SEG2105 INTRODUCTION TO SOFTWARE ENGINEERING: FINAL PROJECT REPORT

Submitted
to
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by

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December 5, 2018

This report examines the application creation for the Introduction to Software Engineering Final Project at the University of Ottawa. A short introduction will start the report, followed by UML class diagram of the project. The table with the roles in the team and contributions of each team member are displayed, along with all screenshots of the application created. A section explaining the lessons learned throughout this project concludes the report.

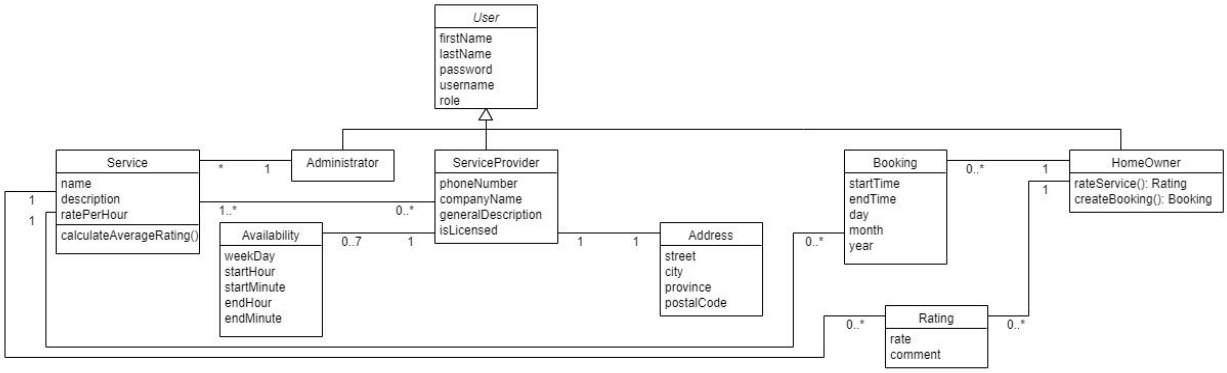
1.0 INTRODUCTION

1.1 Purpose of this Report

This report serves to examine the creation and completion of the final project for course, Introduction to Software Engineering (SEG2105), as required. Upon starting this final project in October, the group AMKKK was made up of 5 members, and within the course of a week the group was dropped to 2 members. The Final Project for SEG2105 provided the 2 group members with many opportunities to expand their knowledge, and apply concepts that were taught during the course. It provided the 2 members, Kathryn and Autumn, with the ability to work with each other to complete a mobile application using Android Studio and Firebase Database. This final project involved the creation of an application that had 3 different users implemented; administrator (username: admin, password: admin), service providers (username: sp, password: sp), and homeowners (username: homeOwner, password: homeOwner). The administrator is able to create services in the application, remove services no longer offered, and can edit the services that were created. The service providers are able to complete profile information, allowing them to add services to their profile and delete services from their profile. The service provider must also be able to specify their own availabilities, to allow for homeowners to book this service. The homeowner must be able to search for a service provider by; type of service, time, and/or rating. They can then book this service, and can rate the service by providing a comment and a rate from 1 to 5. The project provided many challenges, however; it was a great learning experience that can be applied to possible future careers for all students of SEG2105. Overall, it was a successful project and both members learned a lot of information that will become useful in the future.

2.0 UML CLASS DIAGRAM

Inserted below is a copy of the final updated UML class diagram completed by Kathryn, as required by Deliverable 4.



This UML class diagram was completed by using each UML class diagram completed for Deliverable 1, 2, 3 and 4. It is the final class diagram completed for the final project.

3.0 TABLE OF ROLES

3.1 Overall Contributions Table

Team Member	Deliverable 1	Deliverable 2	Deliverable 3	Deliverable 4
Kathryn S.	50%	50%	60%	60%
Autumn V.	50%	50%	40%	40%
Kieran M.	0%	Taken out of Group (by Prof)	Taken out of Group (by Prof)	Taken out of Group (by Prof)
Kyle K.	Dropped the Course	Dropped the Course	Dropped the Course	Dropped the Course
Mahnam N.	Dropped the Course	Dropped the Course	Dropped the Course	Dropped the Course

