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Mayer Landscape App

For this project, I will be creating a mobile application for a family business. Mayer Landscape has requested a mobile application that its employees can use to keep track of working hours, travel time, and lunch time. It will also allow them to electronically fill out job sheets. The problem right now is that the managers are struggling to keep track of where their employees are at all times and how long different jobs are taking. They also require employees to fill out what is called a job sheet, which leads to the other issue of how everything is done on paper right now, which leads to problems like papers gettings lost, taking up large amounts of space, etc. An employee fills out a job sheet for the work they have done, who they worked with, where they worked, etc. Therefore, as a solution to these problems, the goal is to create an app where employees can basically tap a button that will start a timer which will keep track of the amount of time spent at each job site, time spent driving, and time spent on lunch breaks.

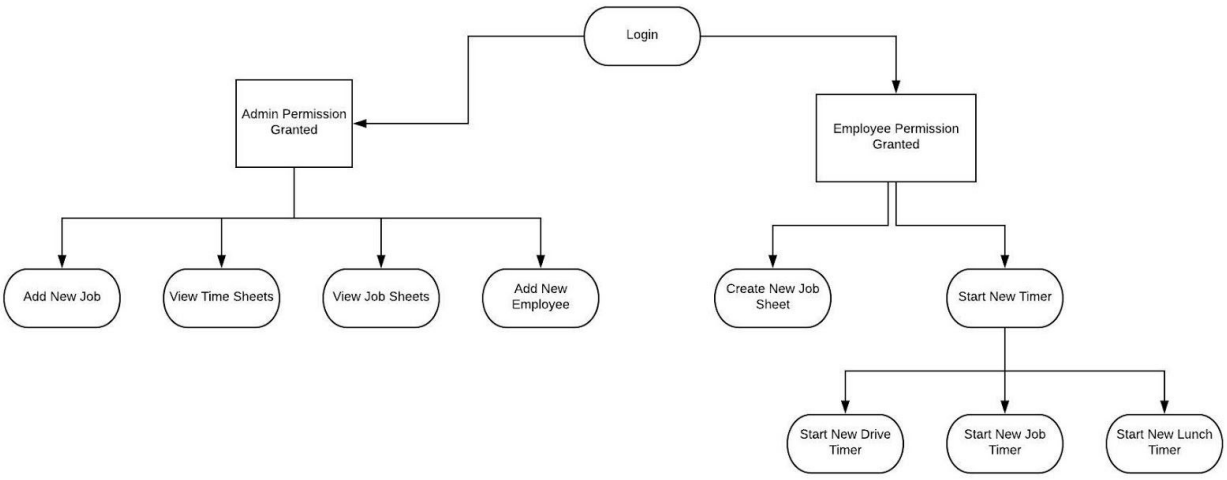
Then for the job sheets, at the end of every day employees will be able to open the app and select with drop-down menus for which pre-existing job site they were at, select who their crew members were, what tasks were done, what the weather was like, etc. Admins will be able to add new jobs to choose from, look at all of the sheets that have been submitted, and add new options for drop-downs.

The customer has decided that this will be a mobile application. The reason for this is so that employees can have easy access to the app from their phone at any given place and any given time. The app also must be mobile due to the functionality of the timers. Employees must be able to start and end timers whenever they need to, whether it be on the job or driving to the

next one. One of the challenges that I am facing is lack of experience of developing any sort of mobile application. Another challenge is my lack of knowledge with databases. I will need some sort of database to keep track of the login information, all of the jobs, activities, crew members, etc. My sponsor Wade has had a lot of experience with databases, so I am going to work with him for any backend help that I need.

MVP:

For the minimal viable product, the main focus will be on the timers that will keep track of the employees' work, driving, and lunch break hours. Also, the login, admin permissions, and job sheets themselves will be apart of the MVP. For the job sheets, there are several different features that will be included. After speaking with my sponsor, we have a good idea which ones we are going to be apart of the MVP. Some of these features include: drop-down menu that will allow crew leaders to select which employees worked with his crew that day, drop-down menu to select from a list of current jobs that are active (admin will be responsible for adding these in every week), and a function to enter the current date. Some things that will not be apart of the MVP are job sheet features such as: weather conditions, equipment conditions/usage, and



amount of time it took to complete each task. Another feature of the app that is not a part of the MVP is an alert to remind employees to fill out their job sheet at the end of everyday.

I have created a simple activity diagram where the user will login and depending on whether they are an admin or an employee, they will have different options. The admin will view job sheets entered by employees, view the time sheets that are being tracked by the timers, add new employees, and create new jobs for the employees to choose from. The employees can either select the timer option, that will allow them to start a new timer that keeps track of how much time they spent at either driving, working, or eating lunch. The other option for employees is to start a new job sheet.

