California State University

CECS_453

Mobile Application Development

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GoGoGatchi - Travel plans made easy!

ABSTRACT

The application GoGoGatchi aims to help explorers find local events or places near them that they might be interested in. It provides an intuitive design and a virtual companion that shall guide the user and is also a virtual pet that one can interact with.

It provides functionalities such as swipeable location cards, a news feed, updateable interests and a companion view. The application provides built in recommendations which help users save time looking for interesting places/events to visit

ACKNOWLEDGEMENTS

Acknowledgements to the professor and fellow students for providing the necessary feedback to improve our project.

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LIST OF SYMBOLS AND ABBREVIATIONS

OS - Operating System

API - Application Program Interface

UI- User Interface

SSL - Secure Socket Layer

POI - Point of Interest

POJO -Plain Old Java Object

SDK - Software Development Kit

1 INTRODUCTION

1.1 Background

GoGoGatchi is an android application designed by a team of skilled and talented individuals to provide users with information on locations and events occurring around them. Location data will be featured as an opt-in/opt-out option if the user wants the app to search locations and events in his/her proximity. The user will be able to see locations as a card, and swipe right(like), or left(dislike) for a variety of location within a certain area.If the user liked any location, it will automatically stored in his feed.

1.2 Goals and delimitations

The goal of GoGoGatchi is to let people relieve their homes and discover new places within their interests. This application will allow users to have fun discovering places. We help our users solve the problem of finding an interactive application that lets users learn about locations and cultural events by providing users with suggestions of places.

The main delimitations the group faced was the lack of knowledge in how to access Google api. Another delimitation was the six-week time constraint we had. We had to learn the new and work with new things while simultaneously code the project.

1.3 Structure of the report

The following sections of the report is structured with Section 2 containing the details of the project management, the requirements of the project, and what solution qualities the project contained. Section 3 shows the different User Experience designs, such as the personas, scenarios, storyboards, journey maps, and prototypes. Section 4 explains the development of the project and how the project is structured and engages the user. Section 5 has all the user testing from the different phases and what we did with the feedback. Lastly, Section 6 explains what the experience was like doing this project and what future does the project have.

2 PROJECT

2.1 Project management

Initially we all came together to come up with a project idea and during that time we measured each other's skills and strengths and weaknesses. Our original idea changed quite dramatically with the companion part after realizing just how difficult completing our project would be in the 6-week time frame. Overall we split into groups and anyone could seek for help from the others if needed. As time progressed and the final user testing and presentation came closer our implementation changed accordingly. For example, when we came across something more difficult one person would dedicate most of their time to competing it while the others would move ahead to the other parts of our application to complete as much as possible. As opposed to all of us working to complete it. Changes in our project often came about as a result of the companion will look like, and how it will interacts with the user. Other than discussing changes in person we also used Discord to determine how changes would be handled. We would sort of vote on whether a change should be made and how, after one of use would usually step up and volunteer to take charge of that change. The project is fairly complete based on our initial requirements now all that is left to do is develop it further through user testing. For the most part we all worked together on the project, and did our best to present it within six weeks.

2.2 Requirements

2.2.1 Solution qualities

- Adaptability Requirements
    - Application must be compatible with on Android OS Jelly Bean onwards.
    - It should be compatible with tablet and other mobile environments.

- Scalability Requirements
    - The system should be easily scalable to allow more users to register within our database as our application grows in popularity and size. There will be some technical debt, due to server increase (database needs more space).
    - Load balancing and caching should be made available for smoother app experience.

- Security Requirements

    - The system should have strong security measures such as SSL to prevent hackers from stealing information of users and protect their privacy. Location data will also need to be secure as users visit locations and saved in their history logs so people cannot track a person based on frequency of travels.
- Privacy Requirements
    - Consent required from users, app permissions before using application. Each permissions information that are allowed will be locked within our database and protected with encryption.
- Usability Requirements
    - Application should have no lag in loading location searches. Application should be lightweight in size due to people not wanting an overly large application for their android device.
    - Companion modules should continue to follow the simple UI design framework that has already been implemented to maintain uniformity.

3 User EXPERIENCE Design

User experience was extremely important for our project. Not just for superficial things like catching errors but for eliminating redundancies and eye sors as well.Our main way of testing a users experience what though the system usability scale. Through user experience we were able to fix our crating account page and made it easier to follow. We also adjusted our home screen to not be so overwhelming.

3.1 Personas

Persona **Sara**

Age: 13
Work: school
Location: Long Beach, CA

Goals

- Want to be Archaeologist.
- publishing a book .
- Make friends.

Demographics

Sara is a 13 years old smart girls, going to Stanford middle school. She has three bothers, which make her the only girl in family .

Bio

She is a smart girl, have been getting good grades at school, she is so passionate about history and geography.

