

Lappeenrannan teknillinen yliopisto

School of Business and Management

Software Development Skills

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**LEARNING DIARY, MOBILE MODULE**

## **LEARNING DIARY**

2.6.2022

Today I read the general information of this course and learned how my work in this course will be evaluated and additionally, what is the goal of doing this course. The goal is to get experience of making my own unique project. Then I also get something concrete for showing my software development skills to possible employers in the future. I chose mobile module because I want to learn more about using android Studio for mobile development.

I also started to setup my environment by installing Git, Version Control and making the Bit Bucket account. Additionally, I already had the Android Studio installed, so I started to go through the Introduction part of course materials. I learned the very basics of how to make new project in Android Studio, edit it and then run it. Moreover, I practiced using editTextView components to get users input and show those in TextView by clicking button.

3.6.2022

First, I learned how the debugging works in android Studio and practiced it a little bit with my actual project. Then I started to work with the part 2 of the course material where I learned how my project can have second view and open new activity in my own application.

Moreover, I started to plan and work on my course project which is going to be recipe searching application for cooking and baking. I just need to figure out how I could find some open database of recipes to use in my application or should I make my own database somehow. Probably the application could also be only some kind of Google search assistant, so it finds all recipes matching close enough to user's searching criteria. Maybe, it could also be something like digital recipe book and grocery store shopping list functionality could be possible to add in application.

6.6.2022

I learned how to open activities that are outside my own application. For instance, I learned how to open Google search in the app. Then I also learned that Intent is needed in both cases

when launching activity inside or outside of application and it means a request for the system to try to fill.

Then I started to make grocery List functionality in my project in that way that the user can first type the name of item they want to add to grocery list and then it is added to ArrayList which is showed then in ListView. Moreover, I'm going to add the functionality that the user can type the amount of those items. For instance, how many bananas the user wants to buy and then that is shown next to the name of the product. With course materials and my other course's project where I did custom ListView, I tried to make this work but for some reason, the ListView does not yet show my custom ArrayList.

7.6.2022

Today I tried to figure out why the ListView doesn't show my ArrayList which includes the names of the grocery items as Strings. Then I decided that it could be useful to make class GroceryItem and create always a new object for each grocery item the user wants to add. Then those objects are saved in ArrayList and somehow those should be shown in ListView but I still cannot figure out why it doesn't work even though I did the same way as in course materials part 3 with only that exception that I used ArrayList instead of regular list, but it shouldn't matter. I learned that I need to learn more about ArrayLists and ListViews.

8.6.2022

I learned how to make ListView show static String array also with customLayout. Next I needed to figure out, how I can make the ListView show dynamic list such as ArrayList so the user can add or remove items in the list. I managed to make the ListView show also ArrayLists and now the user can also add items to list as many as they want and then the user can also remove those items from the list. Next, I need to figure out how to limit the adding process in that way that the user can add the item with the same name only once so the list wouldn't have different amounts of same item many times. Then I could try if it is possible to edit items in that way that the user can decrease only the amount of specific item additionally to completely removing from the list. So, in nutshell, today I learned more about the ListViews and ArrayLists as I noticed yesterday.

10.6.2022

Today I learned how to make textView which content is shown only for a few seconds by using this stack overflow discussion: <https://stackoverflow.com/questions/17242955/how-to-display-a-textview-for-few-seconds-and-then-make-it-invisible>

On the website, there were many solutions for this problem, but I choose to use Handler and Runnable components because those where easy to implement in my case. If I understood correctly, those just delay the run of setting the visibility of the TextView component. Then I also tried to decide which colors will be primary colors in my application and then I learned that the Android Studio has its own color contrast ratio scale.

Then I also decided that I will probably include register and login system in my app so the user can save their own recipes also in the application. Then the grocery list could be also personal for each user. To my actual project I added new Activities for all functionalities I'm going to at least try to make and then I did one version of the main page and the navigation from there to the new activities with buttons. Those were easy to make because Activities are opened with the same way with the Intent objects and startActivity-command.

13.6.2022

I started to make Add a recipe-functionality to my app. I decided that I will do it also with the custom listViews and the basic functionality, how to add ingredients and directions of recipe are also done with EditText in same way as I made the creating the grocery list functionality. Then I also created new Java class called Recipe which is going to include all info of one recipe and then those Recipe objects are saved in some data structure I haven't decided yet which one, but probably basic text file could be good enough for my purpose. So, I figured out one version of the layout for the add a new recipe page by using listViews. Then I learned how to fix NullPointerException error, or I at least tried to fix that.