3.2 Deliverable 1

Feature or Task	Group Member Contributor
Github: Repository created in Github contains all members of the group and user SEG2105F18	Autumn
Github: Each member of the group has made at least ONE commit into the repository	Autumn and Kathryn
UML Class diagram of your domain model	Kathryn
APK created and submitted	Autumn
Can create a single admin account	Autumn and Kathryn
Can create a homeowner account	Autumn and Kathryn
Can create a service provider account	Autumn and Kathryn
Can see the “Welcome Screen” after successful authentication	Autumn and Kathryn
Fields are validated in all screens	Kathryn
Group uses a DB (Firebase or SQLite) - OPTIONAL	Database was not implemented in this deliverable. All future database functionality

	was implemented by Kathryn. Although Autumn did try to implement this for deliverable 1.

For this deliverable, the basics of the code was created by Kathryn, while further implementation and functionality was executed by Autumn. Autumn implemented the first entry of admin, service provider, and homeowner into the database, however; did not implement the database correctly and these users could not be accessed until Deliverable 2, implemented by Kathryn.

What Kathryn contributed for this deliverable:

- Set up the main framework for the application.
    - This task included the log in, sign in, and welcome activities as well as the processes to move between screens.
    - Set up the hierarchy between user and administrator, homeowner, and service provider.

What Autumn contributed for this deliverable:

- Initialized the Github Repository for the project.
- Initialized the Firebase Database, but was unable to access data at this point (users were able to be created, but not retrieved).
- Created the APK and ensured it was working.
- Attempted to glue the functionality to the user interfaces, but the database was not functioning for this at this point. Although, Autumn implemented a "quick-fix" for this deliverable to allow someone to create a user for the time they used the app.

3.3 Deliverable 2

Feature or Task	Group Member Contributor
Updated UML Class diagram of your domain model	Kathryn
APK submitted and working	Autumn
5 Unit test cases	Autumn
Can add services. A service has a name and hourly rate	Kathryn and Autumn
Can remove services no longer offered	Autumn and Kathryn
Can edit services	Kathryn
All fields are validated	Kathryn

For this deliverable, the basics of the code was created by Kathryn, while the testing and further implementation of adding services was executed by Autumn.

What Kathryn contributed for this deliverable:

- Set up the firebase database, allowing for the creation of users and services, as well as the deletion and mutation of a service.
- Created the Service class.
- Created the optional activity for the admin to view the list of users currently in the database.
- Set up the functionality and activity to allow admins to create services.
- Started the activity and functionality for allowing admins to view, edit, or delete services, but Autumn connected the functionality to the user interface, and completed it.

What Autumn contributed for this deliverable:

- Implemented the activity to allow service providers to delete services they offer from their profile.
- Implemented ApplicationTesting.
- Created the APK and ensured it was working.

3.4 Deliverable 3

Feature or Task	Group Member Contributor
Updated UML Class diagram	Kathryn
APK submitted and working	Autumn
2 Unit test cases	Autumn
Can complete the profile information	Autumn and Kathryn
Can add services to his profile	Autumn and Kathryn
Can delete services from his profile	Autumn and Kathryn
Can see the list of (his own) availability times	Kathryn
All fields are validated	Kathryn
Can edit the availabilities - OPTIONAL	Kathryn

For this deliverable, the majority of the application was done by Kathryn, although Autumn started it, the majority of the work she did was redone. The specific features such as; adding services, and deleting services were created by Kathryn, and integrated into the application by Autumn. Autumn had originally implemented and ensured functionality of the adding and deleting of services to the profile, however; it was re-implemented by Kathryn to maintain

consistency in the code and because the original attempt did not function properly. The 2 unit test cases were completed by Autumn and the UML class diagram was completed by Kathryn.

What Autumn contributed for this deliverable:

- Set up the activity to allow a service provider to view available services and add them to their profile.
- Started the activity to enable a service provider to view their provided services.
- Implemented ApplicationD3Testing.
- Ensured APK was submitted and working correctly once ensuring the application functioned as required.

Kathryn created the database functionality for:

- Linking a service provider to a service.
- Removing an association between a service provider and a service.
- Inserting the service providers extra information to the database, and retrieving it correctly.
- Adding availabilities to the database and retrieving them by service provider.
- Retrieving services by the service provider who offers them.
- Mutating availabilities.