Environment

She spend most of her time searching for artifacts, and visiting historical places and museums

Persona **Sophia**

Age: 63
Work: retired
Location: Long Beach, CA

Goals

- Make new friends.
- spend free time .
- babysit her granddaughter .

Demographics

Sophia is an old woman who's been married for 35years, and lives with her daughter.

Bio

She is an old woman who experienced many things in her life, but still did not get used to technology.

Environment

She owns a smartphone to keep her self connected to the world. Most of the time it been used by her granddaughter .

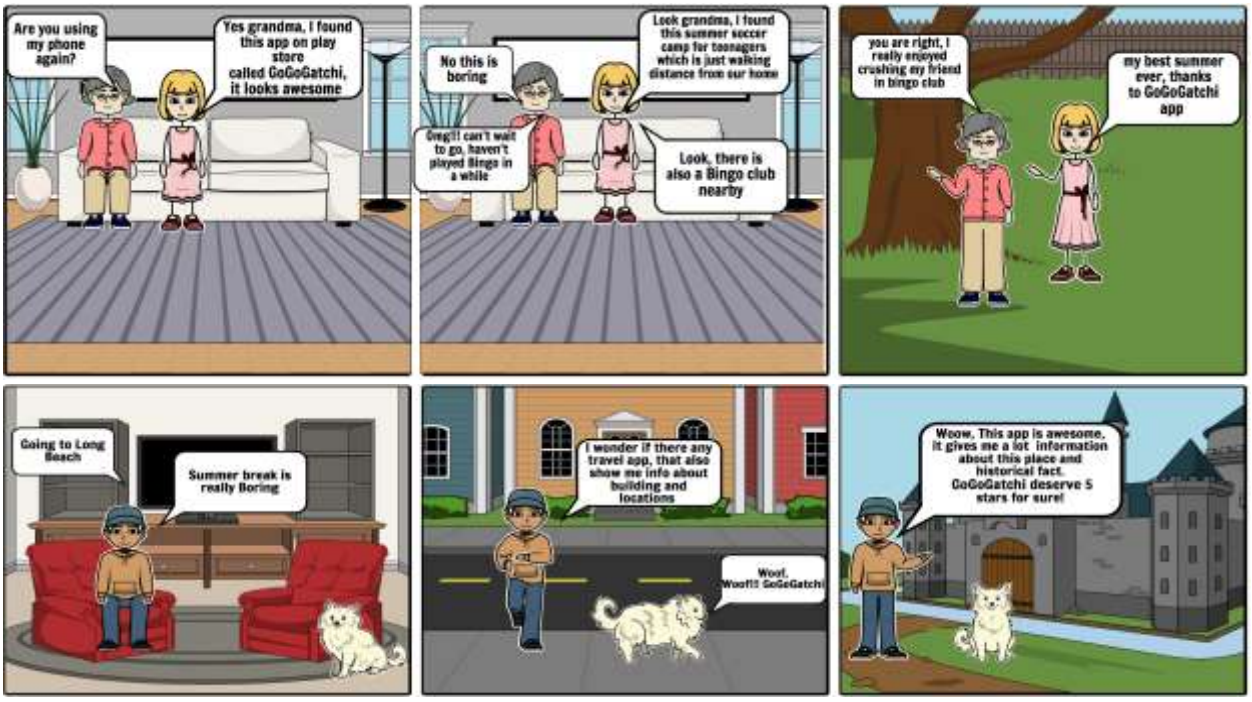
3.2 Scenarios

Scenario	Tasks to perform
Sara recently came across GoGoGatchi on applications recommended for her on the playstore. She has been using her Grandma's phone to play Pokemon Go and other games.	- Sara goes on playstore looking for a game/entertainment application. - The application must be appropriately tagged on Play Store to increase visibility.
She creates a profile on the application, listing sports as one of her interests.	- Sara sets up her profile after home screen and pet monster hatch. - Provide profile section to gather user's interests.
The friendly pet monster provides information about nearby sporting events. One of them being a summer soccer camp for teenagers which is just walking distance from her home.	Recommender system provides details of events/places based on interest.
On tapping the event card on the screen she finds more information about the venue. She also notices that the club hosting the event also has a Bingo club for the elderly.	Event screen must provide as much details of the venue as available through Google's APIs.