14.6.2022

Today I learned how to make my android Studio project to be in a git repository. I didn't do that earlier because now I have more files to put in there and more files I edit. Then I also fixed the issue with NullPointerException so now the user can fill in the information about the ingredient without giving any instructions. Then I started to work on how the user can change the amount of item added in grocery list after adding it and that can be done by using the setters, for instance setAmount. One small thing I learned today also is how to create a strikethrough

text by googling it and checking the answers in Stack Overflow. I wanted to use that kind of text when user checks one item of the grocery list.

15.6.2022

I managed to make it work in that way that the user can change amount of one specific item in grocery list even after adding it. I learned that by fixing the error which showed that the listView component needs to be informed when its data changes and I figured out that with the ApkTutor website's topic *Custom ListView with BaseAdapter for displaying Map List* even though my purpose of use was different. I have used that example before for those custom Adapters and Item Adapters in this project. Then I also learned how to make buttons with icons in android Studio.

16.6.2022

Today I edited the layout file of the creating grocery List functionality and then I started to make the sign up and log in functionalities in my application. I decided that the user is going to sign up to application with their email address and their password needs to be at least four characters long. I also changed my application in that way that when the user opens it, the app launches to log in activity.

17.6.2022

Today I continued working on the registering and login activities in my application. Now I have managed to get all info about the user needs to fill in profile and now I need to decide the data structure where I save that information about the user. Then I learned a little bit how writing and reading text files work in Java and Android Studio by googling it and looking stack Overflow answers about that.

20.6.2022

I continued working on the registering and login activities. Then I also learned more about reading and writing files in Android Studio, especially with OutputStream and InputStream. I faced problems with creating a text file for each user where I save their username, email address and password when the new user is signing up. It seems like that the file is not created or at least I cannot find it anywhere. So, I will need to figure out where the file goes in Android Studio when the file is created. I need to understand this also when I am going to create some system where the user's recipes are saved in text files and then the user could search their own

recipes in other page in application. In conclusion, I have decided to make my application to be a digital recipe book instead of searching actual recipes because I do not have enough experience and skills for that.

22.6.2022

Today I finally learned and managed to make the sign up and log in functionalities work in my application. I learned how to use `FileOutputStream` to write in the text file and `FileInputStream`, `InputStreamReader` and `BufferedReader` to read the text file by watching this YouTube video [How to Read / Write To File - Android Studio 3.5](#) by Vlad Voytenko. Now my application has login system, however it could be better and more secure so I will probably improve it later. Moreover, I learned that the string read from text file can be modified with `split`-method. In my case, the string was the user info in form `username;email;password` and I wanted to separate those in their own variables.

Then I learned also how to send extra information to other activity when launching it by watching the course materials. I needed to do that because I wanted to send the user's username and email address to the main activity after successful login activity. I want to do that because I want to show welcome text with the user's name on the main page and then I also decided to make the welcome text to be specific for each time of day. For that I needed to learn how to use `localDateTime` object.

Additionally, I started to make the user profile layout and the display recipe layout. I decided that user is going to save all information about the recipes in text file. Then I can use recipe objects to display those. I also continued working on the add a recipe-functionality.

24.6.2022

Today I continued to do the add a new recipe –functionality by making the application to write the data user gives to the text file. Then in another activity I am going to read those text files for displaying the recipe for the user.

27.6.2022

I continued to make the add a recipe functionality and I succeeded to make the text file for each new recipe. Then I also managed to make other file where is saved all the titles of those recipes each user has created, and that list is displayed in user's profile with spinner component. I did the usage of spinner component same way as in my other courses project but in that project, I

used fragment and this case I used Activity. I learned that it is possible to use custom Adapter also with the spinner components, not only listViews. So, I made customRecipeAdapter class for the spinner component.

29.6.2022

I managed to make the add recipe and display recipe functionalities to work but I still need to edit layout of those views. In grocery list activity I decided I could use data structure called HashMap instead of arrayList so maybe with that data structure I could disable the functionality of adding the same grocery item many times in the list. I learned that by googling it and find the answer in stackOverFlow how I could modify my adapter to work for hashMaps instead of arrayLists. Then I also learned how to add icons to buttons with text by watching a tutorial *Android/UI/How To Create A Button With Icon and Text* by **TifaLAB School**. Additionally, I learned how to use the ImageView component by watching the course material part 3, the Android Studio tutorial part 3.

