SEG Project

SEG 2105 – Intro to Software Engineering

Fall 2018

School of Engineering

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Introduction

The intro to software engineering class exposes students to a wide variety of aspects and parts of the software development process. Student learn about important details of software development such as UML diagrams, development cycles, design patterns and more. Students gain hands on program knowledge through assignments and projects, while learning to collaborate amongst their peers. For the Fall 2018 semester students were challenged with the design and development of an android based mobile application. The application students were tasked with design was that of an application that would allow homeowners to book services through various contractors for work such as electrical, plumbing, carpentry, landscaping etc. The app is was to be developed using android studio with java as the base language. For students unfamiliar with the android studio platform and mobile development in general, this was a great opportunity to learn new skills and acquire experience that can be brought into the job market. For students already familiar with mobile development, it was a good opportunity to practice their skills and apply their knowledge. With over 2 billion users[1], the android operating system is the most popular mobile operating system in the world[2]. The development of the app was done in incremental stages meant to mirror real world development strategies. Instead of being presented all the requirements and data at once, we followed a more modular development approach. Through 4 deliverables we as a team continually developed our application adding more features and integrating them with existing ones as time went on. Looking back on the development on our app, we speculate that this approach was a much better choice then simply leaving us with all the requirements and trying do everything at once. By separating the work into deliverables the professor forced us to follow a well-balanced workflow which encouraged modularity and efficient design that can be tweaked and added onto. We learned various skills such as teamwork, communication and working around deadlines. Also, we had the opportunity to work with the continuous integration technology called CircleCi. CircleCi allowed us to continuously test our application every time we modified the app. With this information we could see if our build of the app was functioning and if the tests cases were running successfully. We did face some challenges along the way when it came making new features work with the ones that were already existing. The was mostly to due with how we stored and retrieved information and presented it across the various users of our app. Overall, all members of the team contributed equally and we are pleased with the final results of our applications. Some things we would have liked to improve upon would be more closely following the material design guidelines to make the app more appealing. Furthermore, we would of liked to increase the responsiveness of the app and add some extra features to make the app more user friendly. In the next pages of the report we will present screenshots and walk through the functionality the user can perform on each screen.

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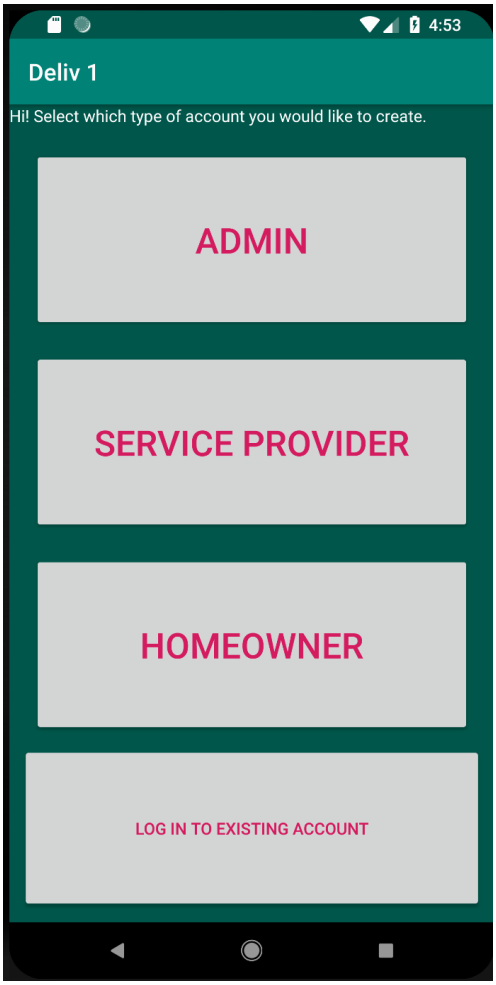
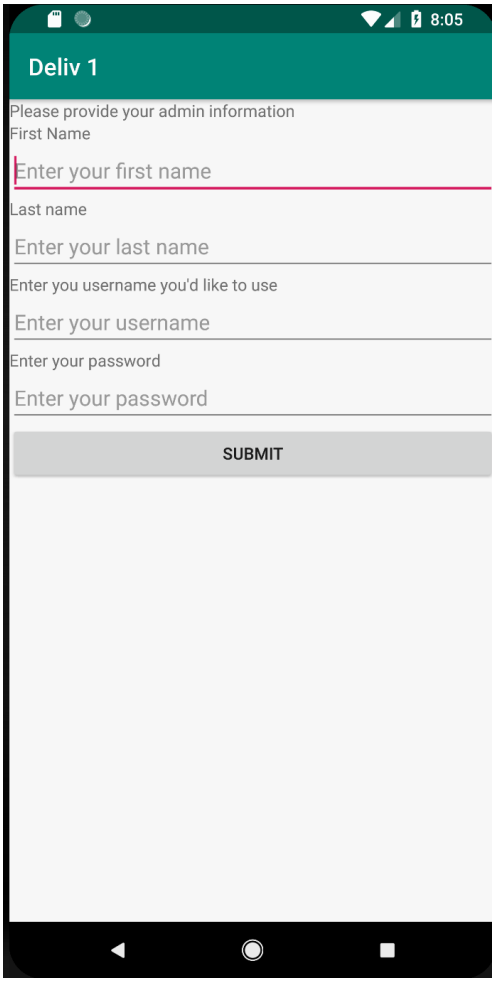
[1] Google (17 may, 2017) [Tweet]