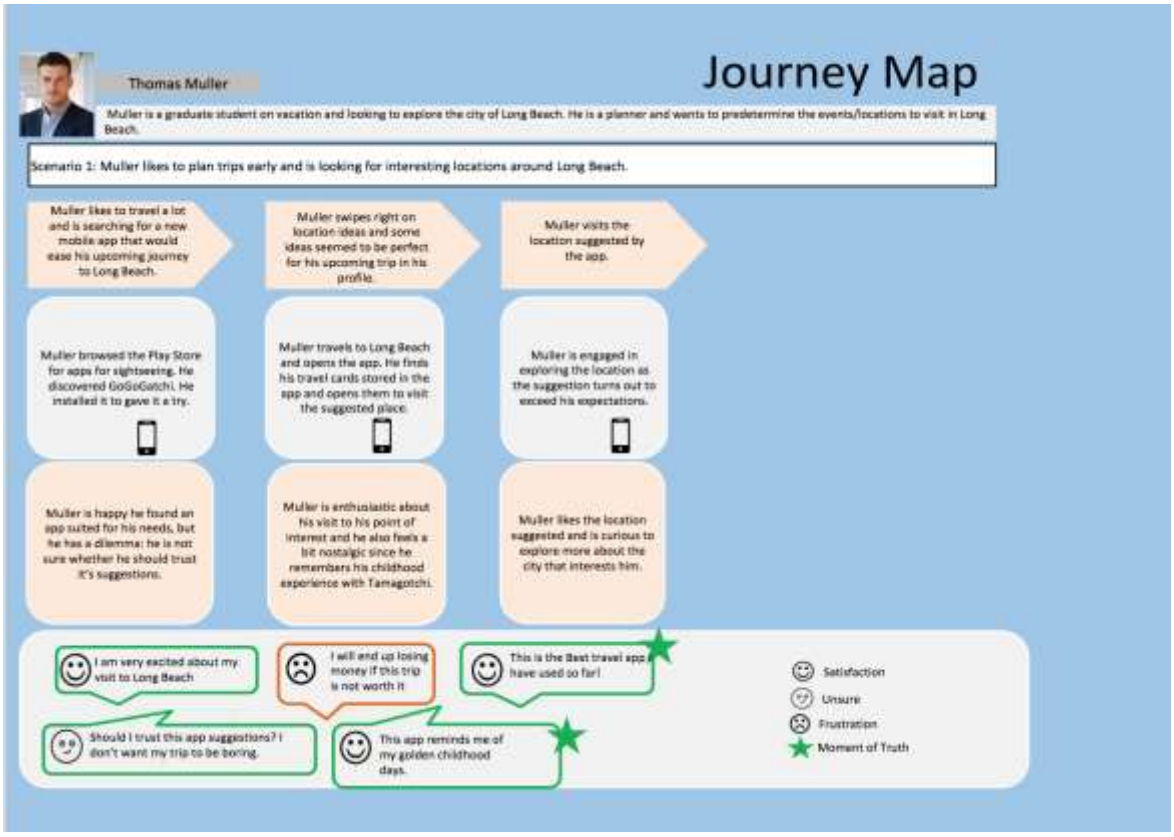
Although Grandma was reluctant at first to venture out in the summer heat, the Bingo club proved too enticing to refuse.	
Sara, her friends and Grandma have a great summer! They write great reviews about the camp on the app and share their experiences via social media.	- Sara accesses social media apis to post new stories. - Social media accessibility and review section.

