

Lappeenranta teknillinen yliopisto  
LUT UNIVERSITY (School of Technology)

Software Development Skills Mobile, Online course

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## **LEARNING DIARY, MOBILE APP MODULE**

Date : ( 13.5.2024)

Activity : Course Overview

Learning outcome: I read all the instructions related to the course in the moodle page and followed all that needed to be installed.

Date : ( 14.5.2024)

Activity : Introduction

Learning outcome: I learnt to set up Android Studio and Java, and understood application design in XML and Java files. I also grasped debugging methods and successfully ran my first Android application.

Date : ( 14.5.2024)

Activity : Core Elements

Learning outcome: I refreshed my knowledge on using intents and broadcast receivers in Android Studio, learnt to create smoother apps by moving screens outside the app, discovered new project ideas, practiced debugging, and remembered the utility of the string XML file and the 'put extra' method.

Date : ( 14.5.2024)

Activity : Lists, layout, images

Learning outcome: I learnt to create a custom layout for a List View, incorporate images using Image View, manage data with string arrays, understand the role of adapter classes and layout inflaters, optimize images for mobile devices, and debug effectively.

Date: (14.5.2024 – 16.5.2020)

Activity: Project development

Learning outcome: I developed my project, faced some issues, solved all issues, and learnt about APIs

## **LEARNING DIARY (8.5.2024 - 10.5.2024)**

### **COURSE OVERVIEW**

13.5.2024

I reviewed the general material and grasped the course's main goal. I chose the mobile module since it would further my knowledge in building applications. I read everything, which is the course info and everything we should install and also all that needs to be done. Honestly, I already had everything I needed for this course installed and ready for my use. Then I started working on my learning diary and moved on to the first video of the course.

### **INTRODUCTION**

14.5.2024

I started watching the video and I followed smoothly even the part where I had to download android studio and install java and it's requirements also. My coding environment was set and ready because I already had everything. The video started with how to install all of this and I did not really have to do much and all I did was listen and enjoy what the information had to offer. Then the first project had started, which most of my attention was on. I understood that the design of the application took place in the xml file and the functioning of the objects took place in the java file. The design was very simple and very understandable for me to follow along. I understood what the tutorial project was all about even without reaching the end of the video as this is not my first time working with java. So, the tutorial provided a lot of information solely about building the first application. I got to the section where it was about debugging the code, I followed through and it was quite understandable as well. The step over and step out debugging methods were confusing because I always thought they kind of the same thing in a way, but the video explained it well for better grasp and now I know the difference between the both methods. I ran the android application and it worked as planned.

## **CORE ELEMENTS**

14.5.2024

To be frank, I knew of another way to use intents to move from one activity to another, but this way seems very beginner friendly and easier to understand. In this section, I would say I refreshed my brain or re-learnt everything that was taught in the tutorial video. I understood how to use intent and the broadcast receiver to go to another webpage and the method used was not hard to follow. The find view by their ID is something that I always used as well as the on click listeners for the buttons created in the xml file. I also learnt to use the broadcast receivers to go to another screen which is outside of the app, and I think this good so that the app does not become over bulky and heavy, it will be very smooth while the user is using it. This gave me an idea to use in my project for the course and other things I could do while learning android studio and java creation of applications. I decided to work with debugging again and then I did not provide any URL for the debug to catch, and it was good that I found some errors I may have made doing this. I forgot that the string xml file could be used to change the title names in app and this tutorial was a good reminder that this could happen, I always try to avoid it but not anymore. For the put extra method I also think it could be done in the xml and just putting it there will also work but the put extra method that was used in the tutorials was also another way of doing it. Overall, this section was a good way to remember all the things I had learnt in the past.