[2] ("The most popular operating systems for smartphones and PCs")

Screenshots

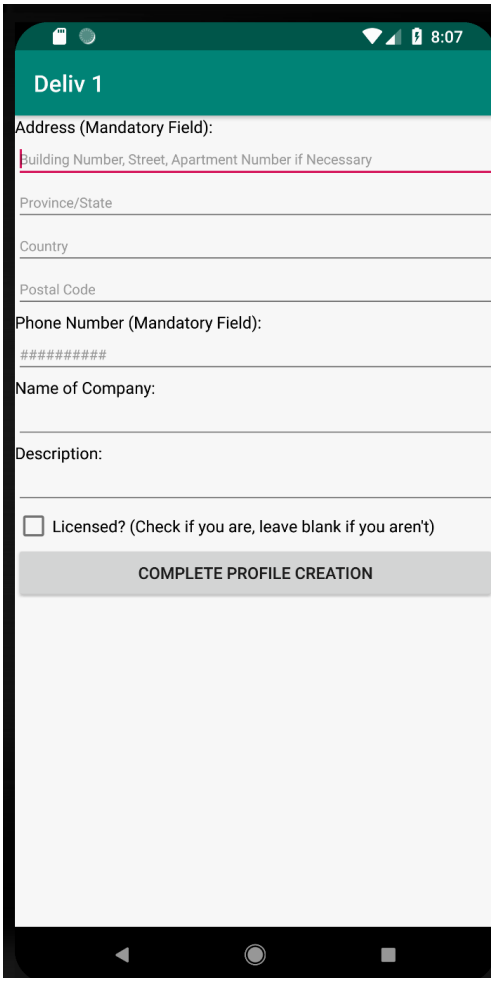


The Main screen the user sees when opening the app. From here they can create a service provider or homeowner account or login to an existing account. They may create an admin account if one does not already exist