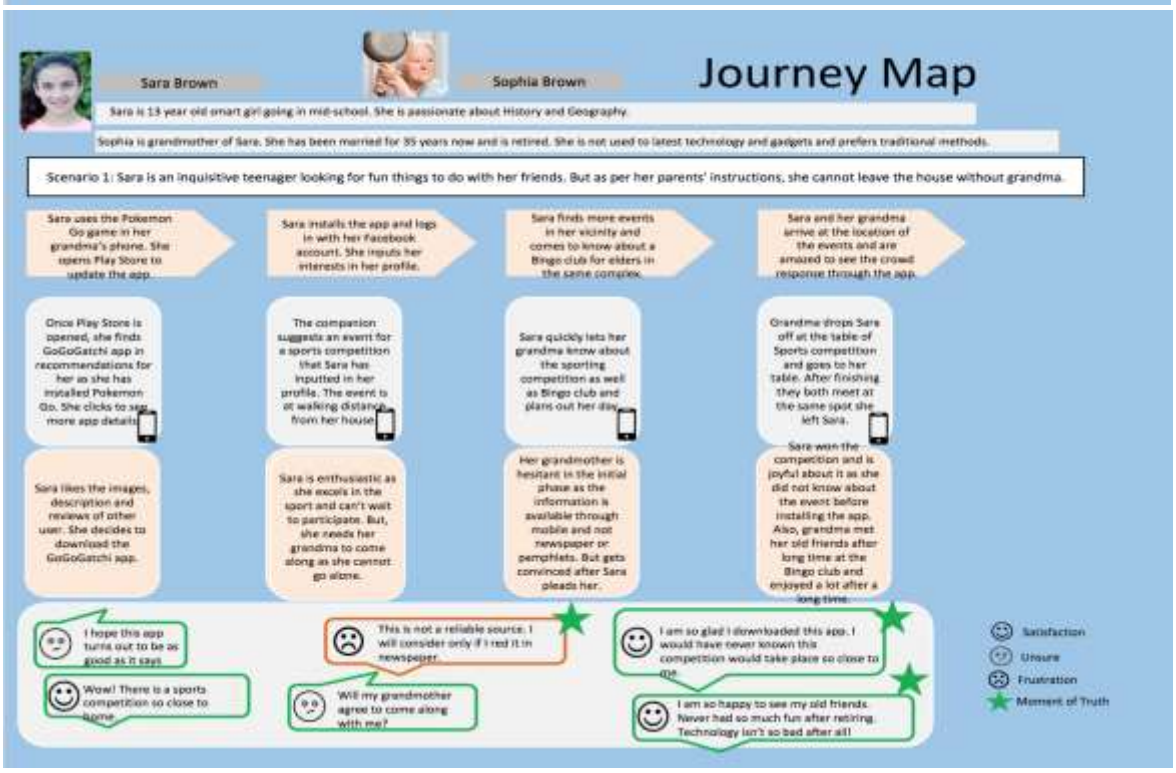
Scenario	Tasks to perform
Muller looks for an application that will act as a travel guide.	- Muller looks for a travel app on playstore. - Appropriate Play Store tags, shareable stories
He likes to plan trips early and looks for travel spots around Long Beach.	- Muller uses search bar to enter POI. - App must cater to searched places/events and must provide a generic information if location is not specific.
After the pet monster provides a few suggestions, Muller decides to visit a historical site.	Must provide option to save interested sites.
Once Muller is in Long Beach her opens the saved site card and navigates his way to the fortress.	Saved site must provide directions.
Muller is ecstatic on visiting the site and genuinely feels that the location needs more mentions.	- He provides feedback for the sites he visited through rate my trip feature. - Review option must be available.
Provides 5 star rating for this trip.	Trip/event feedback should be available.

3.3 Storyboards

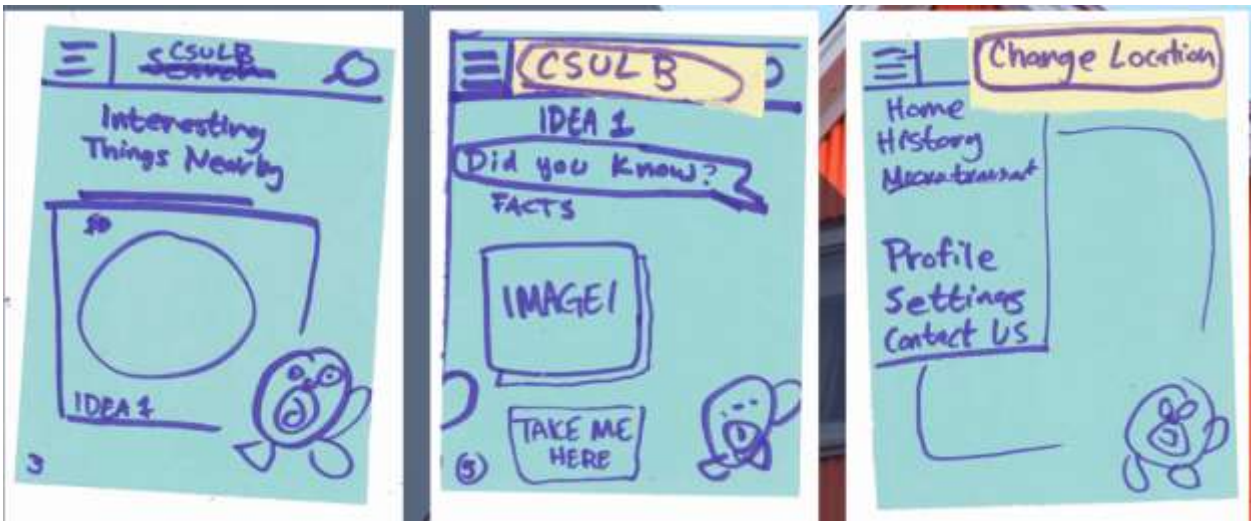


3.4 Journey Maps





3.5 Prototypes



4 DEVELOPMENT

We followed an iterative development approach that consisted of a week of development followed by a day of testing and feedback gathering. Internally, team members tested each others' assigned modules and came up with bug fixes and feature enhancements.

