

Exercise #03

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

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Introduction Throughout the semester, you will create an Android app named “CopenhagenBuzz.” This app is about sharing events in the Copenhagen area, like festivals and concerts. You will build it step by step, enhancing the app’s look each week and adding new features based on what you learn in class. You will turn in your finished app for a mandatory assignment at the end of the course. For Assignment #01, you must do the following tasks:

- ☐ The use of Android app resources such as strings, colors, and themes.
- ☐ The implementation of a minimum of two distinct UI screens.
- ☐ The use of explicit intents to initiate new activities within the application.

CopenhagenBuzz App Version 3 This week, you will expand the CopenhagenBuzz app V2 to include management for two separate activities: (i) **MainActivity**, the initial screen upon launching the app; and (ii) **LoginActivity**, utilized for user login or sign-up. Figure 1 illustrates the activities you will develop during this week.

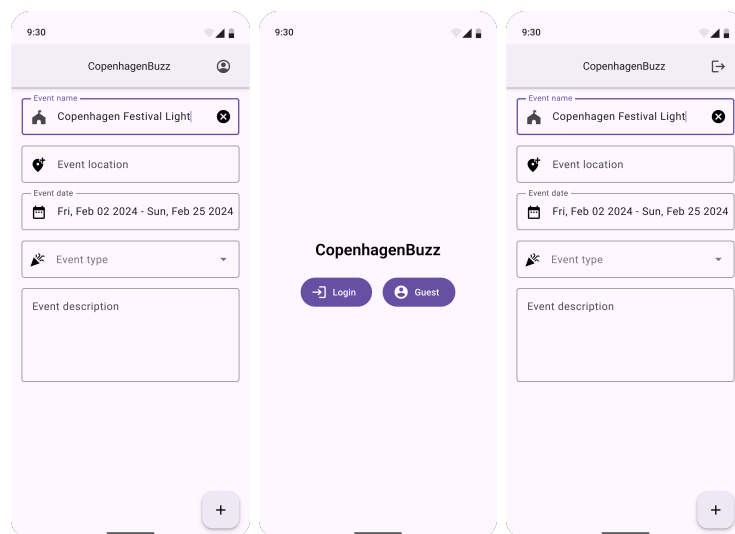


Figure 1: You will create these user interfaces for the CopenhagenBuzz app V3.

The goals you will achieve through this exercise include:

- Utilizing *Android App Resources* to create string resources, offering text strings for your application with optional text styling and formatting.
- Working with the fundamental Android component, Activities.
- Implementing explicit intents to initiate new activities and share data between two activities.

Exercise 03.01. *Using app resources* – In this exercise, you will learn to utilize “*Android App Resources*” to avoid hardcoded text attributes (such as colors and strings). This practice will be valuable when implementing multi-language options (e.g., Danish, English, Portuguese ☺) for your application in the future. For instance, instead of directly setting the `android:hint` attribute of `TextInputLayout` (the one called `text_field_event_name`) in `content_main.xml` to “Event name,” you can create a new string in `strings.xml` named `event_name` and use it instead. Refer to page 16 in Textbook #01¹ (Chapter 1, Your First Android Application) for detailed instructions on creating string resources. Additionally, you can utilize the `Inspect Code...` tool in the `Code` menu to identify all hardcoded text in your application.

Exercise 03.02. *Adding new activities* – In this exercise, you will incorporate a new activity into your CopenhagenBuzz app. This task mirrors the introduction of a second activity outlined on pages 113-135 in Textbook #01 (Chapter 7, Your Second Activity). For CopenhagenBuzz app V3, you will create a “*Empty Views Activity*” named `LoginActivity` and its corresponding XML file, `activity_login.xml`. Initially, you will mock a login system. Do not worry, you will implement a fully functional authentication system using Google Firebase Authentication during Exercise #07.

Exercise 03.03. *Implement the LoginActivity* – In this exercise, you will begin by designing a user interface corresponding to the one illustrated in Figure 1 (center). When the user taps the `Login` button, your app will initiate the second activity (`MainActivity`) while terminating the first activity (`LoginActivity`). You can alter your application’s starting point by editing the `AndroidManifest.xml` file and designating either `MainActivity` or `LoginActivity` as the launcher user interface as shown in Listing 1:

Listing 1: Using the `LoginActivity` as the application’s starting point.

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android">
```

¹Android Programming – The Big Nerd Ranch Guide

```

3  xmlns:tools="http://schemas.android.com/tools">
4  <application
5      android:allowBackup="true"
6      android:dataExtractionRules="@xml/data_extraction_rules"
7      android:fullBackupContent="@xml/backup_rules"
8      android:icon="@mipmap/ic_launcher"
9      android:label="@string/app_name"
10     android:roundIcon="@mipmap/ic_launcher_round"
11     android:supportsRtl="true"
12     android:theme="@style/Theme.CopenhagenBuzz"
13     tools:targetApi="31">
14     <activity
15         android:name=".activities.LoginActivity"
16         android:exported="true">
17         <intent-filter>
18             <action android:name="android.intent.action.MAIN" />
19             <category android:name="android.intent.category.LAUNCHER" />
20         </intent-filter>
21     </activity>
22     <activity
23         android:name=".activities.MainActivity"
24         android:exported="true"
25         android:theme="@style/Theme.CopenhagenBuzz" />
26 </application>
27 </manifest>

```

P.S.: Feel free to decide which activity you will use as your application’s starting point.

Exercise 03.04. *Updating the MainActivity* – In this exercise, you will add new functionalities to `MainActivity.kt` and `activity_main.xml` files. Add a “*top app bar*” displaying the app title as “CopenhagenBuzz” and a button to launch the `LoginActivity`. You will use explicit intent to pass a variable called `isLoggedIn` between the two activities. When the user logs in, `isLoggedIn` will be set to `true`, and when they log out or access the application as a `Guest`, it will be `false`. This variable will determine the user’s login status. If logged in, `MainActivity` will show a `Logout` button; otherwise, it will display a `Login` button. Figure 1 (right) illustrates the `MainActivity` when the user is logged in.