Kathryn also set up the majority of the activity screens, validation methods, and functionality needed to retrieve information for each activity. Although, for the most part Autumn glued the functionalities to the user interfaces.

3.5 Deliverable 4

Feature or Task	Group Member Contributor
Updated UML Class diagram	Kathryn
APK and SOURCE CODE	Autumn
Final Report	Autumn and Kathryn
10 Unit test cases	Autumn
Can search for a service provider by: - Type of service - Time - Rating	Kathryn and Autumn
Can book a service by selecting a preferred time slot	Autumn and Kathryn
Can rate service by providing a comment and a rate from 1 to 5	Autumn and Kathryn

All fields are validated	Kathryn
Password is encrypted (not stored in plain text in DB) - OPTIONAL	Not implemented.

For this deliverable, the final report was completed by both Kathryn and Autumn, and the UML Class diagram was completed by Kathryn.

What Kathryn contributed for this deliverable:

- Validation methods for the create booking activity and the search for service activity.
- Set up database functionalities for ratings and bookings.
- Created query method to search for services by rating, time, and type.
- Fully Implemented HomeOwnerSearchForServicesActivity and HomeOwnerFoundServicesActivity.

What Autumn contributed for this deliverable:

- Implemented HomeOwnerCreateBookingActivity createBookingOnClick to create a booking for an available service.
- Implemented ApplicationD4Testing.
- Set up testing “databases” to test functionalities of; RatingDatabase, UserDatabase, ServiceDatabase, BookingDatabase.
- Started the code for the activity to rate a service.
- Ensured APK was submitted and working correctly once ensuring the application functioned as required.

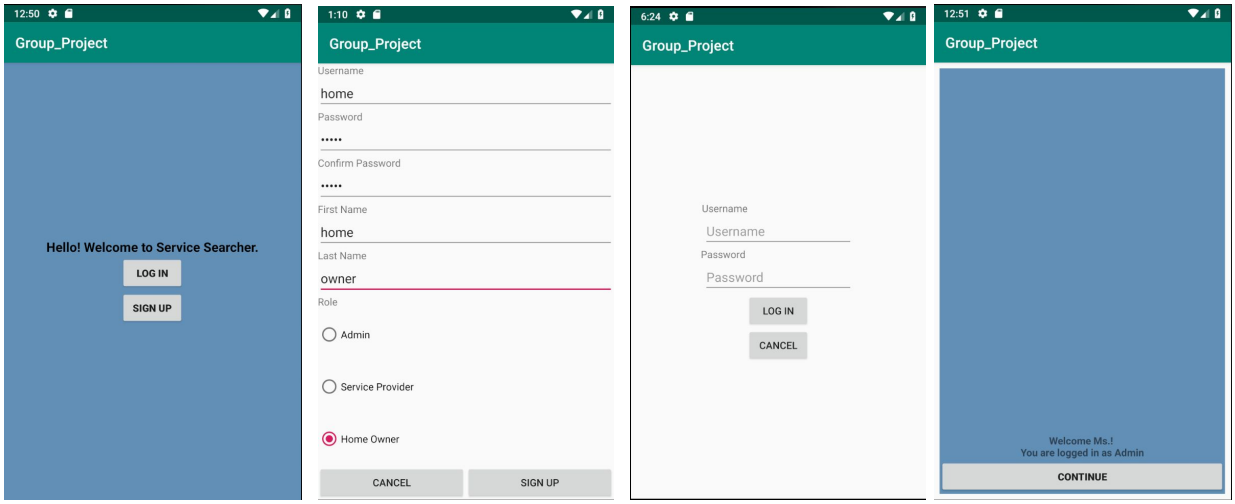
4.0 OUTSIDE OF THE DELIVERABLE CONTRIBUTIONS

Overall, for the application Kathryn maintained keeping the code clean and kept together. Kathryn created the Util class to contain constants for passing variables between activities, and to contain validation methods that are used in several classes. Kathryn implemented back buttons throughout the application, and a log out button on each users main screen. Moreover, she refactored and renamed methods and classes to be clearer and more concise.