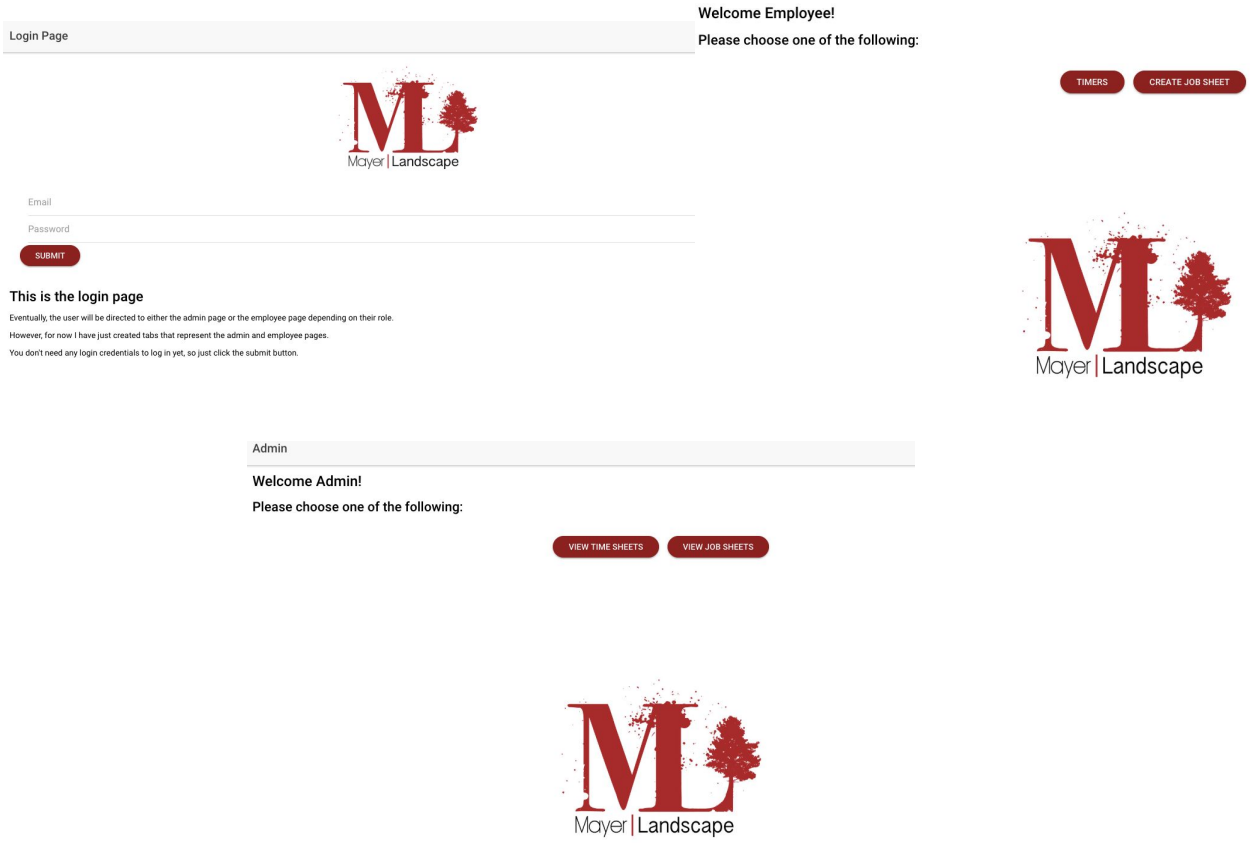
I will be using github for version control to keep track of all of my documents and code. We used this in my software development class so I already have experience with it. I will be using Ionic for front-end development. This is what we are using in the mobile app development course, so I already have some experience with using it. I do not have any experience with any sort of database, however from what I have researched and discussed with my sponsor, MySQL is a very widely used database system that has a lot of resources, so I am leaning towards using that for my data set.

As far as the deployment environment goes, I will be hosting my app on my turing page. Therefore, this app will not require users to download any specific software. For hardware, the only thing the user will need is a mobile device to access the app.

I have decided to use Firebase as my primary database for both the login feature and data collection for job and time sheets. My goal is to develop the login feature so that any email that ends with @mayerlandscapes.com will automatically be logged in as an admin. I will then be

able to assign a permission as a field, so that admin permissions get directed to the admin page, otherwise the user gets redirected to the employee page. If I get the opportunity to go beyond the mvp, then I can use a google maps api to track the drivers, and also some sort of api for tracking weather data.

Below are a couple simple examples of how the user interface may look after the user has logged in. The picture on the top left shows the login page, the picture on the top right shows an employee that has logged in, and the bottom image shows an admin that has logged in.



After talking with my sponsor, we both agreed that this project will require very minimal testing. The only experience I have with testing is unit testing. However, I don't believe that will

be required for this project. Perhaps, user testing is the only form of testing that will be necessary. I will use user testing to test several areas of my app such as the login permissions, both the admin and employee pages, creating job sheets, starting and stopping timers, and viewing the job sheets and time sheets.

Timeline:

9/26- Initial design specification complete (begin development)

10/8- Create pages and navigation between pages.

10/22- Have functional login page complete.

10/29- Finish job sheet page with functionality

11/5- Finish time sheet page and admin page. User's Manual due

11/12- Testing and Debugging

11/19- If time permitted, add features beyond the MVP.

11/26- Final Oral Presentation

12/3- Final Report

Bibliography-

1. https://www.youtube.com/watch?v=iKlWaUszxB4 - Tutorial that shows how to create a web login using Firebase.
2. https://ionicframework.com/docs/ Really good docs that help with creating UI features in iconic.
3. Mobile App Development with Ionic 2, First Edition, Chris Griffith, O'Reilly 2017. ISBN-13: 978-1491937785