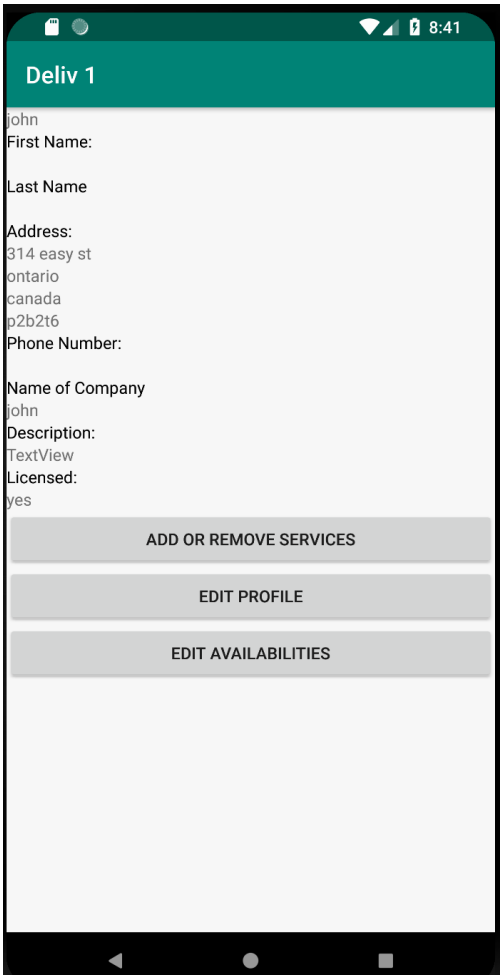


The account creation screen where the user is prompted for the information

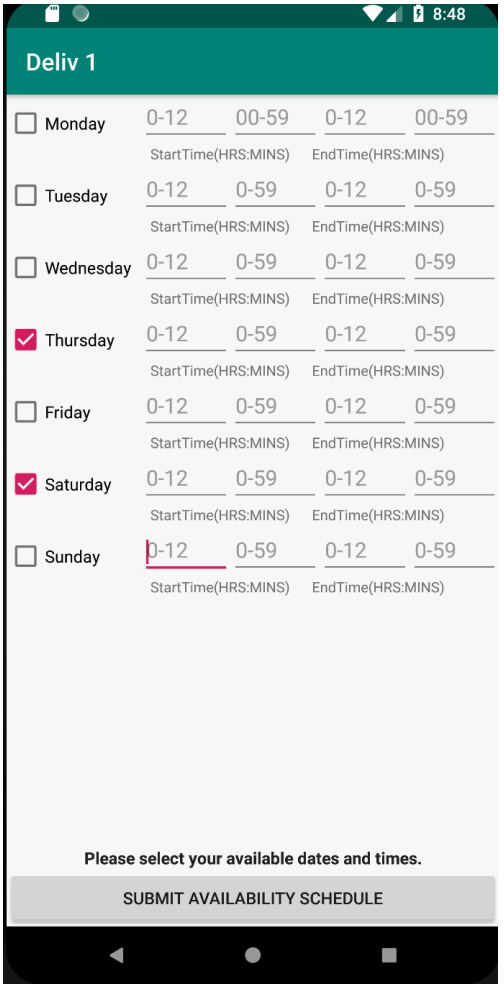
The welcome screen presented to the user after they create an account. The welcome message changes depending on the type of account created



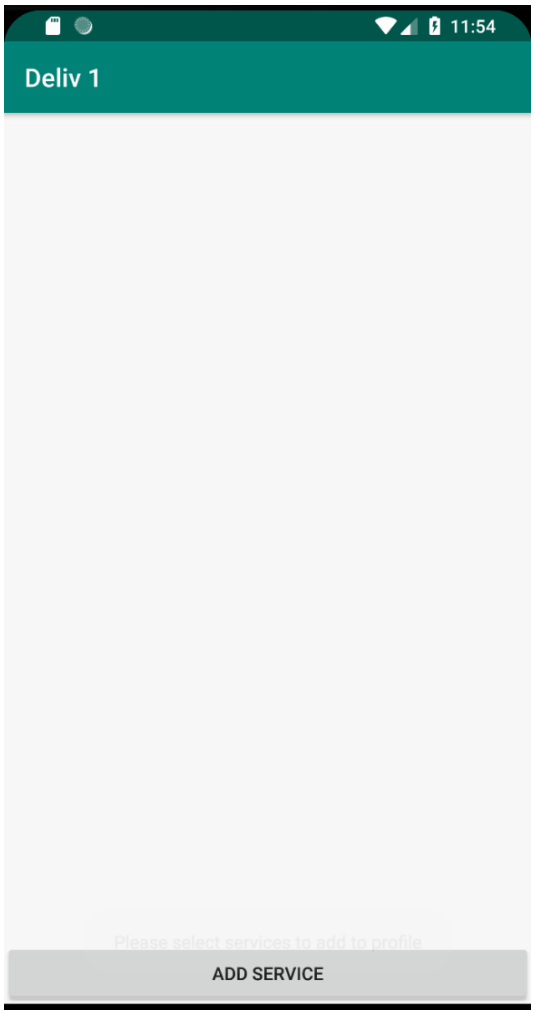
If the user selects a service provider screen they are then prompted to enter their information