## **LIST, LAYOUTS, AND IMAGES**

14.5.2024

The video was quiet but in the end I watch everything and learnt quite a lot. I understood how to create a custom layout for a List View, including adding a description and price to each item, enhancing the visual appeal and functionality of the list. It showed how to incorporate images into the app using the Image View control, allowing users to view detailed images of the items by tapping on them. I also understood the importance of using the List View component to display a list of items was highlighted, showcasing its versatility in presenting data in a structured manner. I also learnt about string arrays, which the tutorial emphasized the use of string arrays to store and manage the list items, descriptions, and prices, demonstrating efficient data management practices. The concept of an adapter class was introduced, which is crucial for merging the list data with the custom layout,

enabling dynamic content display in the List View, I had used adapter classes once but I did not really understand them clearly but the video managed to make me understand it's function and objective. The layout inflater is not something I understood clearly but after watching the bit several times, I finally understood what it was which is essential for inflating the custom layout and populating it with data from the adapter. The transitioning to a new activity to display detailed information was touched in part 2 of the tutorial so I understood it clearly and every other code it came with. I also refreshed my brain on how to pass data which in this case is the index of the clicked item. It was between activities using intents and allowing for seamless navigation and data transfer. I never knew the importance of optimizing images for mobile devices which was clearly touched on and it emphasized the need to scale images to prevent crashes due to oversized assets, and all of this manages the resources of the application properly which is done in the drawable folder and organizing string arrays in the strings xml file. I also debugged everything once again just to make myself understood. Overall, it was a good series, and it was nice to follow along without any issue, the issue I came across were easily solved.

## **PROJECT DEVELOPMENT**

14.5.2024 - 16.5.2024

I started this project with a sketch of how I want the front end of my application to look which is just at most three screens and which is also three activities. I wanted to also use two screens and one fragments and I decided that it would not really be what I wanted so I decided to stick with three screens. The idea I got for the app was an app that showed Finnish history and I also wanted to work with APIs for this project so that it can be simple and doable. I started with calling the time API which just says a greeting depending on the time in real life. I decided to use the Helsinki time zone for this as I also work with that time. So, I ran if statements and the string it should output during certain time of day, and I think this was a good start for the project. After a long while, I wanted to work on the bottom navigation bar which I also made a sketch for. I wanted to use the intent to navigate to different activities like the quiz activity and the setting activity which is the screen I had plan to work on next. I used the already created xml file for the main activity to create this bottom navigation and then I imported my own images into the drawable for me to use them properly

and fix them in their correct places. After this, I created the other activities and their corresponding xml files and decided to work on them so that I know that they also navigate from one point to the other points. This did not take very long because I knew the code from what the tutorial video had already taught. I used the intent and the rest of the lines of code to write this and all of them could move from one activity to the next. I decided to work on the setting page next because all it had was a very few information that worked has buttons and shows some kind of alert and some kind of toast. After much use in the setting activity, I had to work on the toast and the alert of this buttons that looked like texts. I finished the setting activity and moved to the quiz activity.

The plan for the quiz activity was more like a quiz that shows different questions which in this question is about 50 and all it will be displayed on the screen has 10 random questions that are chosen from the 50 and then the user can then answer them and then they can press the submit button. When they press the submit button, an alert will show and will also show them their score and how many questions have been answered correctly. I wrote very few questions by myself, and I decided for an AI to write the rest for me which I used in my codes. Just for the question! I prepared the button and I also want the options to be given in a random order as well as the questions, so I wrote the code for that and the display questions on how it will be shown on the screen with the radio button. I moved on to the main activity where I wanted the first display upon opening the app to be a Lahti and then the temperature with some image about the temperature in Lahti which is gotten from some API, I also got the idea to add a kind of search where users can search for any city or country to also see their weather conditions alongside other descriptions of the weather conditions that is faced from any country or city that is searched. I decided to add another event where if users type gibberish and the city or country does not exist, then everything disappears and text like 'city not found' will be shown. Then, I also added the case where if the user has not searched for anything then there is a toast that tells the user to type in something. The main activity was looking very empty, so I decided to fill this up with a button that takes the user out of the app into a website which I chose the history of Finland Wikipedia page. I followed the instructions that were given in the tutorial, and I came up with a problem. So, I decided to use Stack Overflow to fix this issue as the button was not working and I came up with another way to fix this issue until it was working accordingly.