4.1 Application overview

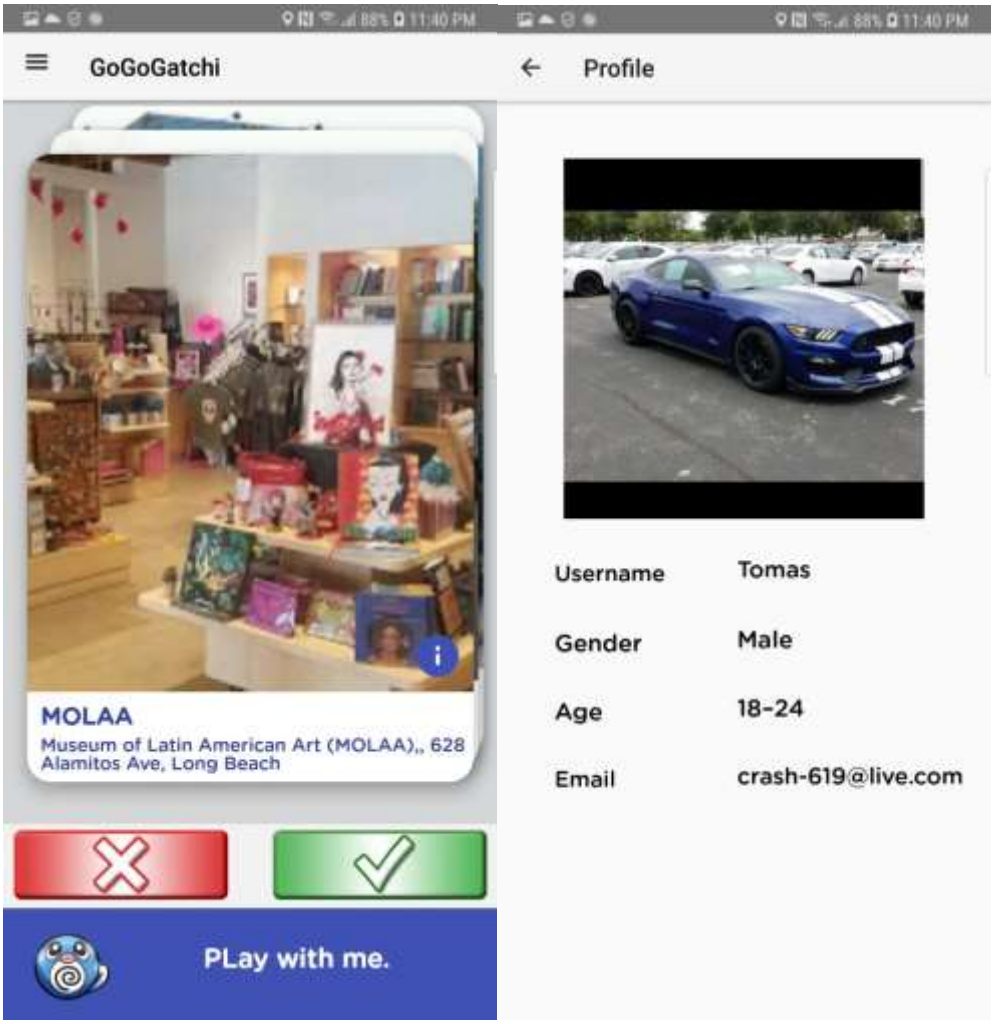
The application GoGoGatchi aims to help explorers find local events or places near them that they might be interested in. It provides an intuitive design and a virtual companion that shall guide the user and is also a virtual pet that one can interact with.

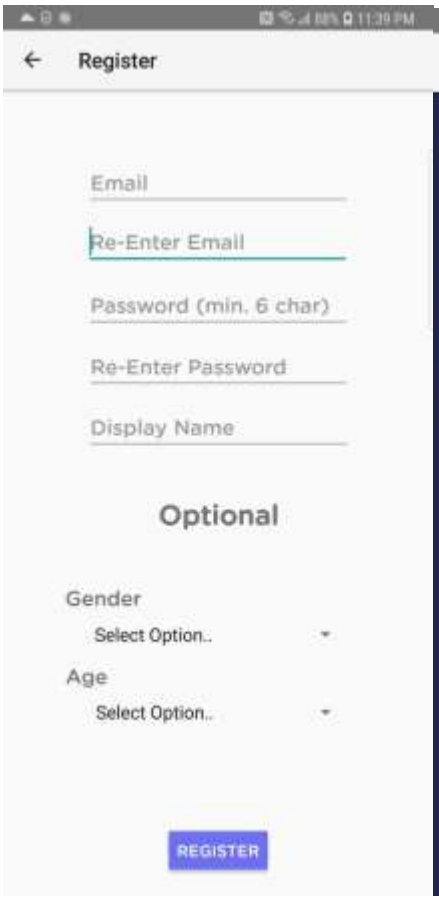
4.1.1 Architecture

- Our views consisted of various activities that included key functionalities from login to companion interaction.
- The view model consisted of API queries that provided necessary data to inflate the views.
- Our model consisted of the core POJOs which included User, Location, LocationCards and our Firebase database that reflected our POJOs.