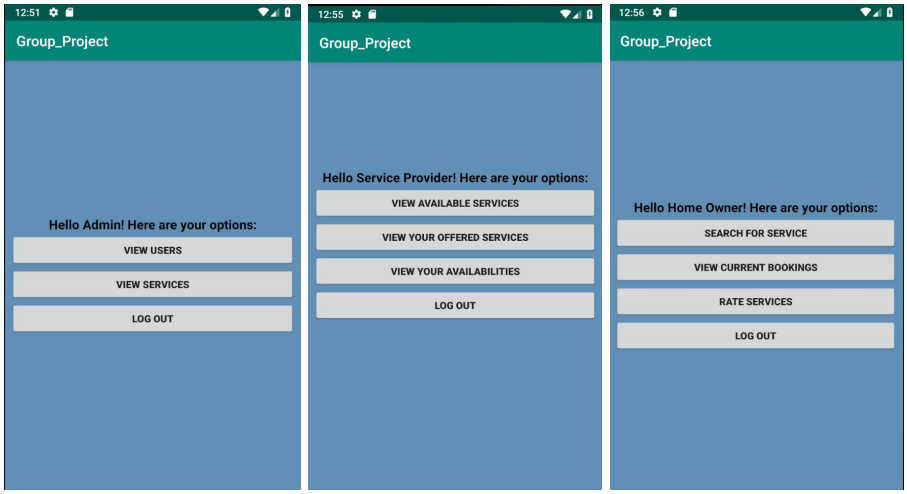
Autumn was mostly in charge of test cases, and gluing the application UI to the functionalities. Furthermore, she put great effort into making the UI more aesthetic for the user. In addition, Autumn was incharge of finishing most unfinished code for Deliverables and made sure the application was working as required. Furthermore, Autumn ensured the application was functional and testing the functionality of the application for every Deliverable.

5.0 SCREENSHOTS OF THE APPLICATION

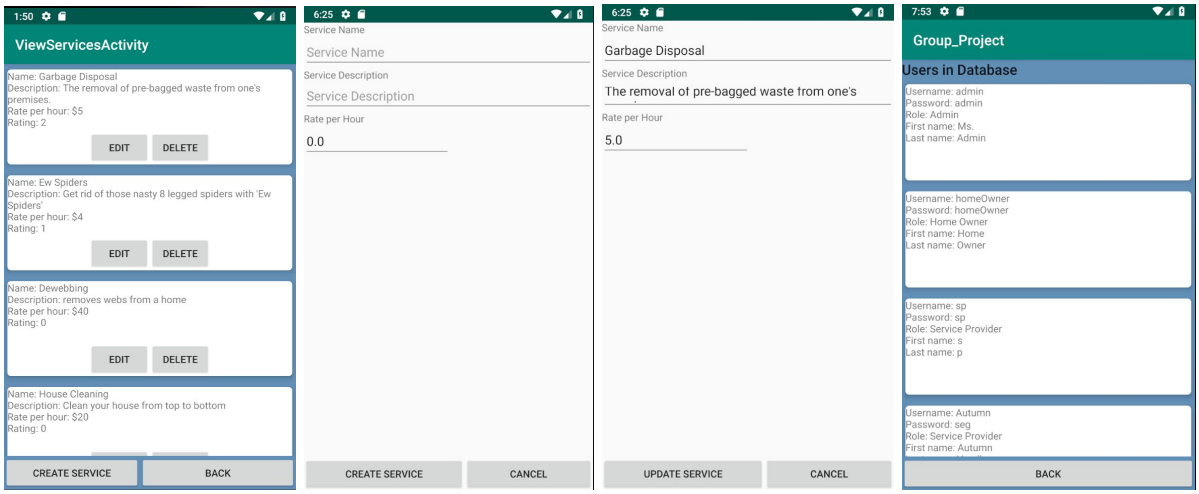
5.1 Main, Sign Up, Log In, Welcome Screen