Once they enter their information, they enter the service provider menu where they can edit their profile, edit availabilities and add/remove services

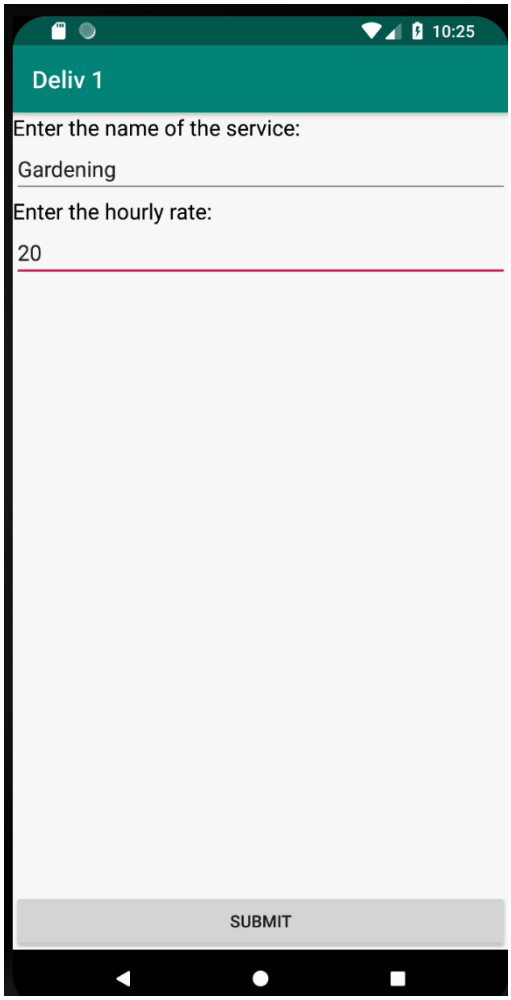


From this screen the service provider can choose when he/she wants to be available to offer services