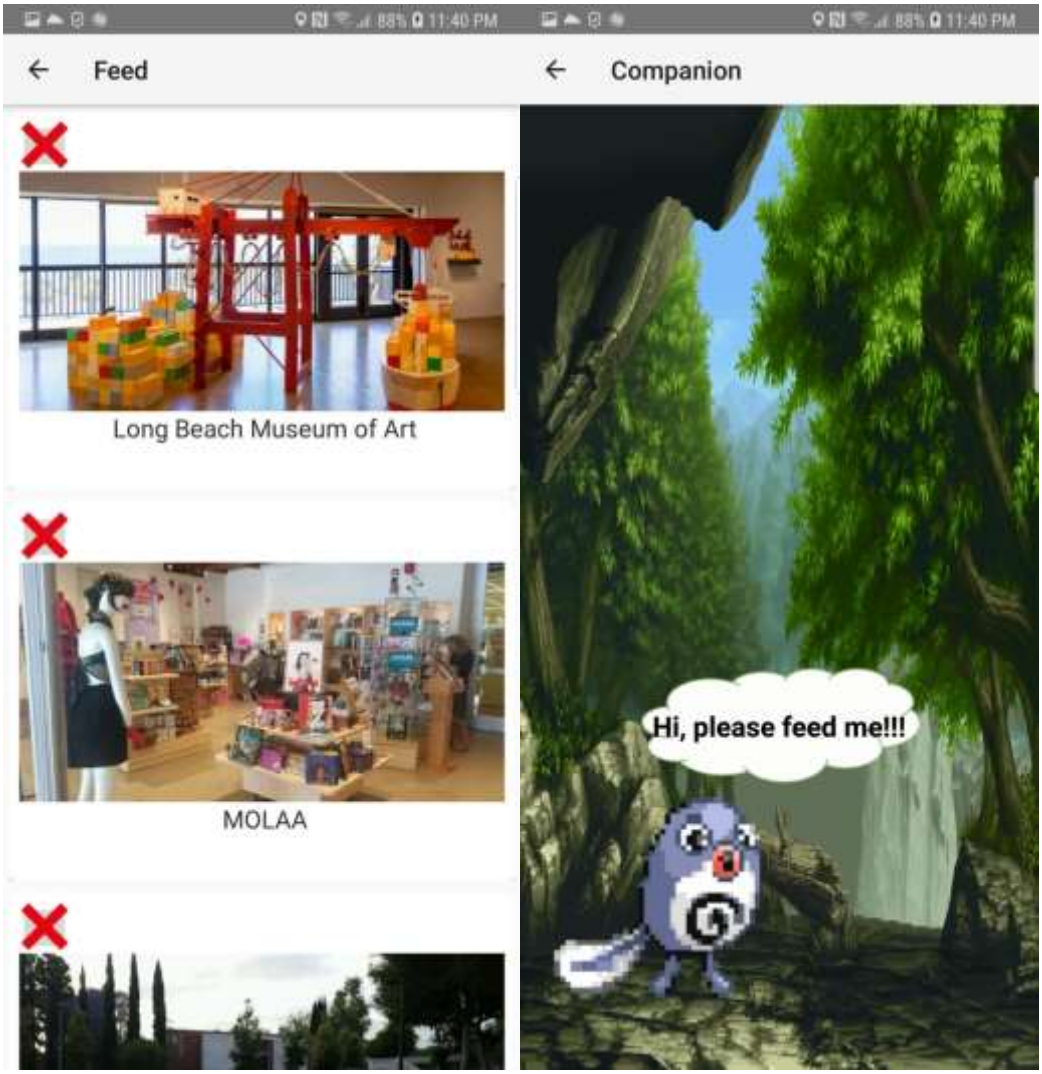
4.1.2 Application screenshots


23:43
LOG-IN
CREATE AN ACCOUNT
PRIVACY


GoGoGatchi
MOLAA
Museum of Latin American Art (MOLAA),, 628 Alamitos Ave, Long Beach
PLay with me.
Profile
Username
Tomas
Gender
Male
Age
18-24
Email
crash-619@live.com


Register
Email
Re-Enter Email
Password (min. 6 char)
Re-Enter Password
Display Name
Optional
Gender
Select Option..
Age
Select Option..
REGISTER


