instance for Continuous Integration implementation
- Runs daily and emails team results of job output
- Runs 78 total tasks ranging from general debugging to Android .apk installation
- Keeps the health of our code base strong

More Testing and Requirement Tactics

- Functional Testing
  - Unit Testing
  - Simulation Testing
  - Integration Testing
- Non-functional Testing
  - Usability Testing
  - Security Testing
- Requirements
  - Requirements Evolution
  - Agile-Driven scenario building for ease of testing



Development Process



Challenges Faced and Lessons Learned

Challenges

Limited Time
Large project scope
Machine Learning

Lessons Learned

Communication is vital
Plans change

Conclusion

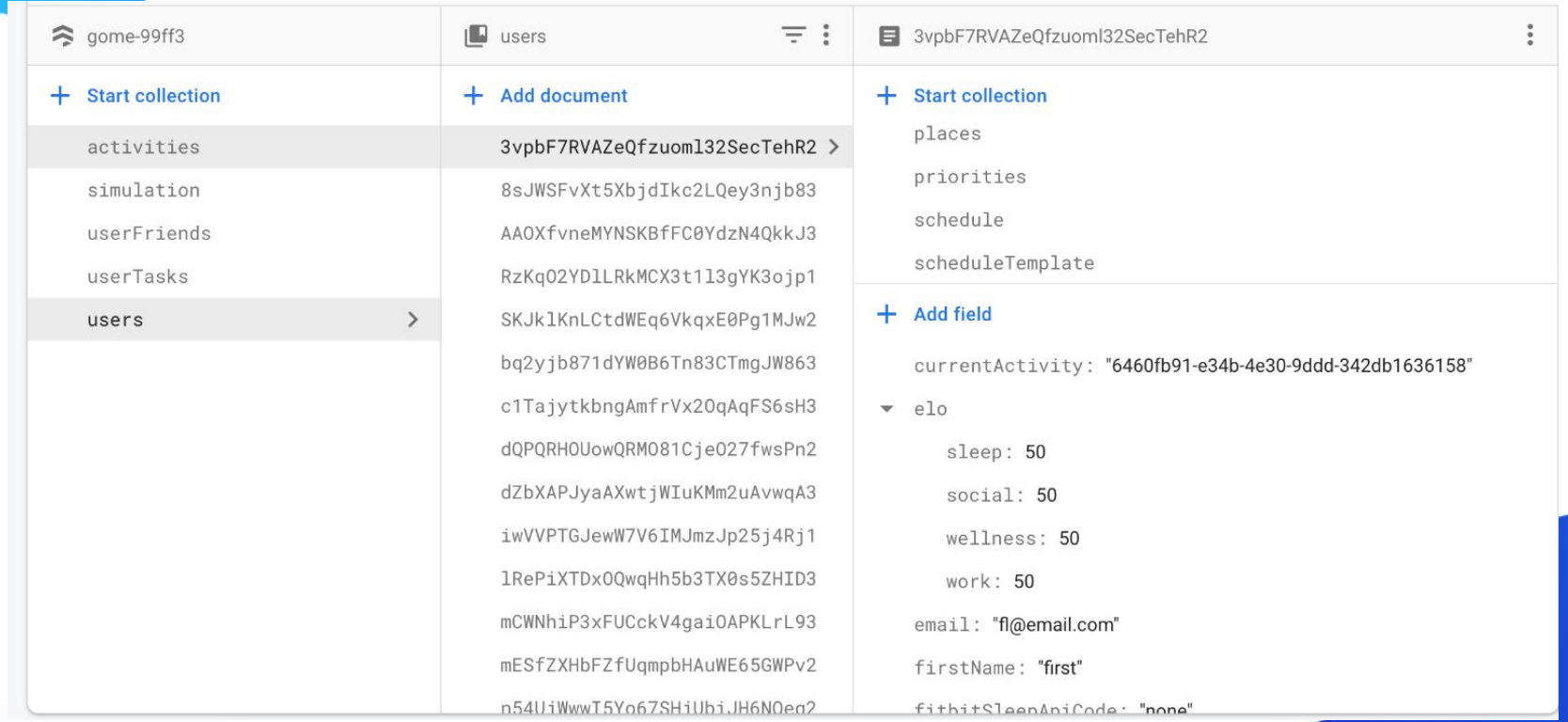
Created innovative dynamic schedule

Created a collaborative environment for users to succeed together

Learned a lot

Questions?

Data Design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simulation
userFriends
userTasks
users
users
Add document
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priorities
schedule
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