David Wang

CSE 120

Fall 2019

Mobile App Project – Personal Project Report

1. Name: David Wang
2. Team Name: Mufasa (Modesto Moves Group #3)
3. Github link: <https://github.com/neilSoriano/ModestoMoves>
4. Purpose of our project:
   1. The purpose of our app was to provide an easy and intuitive way for our sponsor Mike and the team of Modesto Moves to track the attendance and location of runners participating in their training programs. Our main goal for our app was to provide a working check-in system that tracked runner location when signed into events, and we also planned to provide unique user profiles with information such as attendance and pacing progress for runners to view.
5. Features of our project:
   1. Tracking System
      1. We were able to use Apple Maps’ API through the React-Native-Maps component to get an interactive map that showed the user’s location. Users can zoom in and out of the map to show surrounding areas of the user’s location. For example, the map would show me in Merced, but users could expand to view surrounding areas and a greater view of California. The map marker moves accordingly with a user’s location and can be used to track users as long as they are connected to the internet.
   2. Event Calendar
      1. We were able to incorporate a working event calendar to our app with days, months, and years. Users can scroll through days/times to navigate through the calendar. Unfortunately, we were unable to link our database with the UI of our app to have planned functionality such as event customization for individual dates and provide individual event planning features for each user profile.
   3. Log-in and Check-in
      1. For our log-in system, we were able to get the UI for entering credentials and signing in done for the system. Our check-in check-out UI works as well, switching between states for whether or not a user is checked in to an event or not. The buttons and appropriate UI work for these features, but they are not as fully fleshed out as they could be with our database linked. With our database, we planned to have separate User and Admin accounts with different interfaces. Users could check-in and view their stats, while Admins could check the locations of multiple users signed into an event.
   4. Screen Navigation and Home Menu
      1. Our app’s home menu is the center of navigation between screens. The home screen has a menu of buttons leading to different screens of our app such as the “Check-in”, “Event Calendar”, “Track Runner”, “Statistics”, “Profile”, and “Logout” buttons. Each of these buttons takes the user to its respective screen and of those screens we currently have the Event Calendar, Track Runner, Check-In, and Log-Out fully implemented. The “Statistics” and “Profile” button lead to separate screens, but we were unable to link the database to provide unique user profiles and account functionality in order to gather individual stats and attendance information.
6. Features I worked on:
   1. Screen Navigation and Menu UI
      1. I worked on adding the menu buttons to the home screen, and added our customized logo and background to our app. I recoded our original home screen UI in order to add button functionality and working screen navigation routes to get the home menu to work properly and navigate properly between screens. I linked the Calendar, Map, Stats, and Profile screens to their respective buttons. Besides screen navigation, I helped with adjusting the UI to provide consistency between screens.
7. Contribution to the Project:
   1. I worked primarily on the UI of our project, helping incorporate custom logos and backgrounds into our screens. I worked on adding button functionality and screen navigation routes after researching React Native’s navigation features, helping to establish a starting template for other members to add in their individual screens and designs. Besides working on the UI, I helped my group members whenever I could with incorporating their ideas and designs into the project and helped incorporate their screen designs into the project. I worked as note taker during our group meetings and was responsible for recording our progress and plans for each meeting.
8. Challenges Faced:
   1. Communication amongst group members
      1. Challenges: The main challenge in group communication for our project was due to our varying schedules. Most of our members had work on campus until late at night, or participation in extracurriculars like athletics that made it difficult to meet frequently.
      2. To address the challenge caused by our varying schedules I made use of our group chat to discuss our progress and determine what each of us was researching or working on so we could work on parts of the project on our own time individually, such as screens, and incorporate them all into their respective navigation routes.
   2. Design process:
      1. Challenges: During our planning phases of the project there were a lot of features to consider, such as Health information and Medical records. These added extra layers of complexity to our project such as security concerns and extra planning for implementation.
      2. I sorted through our planned features and focused on what needed to be done first, such as getting a working home menu and buttons, so we at least had a starting point to add on to easily. Features were separated between “core features” and “luxury features” in order to provide focus to what features to prioritize. I followed the moqups that we used for our on-paper screen designs closely when working on the home menu, focusing on getting the buttons and screens for the basic user done first before our admin UI since our database was still in progress.
   3. Developmental Process
      1. Challenges: The main challenge I personally faced during the developmental process was with getting started on the project was learning the different coding environments and languages we were using for the project. I had never used Expo or any sort of app simulators before, so I struggled with installing all of the frameworks necessary through MacOS’s terminal. React Native and Javascript were also brand new to me, so there was a learning curve there as well.
