Work Plan #02

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

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Introduction to Kotlin Introduced in 2011 and open-sourced by JetBrains® (`https://www.jetbrains.com`) in 2012, Kotlin (`https://kotlinlang.org`) gained recognition in 2017 when Google officially endorsed it as a programming language for Android development, alongside Java and C++. While Kotlin, like any programming language, has its solid and average aspects, this week's primary goal is to promote a sense of familiarity with the language. During this week's exercise session, you will improve your Kotlin skills by creating small programs and refine your CopenhagenBuzz app. Explore advanced techniques for linking UI components with your Kotlin source code as shown in Lecture #02.

Mandatory Reading

1. Read Chapter 1 (*Your First Kotlin Application*), Chapter 4 (*Functions*), Chapter 7 (*Null Safety and Exceptions*) and Chapter 13 (*Classes*) of the Textbook #02 (*Kotlin Programming: The Big Nerd Ranch Guide Book*); and

2. Read the section on Android Developer website about developing Android apps with Kotlin, available on `https://developer.android.com/kotlin`, and the Kotlin Style Guide documentation on `https://developer.android.com/kotlin/style-guide`.

Optional Homework

3. Access the website `https://try.kotlinlang.org` and work your way through the following sections:

   - In the `Play -> Examples` section everything under:
     - `Introduction`
     - `Control Flow`
     - `Special Classes`
   - In the `Play -> Koans` section, try to solve the following puzzles:
     - `Introduction -> Named arguments`
     - `Introduction -> Default arguments`

- `Introduction -> Nullable types`
- `Classes -> Extension functions`
- `Conventions -> For loop`
- `Collections -> Sort`

4. Read the Kotlin manual in the comments above the code. You must study these examples before Lecture #02.

Main Exercise

5. Develop the exercises of the document "Exercise #02.pdf" available in the section "Lecture #02 (Introduction to Kotlin)" on learnIT.

Challenges During this week, your task is to enhance your CopenhagenBuzz project by incorporating the latest and most advanced techniques offered by the Kotlin programming language. These techniques will be covered in the upcoming lecture.

Technical Requirements for the Session The Kotlin compiler comes bundled with Android Studio. Still, suppose you wish to experiment directly with the Kotlin REPL (`kotlinc-jvm`) and run your programs as Kotlin scripts (`kotlinc -script <your_prg>.kts`). In that case, you can explore installing IntelliJ IDEA, a dedicated integrated development environment for Kotlin (`https://www.jetbrains.com/idea`). The community edition, which is free and based on the Apache 2 License, is available on the IntelliJ website.

Youtube Explore more about Kotlin through YouTube, where you will find three main types of videos:

- *Advertisements:* Some consultancies offer guidance to support your Kotlin journey and promote their business. Check out an example at `https://www.youtube.com/watch?v=F9UC9DY-vIU`.
- *Technical Overviews:* These videos typically run from half to one and a half hours. They provide an in-depth look at syntax, capabilities, and usage. You can start by checking this example at `https://www.youtube.com/watch?v=A2LukgT2mKc`.
- *Tutorials:* Specifically crafted for newcomers, these videos walk through various aspects of Kotlin. For a hands-on experience, explore a tutorial demonstrating how to create a simple Android app using Kotlin at `https://www.youtube.com/watch?v=QQa6Pt9AtRE`.