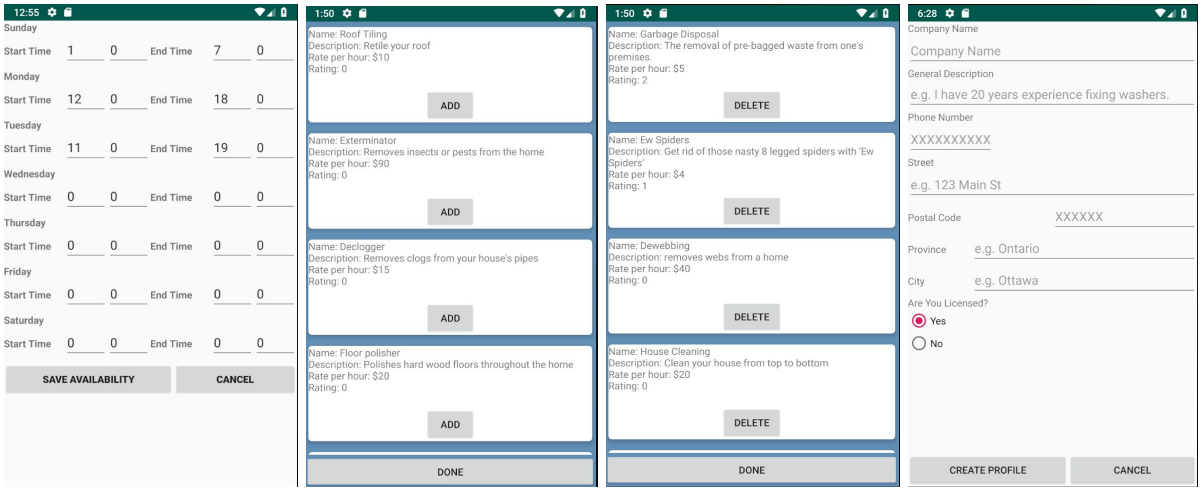
5.2 Options: admin view, service provider view, homeowner view



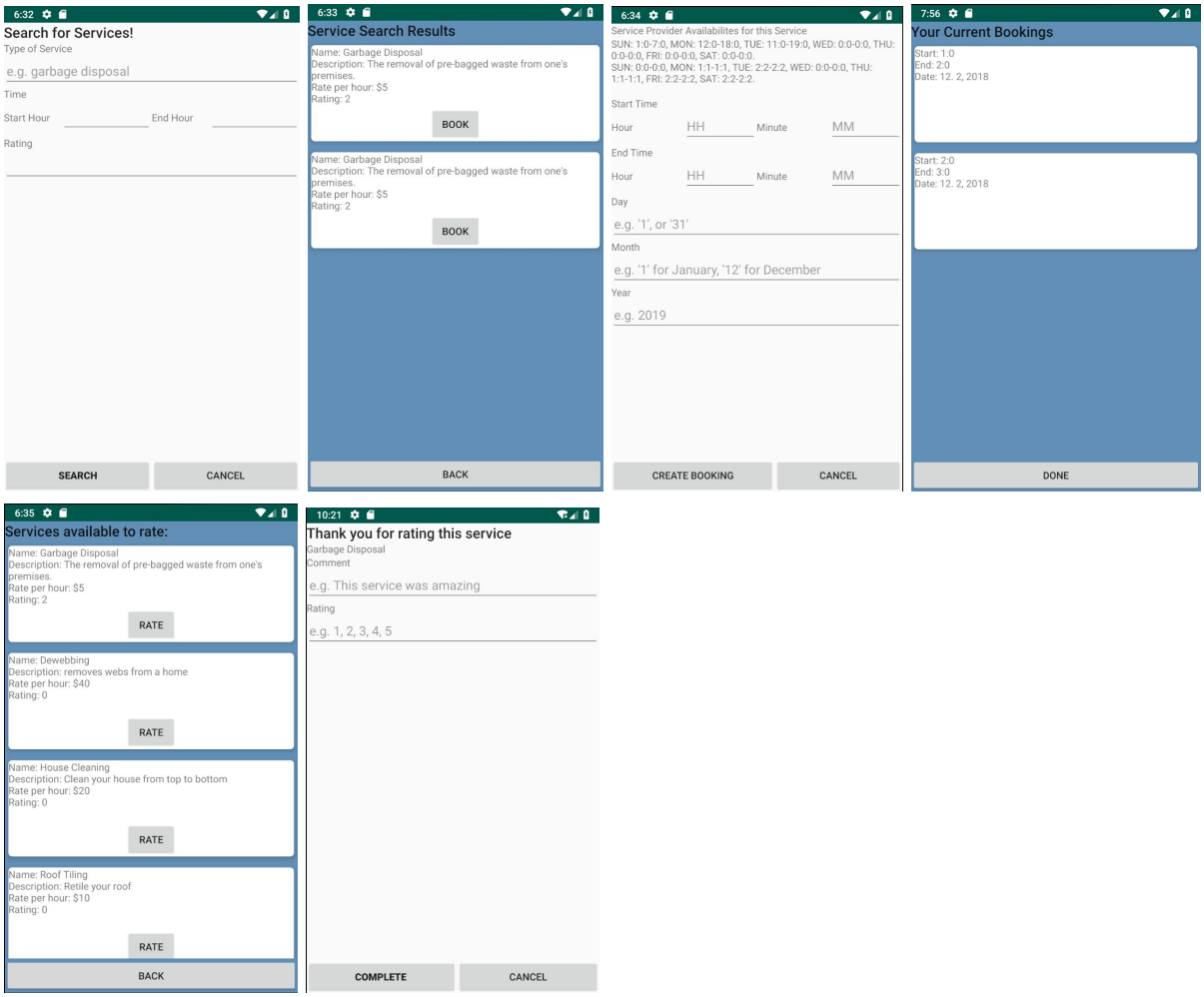
5.3 Administrator: list of services, add services, edit services, view users



