

Lappeenranta teknillinen yliopisto
School of Energy Systems

Software Development Skills: Mobile, Online course

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LEARNING DIARY, <Software Development Skills: Mobile 2022-23> MODULE

Date : May 7th 2023

Activity : Learning Java

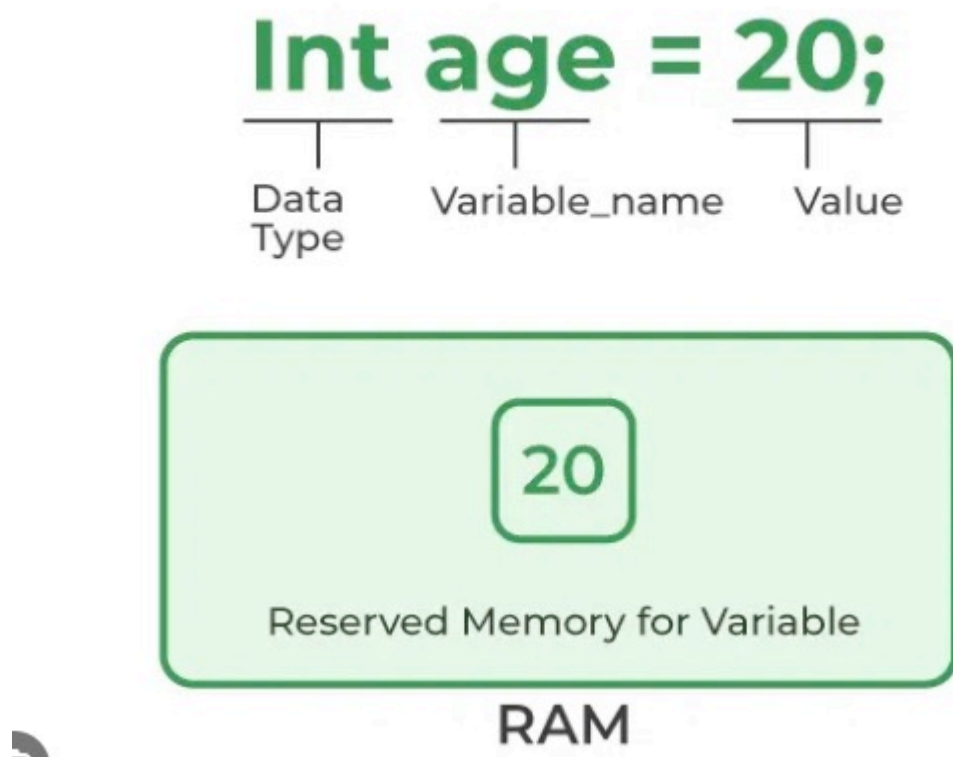
Learning outcome:

To make an Android app, we first need to know which language it supports. Java is the one supported by Android Studio. I spent a lot of time learning its syntax and how it works. The first thing I learned in Java was the "Hello World" program.

 myfirstclass.java - Notepad
File Edit Format View Help

```
public class myfirstclass{  
    public static void main(String[] args)  
    {  
        System.out.println("Hello,World");  
    }  
}
```

Then I learned about variables:



After that I learned about Array, loop conditions, etc. For me, OOP is the most challenging one. The four pillars of OOP are Inheritance, Encapsulation, Abstraction, Polymorphism. After a few hours of learning Java, I have a brief view of it. I can clearly understand some cases.

Date : May 14th 2023

Activity : Learning how to set up Android Studio Project, how Android Studio can be used to make a simple app, how to debug and run an app in Android Studio.

Learning outcome:

We first need to have Android Studio and its components installed. And for that reason, I installed Java because Android Studio supports Java. Secondly, I installed the SDK, and finally, I installed Android Studio. It took me a while to be fully installed. I've also learned that to make a simple app using Android Studio, first you need to open Android Studio, then setup the preferences. I need to create a project in Android Studio and choose an appropriate template. To debug, first I added a breakpoint (to add a breakpoint, just click in the gutter next to the line number you want the debugger to pause on). Then I clicked "Run" and selected Debug. I also pressed the "Play" button, and it wanted me to create an Android Virtual Device, so I did what it said. Debugging is an important skill.