   4. I watched a lot of video guides on installing Expo and setting up the Android and iOS simulators to view app UI. I came upon various issues such as version incompatibility possibly due to MacOS Catalina killing off 32-bit support. I ended up following forums and threads suggesting that I install an older version of Expo and from there I was able to eventually update to the latest environment versions. Working with Javascript and React Native for the first time was a challenge, and I had to spend a substantial amount of time reading through tutorials and guides to learn various features such as adjusting UI formatting, as well as setting up navigation routes. Our original home menu needed to be reformatted to set up navigation routes, so I first coded a barebones UI with basic button functionality and screen navigation on to a separate branch without our actual app UI. After creating this new App.js file and uploading it onto a separate branch, Jason and I used trial and error to incorporate the logos and designs from our old App.js file onto the template structure I created to make our first big step towards a working home menu. From there, adding screens created by other group members was substantially easier since we had a working home menu that had navigation routes that could be added onto after structure was established.
   5. Testing Process:
      1. Challenges: The biggest challenge faced while testing our code was due to our lack of experience working with Javascript in React Native, and because of some issues with Expo updating our code. For example, I struggled for hours trying to get our logos and designs onto the template I created because Expo’s simulator kept saying that I had errors or issues with my code. Due to my inexperience with Javascript, it was hard for me to differentiate between errors with the simulator and actual issues with my coding syntax.
      2. To combat this issue, I worked with Jason to test our iterations on separate devices. I tested each iteration on Xcode’s iOS app simulator, while Jason worked with Android Studio on his Windows computer. To my surprise, the exact same iteration of code that I had spent hours trying to debug on my Mac worked without any changes on Jason’s Windows PC. I think that I definitely would have spent a lot of wasted time trying to fix the issue without realizing it was just an issue with Expo updating the simulator to my latest iteration if we had not tested on multiple devices.
9. New Skills Acquired:
   1. Working on this project gave me the chance to learn many new skills that I had never encountered through any classes I had taken prior. I am thankful that I had the chance to work on this project and see our app come to life slowly as we iterated through each phase of the project. Prior to this class, I had never used Javascript or worked in environments for app-development such as React-Native. Learning from our experiences throughout this project taught me the basics of app-development as well as some basic proficiency with the Javascript language. Managing version control throughout each code iteration with Github desktop was also a new learning experience for me, since I had only worked with Git through the terminal for small HTML projects before.
10. Methods for acquiring skills:
    1. In order to learn Javascript with React Native, I used Facebook’s “Getting Started with React Native” page (Link: <https://facebook.github.io/react-native/docs/tutorial>) to learn the basics of working with Javascript’s styles and UI formatting.
    2. I used the website reactnavigation.org (<https://reactnavigation.org/docs/en/hello-react-navigation.html>) to learn about React Native’s navigation and routing capabilities to build our home screen’s functionality.
    3. I learned how to install and test app UI through Expo’s getting started guide at: <https://docs.expo.io/versions/v35.0.0/workflow/expo-cli/>
    4. I learned how to manage version control and properly use Github Desktop through the Github’s official Github Desktop documention guide at: <https://help.github.com/en/desktop>, and I also got help from my teammates to coordinate between iterations of our main UI branch.
11. If I could start our project from scratch:
    1. If I could start our project from scratch, I would prioritize learning about Javascript and React Native well ahead of planning or coding. I think we would have had a better idea as to the capabilities of React Native, such as APIs we could have used to help design screens and functions faster and give us more time to work on the other features of our project. Furthermore, having experience working with Javascript would have given us the confidence to move through iterations faster and more efficiently and helped us even out the amount of work done in each phase. I feel that we spent a lot of time on some phases getting started with core features and functionality such as the navigation routes, which were essential to even getting started on our app. With more research, we could have planned out the phases and progress of our project more optimally and gotten more features finished. Secondly, I wish I would have taken Databases (CSE 111) prior to taking this class as a better understanding of how Databases worked might have helped our group with getting the timing of database development done quicker alongside the UI. I think our inexperience with how linking Databases to app UI lead to us getting a lot of our UI functionality finished before we had even linked each function to its corresponding Database requirements. Furthermore, I think we could have planned out the user profiling and account features better had we had a better sense of progress/flow for building our Database and UI in tandem. Regardless of what could have been done better, I think our group definitely learned a lot and grew a lot from this experience. I am thankful for the opportunity to learn about app development and apply that knowledge to a practical project, and I feel more inspired and confident about app development in the future.