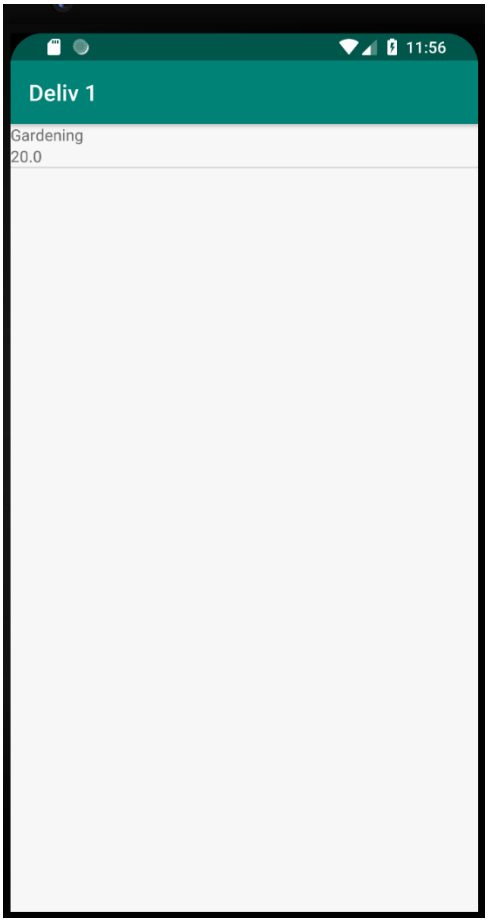


From this screen the service provider can choose the services to add

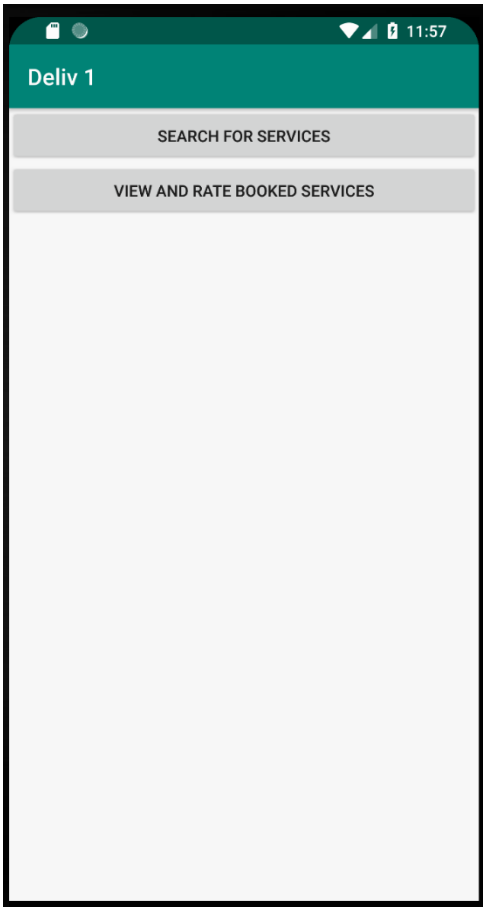
This is the Admin's screen where he can add services