Date : May 27th 2023

Activity : learn about core elements to android development, learn what are Activities, Intents, IntentServices and BroadcastReceivers

Learning outcome:

Now I know there are four core elements. The first one is Activity, which means a rectangular area that displays something. The second one is Intent, which means an action is being requested that the device should try to perform. The third one is IntentService, which means Services that can handle Intent requests and process the work to be done. Finally, BroadcastReceivers means receive an Intent from the SendBroadcast method, often indicating that some work has been completed. To add an "Activity", first we need to right-click either the Java package/Java folder/ module. Select one, then right-click it so that the destination of the activity will be saved there. Secondly, select/Click New. Then select Activity. Finally, choose an Activity that you want to create. To add a Service, or a "BroadcastReceiver" just do the same step. onCreate() is the first method that will be called when an Activity is loaded. findViewById() is a way to locate resources in your activity. Intent is an action being requested that the device should try to perform. getIntent() is getting the intent that was passed to Activity. putExtra() passes data as a key-value pair. getExtras().getString() returns the string that was passed to the Intent object. startActivity() is used to launch another Activity.

Date : June 6th 2023

Activity : create a custom layout component, incorporate images with Image View

Learning outcome: know more about creating a layout component and add image in.

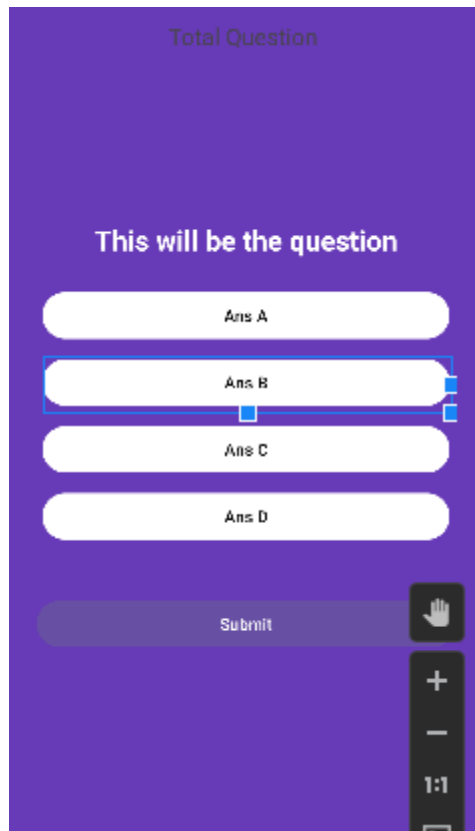
Date : June 10th 2023

Activity : creating a quizz app for a project.

Learning outcome:

By doing a project, I got familiar with changing the background color of an Android app.

```
2 <RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     android:background="#673AB7"
8     android:padding="24dp"
9     tools:context=".MainActivity">
10
```



I learned how to create a button and how to make it function.

I also know how to create a TextView tag.

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/total_question"
    android:text="Total Question "
    android:layout_centerHorizontal="true"
    android:textSize="20dp"/>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/question"
    android:textStyle="bold"
    android:text="This will be the question"
    android:textColor="@color/white"
    android:textSize="24dp"
    android:textAlignment="center"
    android:layout_margin="20dp"
    android:layout_above="@id/choices_layout"/>

```

That's for the activity_main.xml.

The MainActivity including choices of "button". It also has LoadNewQuestion method, which is really important. FinishQuiz() is also an important one. At the end of the quiz, there would be a prompt. that tells you whether you past or not.

```

1 usage
void finishQuiz(){
    String passStatus = "";
    if(score > totalQuestion*0.60){
        passStatus = "Passed";
    }else {
        passStatus = "Failed";
    }
}

```

```

new AlertDialog.Builder( context: this)
    .setTitle(passStatus)
    .setMessage("Score is " + score + " out of " + totalQuestion)
    .setPositiveButton( text: "Restart", (dialogInterface, i) -> restartQuiz() )
    .setCancelable(false)
    .show();
}

```

I also created a "place" to put questions and answers in the app. I applied Array List into the project.

2 usages

```

public static String question[] ={
    "Who loves you even more than Mommy and Daddy?",
    "How can you be happy?",
    "Can anything else make you happy forever?",
    "How many times can a Catholic get married?",
    "Who baptizes people in Catholic Church?"
};

```

4 usages

```

public static String choices[][] ={
    {"Friends", "God", "Neighbors", "Stranger"},
    {"By loving God", "By studying", "By playing checkers", "By sleeping"},
    {"No", "Yes", "I don't know", "Maybe"},
    {"Three times", "Twice", "Once, unless widowed", "Many times"},
    {"Mommy", "Daddy", "Uncle", "Priests"}
};

```

1 usage

```

public static String correctAnswers[] = {
    "God",
    "By loving God",
    "No",
    "Once, unless widowed",
    "Priests"
};

```