5.4 Service Provider: view/edit availability, add services, (his own) available services, create a profile



5.5 Homeowner: search services, view services from search, book a service, view bookings, view services to rate, rate the service



6.0 LESSONS LEARNED

Throughout the course of this project, there were many lessons learned. One lesson that Autumn learned was being able to communicate better with others and use the knowledge of others in order to expand her own knowledge. This project was able to teach the group members about the basics of creating Android applications, while applying the knowledge about User Interface and design basics to create an effective and useful application. This project allowed the group to work on their time management skills; working on each project deliverable while finishing other assignments as well. The biggest lesson learned was to pay attention to the code being written in order to create effective and efficient code. This project required many lines of code, each requiring attention and each served a purpose in the assignment. There were many cases when the code would not work as required, and the skill of debugging and analyzing code was used effectively in these cases. Overall, this project provided many learning opportunities; time management skills, course concepts being applied in real life, communication skills, debugging skills, design skills, and many more. These lessons learned will hopefully help in future careers, and allow for the group members, Autumn and Kathryn, to become better coders in the future.

6.1 Autumn's Lessons Learned

As a student in Introduction to Software Engineering, Autumn learned a lot over the course of this semester. This project involved a lot of consulting with her group members; Kathryn, and this increased her ability to communicate with others. This project showed Autumn the importances of efficient code, and she learned how to clean up the code by Kathryn. Having done a lot of code in the project, most of her code was cleaned up and redone by Kathryn to ensure that the code was clean and concise. The provided a great learning opportunity for Autumn, she learned that editing of code and use of methods will be the best option in a project such as this. Autumn also learned that the UI design of an application of this type will not be the most important part of the application, however; it is still an important feature to ensure easy functionality and user friendly functionality. Autumn also learned the importance of expanding her knowledge of code and the platform used to create such code. It was very important to ensure she knew how to use Android Studio and how to consult the website if there were any issues. Autumn also learned that Github is a very important and useful tool for projects of such kind. The project allowed Autumn to improve her time management skills between other coursework, other courses, her job, and her personal life. She tried her best to pull her weight in the project, and has learned that she needs to improve her time management skills to ensure this. The biggest lesson Autumn learned was to always expand her coding/programming skills to make sure she is able to complete advanced tasks. Overall, this project allowed for a lot of learning opportunities for Autumn, and she enjoyed working on this project over the course of the semester.

6.2 Kathryn's Lessons Learned

Working full-time for the CRA as a developer/analyst over the past summer, the opportunity greatly expanded Kathryn's knowledge in software development. Moreover, the experience allowed her to become adept at coding in java and using git. This project, was mostly a learning

experience on how to develop within Android Studio, and connect to and use Firebase, as well as Circle Ci. Furthermore, this group project taught Kathryn the intricacies of working in a duo to produce an application rather than working on one's own. It becomes much harder to prioritize and schedule tasks when unsure of the other person's capabilities and schedule. Overall, this project provided a couple learning opportunities for Kathryn, and she looks forward to development outside of the classroom.