The admin sets the name and the hourly rate

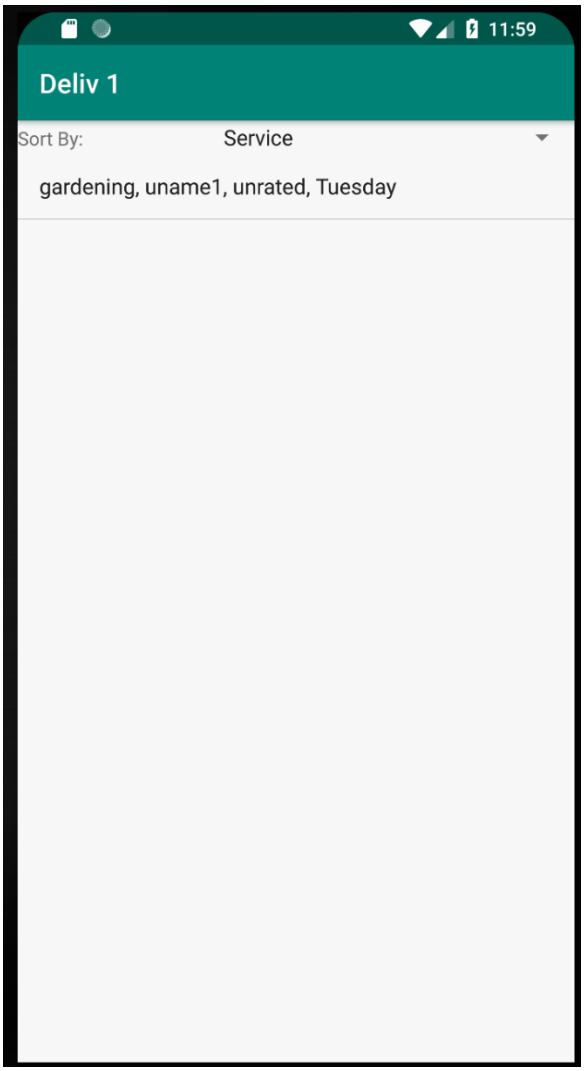


The service providers sees a list of services they offer

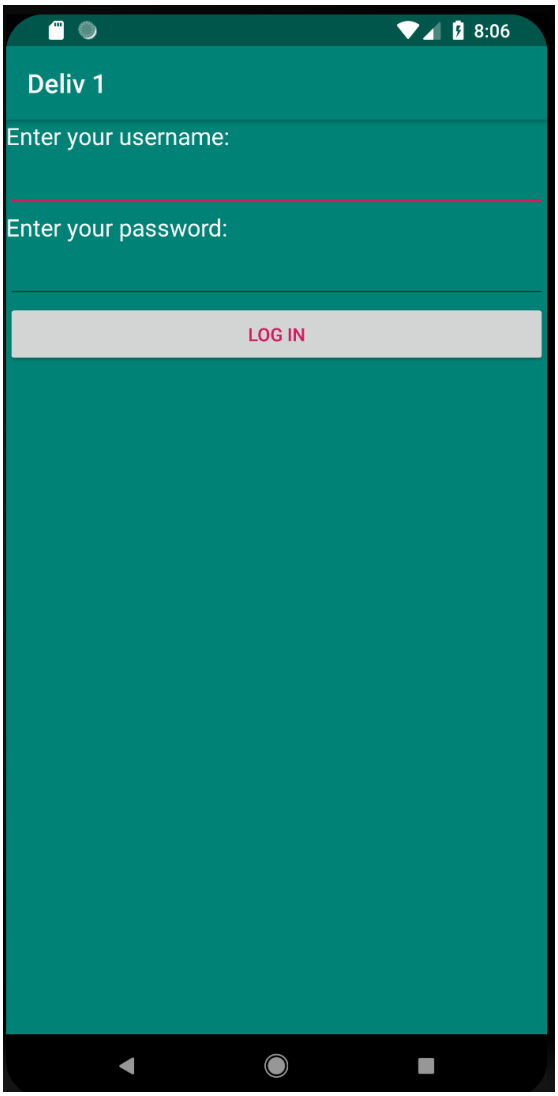


If the user logs in as a homeowner they have the option to search for services, they may also view services they have booked and rate them

The homeowner sees the services they have booked and the information about the booking



The homeowner sees a list of available services and the service details



This is the login screen for users who already have an account

Contributions

Team Member	Deliverable 1	Deliverable 2	Deliverable 3	Deliverable 4
Adam	25	25	25	25
Colin	25	25	25	25
Dirieh	25	25	25	25
Sagal	25	25	25	25

Lessons Learned

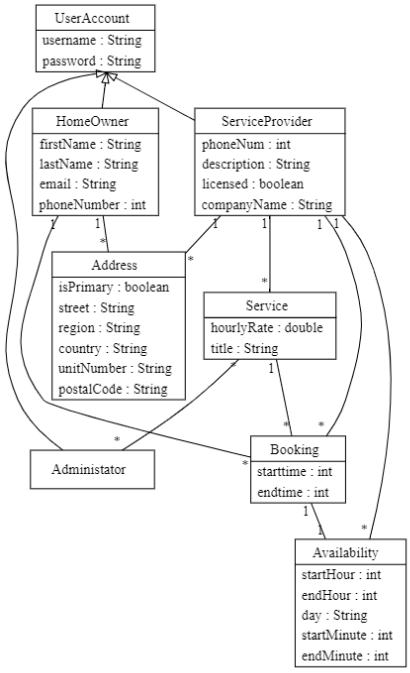
Adam: Throughout the development of the app I learned many new skills and improved on past ones. I learned that the use of IDE is not always smooth and problem free. During the development I had many issues due to the Android Studio IDE. Issues ranged from compilation errors to issues with gradle and syncing with the file structure. Moreover, I learned the importance of testing the app itself on a mobile device. I would sometimes design something using the activity editor and then actually try it and realize that the way I designed it was poor. Furthermore, I learned about the continuous integration technology CircleCi and its use in continually evolving modular projects.

Dirieh: “This project taught us many important lessons in developing mobile applications. For example: We learned how to develop unit tests in our projects.”

Sagal: “We learned how to develop programs in groups using continuous integration (CircleCI in this case)”

Colin: “We learned to plan our time and delegate tasks appropriately”

UML Diagram



Conclusion

In conclusion, all members of the team gained a considerable amount of knowledge in various aspects of software development and design. We learned to work together as a team to achieve our goal of building a mobile application. Furthermore, we learned the process that is application development is very different when you work together on a project. When working by yourself the success of your application depends solely on whether or not you are able to achieve what you set to do. When we worked as team this was not the case. Everybody had assigned roles and tasked and as an individual you and to rely on your colleagues to put the effort and time into working on the application. Having everyone on the same page was of the upmost importance, as often times being able to test and design your features was dependent on the others completing theirs. Also, working as a group we were able to give each other feedback and see different perspectives on which direction we wanted to take the application. If one us was having trouble or issues developing a certain feature having 3 extra people to help debug and assist them definitely added great value.

References

The Most Popular Operating Systems for Smartphones and PCs. mybroadband.co.za/news/software/232485-the-most-popular-operating-systems-for-smartphones-and-pcs.html.

Google (17 may, 2017) https://twitter.com/Google/status/864890655906070529 [Tweet]