Log-In
Email
Password
LOG-IN



4.1.3 User Engagement

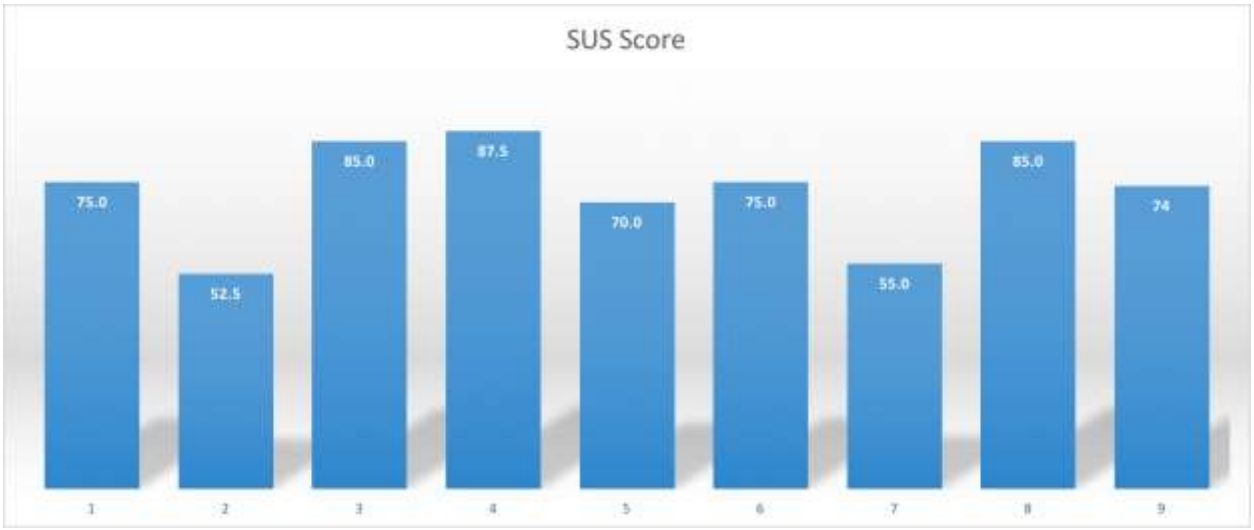
- Intuitive Design
  The avg. time and ratings received for ease of use such as creating an account was 14 sec. This suggests that workflows on the application are not time consuming.

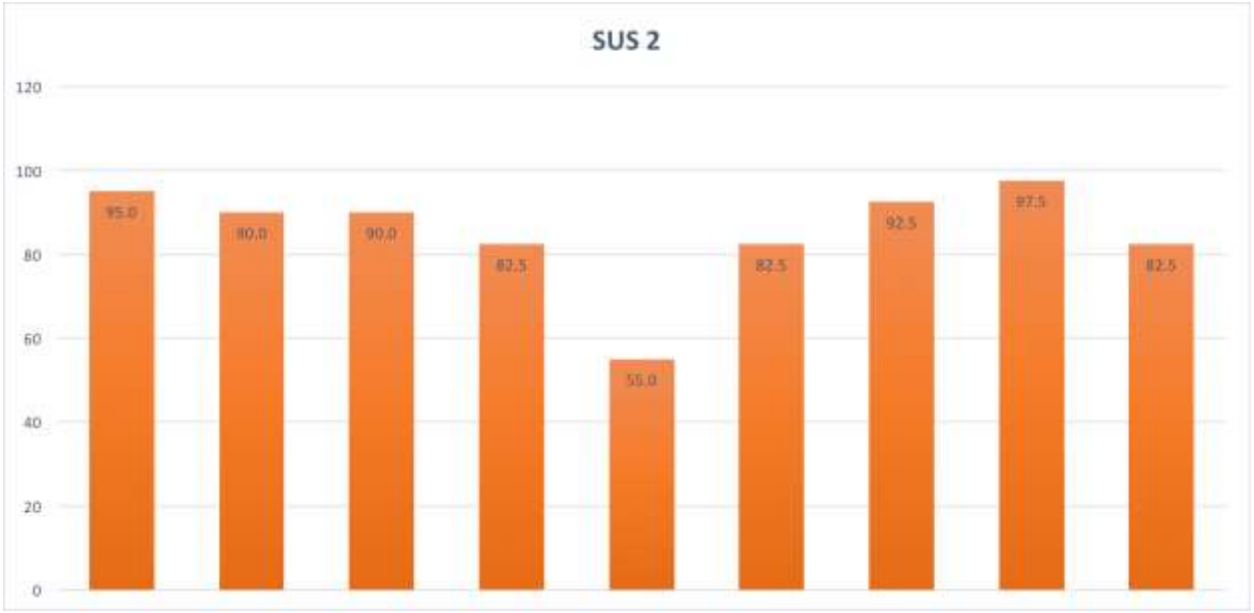
- Companion tasks - Users were intrigued by the companion and wanted more features around it. This provides hope that once our companion module is fully functional it will attract more users

