

II.3510 Mobile Development

General information

Mobile development Module ID: II.3510 ECTS : 5 Average amount of work per student: 120h to 150h (42h supervised hours) Teamwork: Yes Language: English Keywords: Mobile Applications, Android, WEB Services

Presentation

Every year, tens of thousands of mobile applications are released on the App Store or Google Play Store. In the world where the “mobile-first” has imposed itself (just look at the success of platforms created for mobile devices such as Instagram or Uber), it has become essential for a computer engineer to have notions of mobile application development but also to understand how to build a computer architecture for this type of application.

In this module, we will focus on the development of native applications for Android. We will see how to organize the interface of our application, or how to navigate from one screen to another while passing information. More importantly, we will also learn how to use the data made available on the web through third-party APIs (e.g. Google Maps)

Prerequisites

- It is compulsory to know the Java programming language
- Although non-essential, basic knowledge about XML, Git, and Gradle (or Maven) will allow you to better organize yourself when developing your mobile application for Android.
- It is possible to follow this module without owning an Android smartphone. You will be able to perform tests with the simulator offered by Android Studio.

Content/Program

The module is divided into: 50% course and 50% Lab/Project.

During class hours, the notions and concepts of mobile development and Android programming are presented. The objective of these course hours is to introduce the necessary elements so that the Labs/Project hours can start quickly. Some sessions are also devoted to the description of the architecture of mobile terminals, in order to bring in this module a hardware and software vision.

At the beginning of the course, students will have to form teams, and quickly write functional specifications describing their application idea to be developed. The teacher will validate or not these specifications according to its difficulty of realization.

During labs, students work as a team on the development of the mobile application of their choice. The teacher will be available to provide, if necessary, additional advice during the design and programming phase.

Concepts

The understanding of The following concepts is an objective of the module :

- Architecture of an Android application
- Concept of Activity and life cycle of an Activity
- Consumption of web services
- Using third-party APIs to simplify traditional feature development

Tools used:

- Android Studio
- Android SDK
- Android Volley
- Firebase

Assessment procedures

Students form groups of 4-5 and work in project mode. The assessment covers:

- A final presentation and demonstration of the developed application (40%)
- The source code of the application (40%)
- A 20-page report outlining the features and justifying the technical implementation (20%)

Bibliography- Webography – Other resources

- Documentation officielle Android : <https://developer.android.com/index.html>
- Documentation officielle Firebase : <https://firebase.google.com/docs/>
- Documentation officielle Gradle : <https://docs.gradle.org/4.3/userguide/userguide.html>