4.7.2022

Today I managed to make the log in activity work also with the user's email address in case the user's username and email's part before char @ are the same. For instance, the user with username **testUser** and email address [testUser@gmail.com](mailto:testUser@gmail.com) can log in the application but if those are not same, the user cannot log in because the log in system is based on reading text file saved according to the user's username. Probably this could be fixed by writing the information about the user also in text file named with the email address. However, if in future is wanted to add functionality of changing the password to the new password in case of forgetting the old one, those both files should be edited. Moreover, the whole registering in system could be changed to that the user registers only with email address and then the application makes the username based on the beginning part of the email address. I changed the application to work in that way that the username is defined automatically based on the email address the user gives when sign up the application. Maybe some other data structure altogether could be better for implementing the log in system.

Then I decided that I want to implement profile picture system in my app by making the spinner where user can choose from beforehand selected options. Then I also tried to edit the layout of the grocery list activity to be more intuitive for the user.

10.7.2022

Today I edited my grocery List activity to have cleaner look by moving the buttons that increase or decrease the amount of the item by 1 to the custom adapter that is used to fill the listView. Then I also decided to implement the short messages such as “List updated successfully” or “Added item X successfully to the list” with the Toast because it makes the layout to seem cleaner and not so full. I learned how to use toasts by reading an article Toast overview by Android Developers’ documentation. Then I realized it is better to use linear layout instead of constraint layout when displaying the recipes. Moreover, I started working on some first version of profile picture selector for my application.

11.7.2022

Today I continued making the profile picture selector in the user profile section of my app. I learned how to make that by following Custom Spinner with Images & Text in Android Studio Tutorial by Programming Experts on the YouTube.

12.7.2022

I managed to make the profile picture selector work somehow but not yet perfectly. Then I decided that the user could choose the profile picture already when signing up to the application. Then I started to make the search for recipes functionality by googling and finding tutorial about using the searchView component with listview. Tutorial was published by Geeksforgeeks.org I have the text file for each user where is all the recipes that user has saved, and I am going to use that file to make an arrayList that is then showed in listView and then with searchView the user can search specific recipe and open it in the display recipe – activity. Maybe on default, the listview could show all recipes. The search functionality is going to be in the app bar. Moreover, I learned today that in order to make listView to react to user’s clicks, it is needed to use onItemClickListener and the listview needs also to be set clickable.

19.7.2022

I learned again how to open the activities inside and outside my application and how to make simple list application because I realized that I was supposed to make those exercise projects as well. So, I did those by following the tutorials again. Even though I followed the same tutorials in my own project as well so that stuff is already familiar for me. I learned that I need to read instructions more carefully in the future. Then I also tried to learn how to push my projects from android studio to bitbucket but that seems unnecessarily hard to do.

20.7.2022



Today I learned a little bit about git and how to push my local git repositories to remote git repository in bitbucket by googling the problem and checking some stackoverflow responses. Then I also continued editing the add a recipe –functionality to be more intuitive for the user. I want my application to be as easy as possible to learn and remember how to use after even long break. For that reason, I try to use simple and universal instructions and icons in buttons.

21.7.2022

Today I finished adding the recipe activity in that manner that it works well enough. It still causes little bit problems if the user adds long recipe with many ingredients and steps. Then I decided that the profile picture selector is only available in the user profile, not already in sign up process because for now, the profile picture doesn't have actual functionality. However, in the future, if application is developed further, it could include public recipe publishing system where the profile picture is useful to differ the users.

22.7.2022

I learned how easily I can use the same code for only a little bit different problem because I added the saving and displaying the grocery lists functionalities. I used the same code I used to save and display the recipes but with few changes. Then I also learned how I can go through the content of HashMap data structure by googling the problem and looking at this stackoverflow discussion: <https://stackoverflow.com/questions/8909810/how-to-print-all-key-and-values-from-hashmap-in-android>

25.7.2022

Today I learned how to push a local existing repository to gitHub and how to open it with a link in android Studio. Then I also learned how to check if some text file already exists because I realized I need to check if there already is the user with that email address when new user is signing up so there can't be many user accounts with the same email address or username.