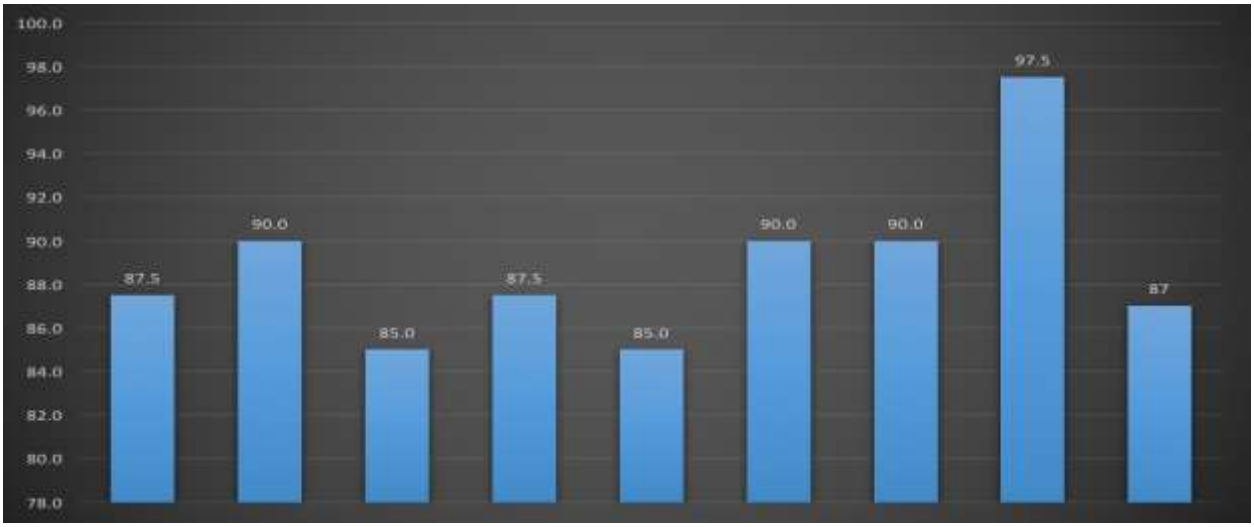
- Recommendation system that is catered to the user. This eliminates the need to search for places/events around you.
- **5 TESTING & maintenance**

5.1 Public Testing Feedback

After the initial testing our idea seemed doable and well drawn out on paper, but since there was few actual product and functions little could be done to improve the score. Phase 2 shows some implementation of the project, but not any of it was final which made the score drop. Phase 3 was when the project was almost done and was used for catching small bugs and typos. After public testing, we were able to see how much we missed during the coding phases of our project. Having another perspective is valuable in any kind of work, so you can catch any mistake you might have made.







5.2 What features did you improve/change after the public testing experience?

- We made changes to the layout design on the login page.
- We added features to integrate user interests with map queries.
- Persistent data storage for feed activities.
- Validation checks in form sections of login and register activity.

6 CONCLUSIONS

6.1 Learning

6.1.1 What went wrong during the entire project lifecycle?

- Some of the things that we can work on is writing code in more modularized and an industry standard format. Our code base initially was a compilation of lot of proof of concept work and hence all test cases were not covered. This resulted in an overall weak modular structure and redundant sections of code.

6.1.2 What are the future plans for your project?

- Implementing more robust querying and caching patterns for the app
- Testing in a multithreaded environment
- Provide load balancing features.
- More Companion features
- Hopefully release the application on PlayStore

6.1.3 Reflect what did you learn as a team from the course

- Technical Skill Sets: Android development, Git, Google API usage, Maps SDK
- Project Management: Waffle.io, Team communication and collaboration strategies, requirements management
- Analysis: User feedback analysis
- UI Design, Prototyping

6.1.4 Reflections :

Ankush: Learnt basic working of android app. Creation of activities, passing data between different views. Also, creating database on Firebase along with operations like create, update, retrieve data of users and presenting in appropriate placeholders and vice versa.

Sujeeth: Learnt to how to work with Google Maps APIs, understood the adapter pattern design and Firebase database prescribed practices.

Said: Learned how to work with Google maps API, basic design, firebase database, also learned how to work within a team, and communicate with everyone to get everything done on time.

Darren: learned how to use Google API, store database, and creating and verifying email and password, I also have the opportunity to improve my drawing design skills.

Eric: Learned how to work in a team, communicate and sharing different ideas.Also learned how to work with Google API, firebase,and using info and navigation system and display it on screen.

6.2 Conclusions

The completed project was an application called GoGoGatchi. The goal of the project was to make an application that not only helps people discovering new places, but also to make it fun to discover at the same time. This app allows users to choose and visits location with their interests by liking place cards on home screen. The companion is also there to make users more interacting with the app, The goal is to make a location app that different then any other app on the market.

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