

Work Plan #01

IT University of Copenhagen (ITU)
Mobile App Development, BSc. (MOAPD)
(Spring 2024)

January 30, 2024 – February 05, 2024

Mandatory Reading

1. Read Chapter 1 (*Your First Android Application*), Chapter 5 (*Debugging Android Apps*), and Chapter 8¹ (*Android SDK Versions and Compatibility*) of the Textbook #01 (*Android Programming – The Big Nerd Ranch Guide*); and
2. Read and implement the tutorial about creating your first Android app on <https://developer.android.com/training/basics/firstapp>.

Read the Android Developer website section about *listeners* and *events* available on <https://developer.android.com/guide/topics/ui/ui-events.html>.

Optional Homework

3. Read and implement the project presented in Chapter 1 of Textbook #01 (*Your First Android Application*). You should read the text and repeat all the steps described in Chapter 1 as a starting point for mobile development. This will give you your version of the *GeoQuiz* with the functionality described in Chapter 1; and
4. Implement the challenge’s solution on page 32 (i.e., *Switching Your Toast for a Snackbar*).

Main Exercise

5. Set up a primary User Interface (UI) for the CopenhagenBuzz app V1. See further instructions in the document “Exercise #01.pdf” available in the section “Lecture #01 (Getting Started)” on learnIT.
6. Adjust your SDK and the application’s `build.gradle` file (see Chapter 8, *Android SDK Versions and Compatibility*, in the Textbook #01).

¹Since the publication of the text, Google has released a new version of Android (Android 14). Ignore the version numbers in the book and use the version numbers suggested by Android Studio.

There are numerous versions of Android, and many libraries differ from version to version. Therefore, you can set up Android Studio to target all the different versions. Chapter 8 of Textbook #01 overviews the many Android versions available and how to manage which version you target in your app. Change the application's `build.gradle` (Module app) for the CopenhagenBuzz app. This file is in the section `Gradle Scripts` (project view in Android Studio). Change your Gradle file to make it look as shown in Listing 1 (except for the line indicated by ...)²:

Listing 1: The application's `build.gradle` file.

```

1  plugins {
2      id("com.android.application")
3      id("org.jetbrains.kotlin.android")
4  }
5
6  android {
7      namespace = "dk.itu.moapd.copenhagenbuzz.<USER>"
8      compileSdk = 34
9
10     defaultConfig {
11         applicationId = "dk.itu.moapd.copenhagenbuzz.<USER>"
12         minSdk = 26
13         targetSdk = 34
14         versionCode = 1
15         versionName = "1.0"
16         ...
17     }
18
19     ...
20 }
21
22 dependencies {
23     implementation("androidx.appcompat:appcompat:1.6.1")
24     implementation("androidx.constraintlayout:constraintlayout:2.1.4")
25     implementation("androidx.core:core-ktx:1.12.0")
26     implementation("androidx.navigation:navigation-fragment-ktx:2.7.6")
27     implementation("androidx.navigation:navigation-ui-ktx:2.7.6")
28     implementation("com.google.android.material:material:1.11.0")
29     testImplementation("junit:junit:4.13.2")
30     androidTestImplementation("androidx.test.espresso:espresso-core:3.5.1")
31     androidTestImplementation("androidx.test.ext:junit:1.1.5")
32 }

```

Try building the CopenhagenBuzz app V1 with this `build.gradle` file. If this is not possible, modify the SDK as explained in Chapter 8 until you can build the app without any error messages from Android Studio.

²Suppose you want to test your application on an older Android cellphone. You must use a smaller version number in the field `minSdkVersion`. You can find more information about the distribution dashboard on <https://developer.android.com/about/dashboards/index.html>

The `build.gradle` outlined above will be the standard used in this course. Later, you will need to make some additions, **but do not change the `compileSdk` version**.

Challenges You are not required to do weekly challenges. They are an offer to students that wish to go deeper. Some weeks there will be two challenges, namely: (i) one with an emphasis on design (e.g., GUI, graphics); and (ii) one with a focus on technology (e.g., coding, hardware resources).

Design challenge: Make a nice launcher icon for the CopenhagenBuzz app V1. The launcher icon is the icon you find in the app list/screen on your phone, and it starts the app when you press it. Read the Section “*Adding an Icon*” in Chapter 2 (*Interactive User Interfaces*) of the Textbook #01. You may find some valuable hints in the following links:

- <https://developer.android.com/studio/write/image-asset-studio.html>
- <http://stackoverflow.com/questions/15014242/how-to-make-an-android-launcher-icon>

Technology challenge: Implement the solutions of the challenge *Reporting the Device's Android Version* on page 149 in the Textbook #01.