

# Mobile Interaction Summer 2024

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## Assignment 1

All exercises that are not explicitly declared as group tasks must be done individually and handed in individually. Identical submissions are treated as plagiarism. Plagiarism may lead to loss of exam bonus points.

You can submit the solution to this task in English or German until Wednesday, April 10, at 23:59 via <https://assignments.hci.uni-hannover.de>. Create a pdf file that contains the text and images of your solution, name it "Assignment-01-<Firstname>-<Lastname>.pdf", and save it together with the exported project (Android Studio: File → Export → Export to Zip File) in a single zip file. Your submission must consist of a single zip file containing all necessary files. The name of the .zip file, as well as the names of the contained files, **must not contain any umlauts**. Therefore, please resolve umlauts in file names.

### Exercise 1: Mobile Use Cases (8 points)

- Describe when you use mobile applications. What categories of applications do you use? What mobile devices do you use? In what situations and social contexts do you use these devices and applications? (3 points)
- Observe users of mobile applications in public spaces (e.g. at the train station, on the bus, while waiting). Which usage situations can you discover? Which social contexts can be identified? How long does the attention stay with the mobile device? (3 points)
- What negative experiences with mobile interactions have you already had (through your own use or the use of others)? What very positive experience have you had (in which the possibility of mobile interaction helped you a lot)? (2 points)

### Exercise 2: Mobile Use Cases in Developing Countries (4 points)

Many developing countries have very high growth rates in the distribution of mobile devices. By researching on the web, find out about mobile applications that have a high benefit especially for people in developing countries. Describe one concrete example and its benefits. In this example, are mobile devices primarily used as communication or information devices?

### Exercise 3: Install Android Studio (8 points)

The goal of this exercise is to set up a development environment for Android and to create a first example program.

Android apps run on the Java Virtual Machine (JVM) and used to be written in Java. The current development language is Kotlin, which is similar to Java. We assume that you are familiar with Java, but not necessarily with Kotlin. To get a quick overview of Kotlin in the context of Android, we recommend that you read the "Kotlin Bootcamp for Programmers":

<https://developer.android.com/courses/kotlin-bootcamp/overview>. You can try out individual snippets online at <https://play.kotlinlang.org>. For anything that is unclear, or if you want a more details, please refer to the Kotlin documentation: <https://kotlinlang.org/docs/home.html>.

- a) Install the latest release of the Android Studio IDE (Iguana, 2023.2.1 Patch 1) from <https://developer.android.com/studio>. If you already have Android Studio installed, please make sure to update the IDE and the Gradle plugin to the latest version. Otherwise, the tutors may have a hard time running your code.
- b) Do the "Building Your First App" tutorial at <https://developer.android.com/codelabs/basic-android-kotlin-compose-first-app#0> and use it to create a simple "hello world" app based on the "Empty Compose Activity". Modify the app so that it prints your name. Create a new Android Studio project. Use a proper application name, e.g. "MyFirstApp", and package name, e.g. "de.luh.hci.mi.myfirstapp". If you get an error compiling the project like "Android Gradle plugin requires Java 11 to run." then go to Android Studio Settings > Build Tools > Gradle JDK and choose "Embedded JDK" or another JDK with Java 11 or later. (2 points)
- c) Have a closer look at the file MainActivity.kt. Which method is the entry point of the app? What is a Modifier? What is @Composable? What is @Preview? (4 points)
- d) Create an Android Virtual Device (AVD) for a "Pixel 3 XL API 27" (Android 8.1). If you have an Android device with another version, create an AVD for this Android version as well. In case of problems, here is how to install the Android emulator: <https://developer.android.com/studio/run/emulator>  
Start your app in the emulator. Your submission must include the exported project files and a screenshot of the application running in the emulator. (2 points)

**Exporting a project:** Compress your project using the Android Studio function

Datei / File -> "Als Zip Datei exportieren" / "Export to Zip File".