Mobile App Development for Android and iOS

Course Overview

Mobile application development has become an exciting skill and a lucrative career. Our lives are enriched by apps like WhatsApp, Uber, Careem, FoodPanda and so on. In this course, you will learn to make apps similar to your favourite app. The course assumes no prior knowledge of programming. Everything that is needed will be taught, and practiced in the course. Ideal candidates are people looking to learn a highly employable skill, or people looking to move from allied fields like digital marketing or web development, or business people who plan to make or supervise mobile apps development, or app developers who want to learn Flutter or Firebase.

Learning Outcomes

At the end of this course, students will be able to independently make a small mobile app for android and iOS that makes use of database, with due regards and appreciation of analytics tracking, user authentication, app notifications, design principles, user experience, mobile app marketing, user engagement and growth, and monetization. Students will also be encouraged on how to find job placements and/or part-time work in app development field.

Technologies used

1) Flutter: We will be using Flutter platform that enables one to make apps for android, iOS and web easily (although we won't focus much on web in this course but students can later on use the skills learned in the course to publish the same apps to web as well).
2) Firebase: Firebase is Google's platform for database, analytics tracking, user authentication and app notifications which is most suitable for the requirements of a modern mobile app

Course outline

1) Components of any software program: Client, server (or backend), database, programming languages
2) Examples of useful mobile apps from different genres that students might be familiar with
3) Basics of a programming language: variables, data types, loops, conditional statement (if-else statements), functions, object-oriented concepts, synchronous and asynchronous code, callbacks. Common programming errors e.g. infinite loops.
4) Practice of #3 in a web-based coding lab
5) *Quiz 1: on #3*
6) Downloading pre-requite software to student's computers, namely: Flutter, IDE (Android Studio or Visual Studio Code), and Xcode (optional)
7) Making of a hello world app

8) Making a to-do list app without database using concepts learned in #3

9) Database: using firebase as a database. Learning CRUD: Create, Read, Update and Delete operations on a database. Brief appreciation of different types of databases options that are available and their suitability for different needs.

10) Using database operations learned in #9, save and retrieve the to-do list items created in #8.

11) Importance of unit testing of the software as we write it

12) *Assignment 1: Each user will make a small 2-3 screen app of their choice that makes use of database*

13) *Guest Talk: on User Experience design*

14) Creating a common type of mobile app e.g. ecommerce app, food delivery app, chat app
   i) Conceiving core features and sketching the UI design of the app
   ii) Creating the UI in flutter
   iii) Connecting UI to the database
   iv) Logging analytics events, creating appropriate notifications etc.
   v) Thorough testing of the app and making appropriate changes

15) *Guest talk: on creating mobile game apps*

16) Continuously improving the app by taking aid from tools like Crashalytics, human testers and user feedback. Make sure most mobile models and mobile sizes continue to have great user experience. Will show examples from my live commercial mobile apps.

17) Stressing the importance of collaboration with other people, for example UX designers, backend (server) developers, other mobile developers, businesspeople, marketing people etc.

18) *Guest talk: by a successful mobile app developer who has a diverse portfolio of mobile apps*

19) Preparation and discussion of final project, and allowing the students to make groups if needed

20) Delivering the final project and grading and discussion of the project

21) Class on finding work opportunities in software companies, as a freelancer (on Upwork for example), or as an independent entrepreneur

22) *Guest talk: By someone in a leadership and influential position in the tech or entrepreneurship*

Pre-requisites
1) Matric / O Level Maths.
2) Ability to use computers

Frequently Asked Questions

Q: What languages will we learn in this course?
A: Flutter. We believe, learning just one platform (Android or iOS) as a beginner is limiting yourself too much. That is why we have chosen Flutter for this course so that the apps you make can work on Android as well as iOS. We also use Firebase as a backend service.

Q: Will I learn to make android apps or iOS apps, or both?
A: This course is taught in Flutter, a hybrid platform. Thus, your apps will work on both android as well as iOS devices. In act with a little more effort, the same app can work on web as well.

Q: Do I need to have a laptop or desktop computer is fine?
A: As long as you have a working computer with 8 GB or more of RAM, you will be fine.

Q: I have no background in computer science, can I do this course?
A: Absolutely. We cover everything from scratch and build from grounds up. Many successful app developers have no formal background in computer science, or any sciences for that matter.

Q: I am weak in Maths, can I successfully complete this course?
A: Yes. Basic logic is needed to do app development. We will cover this, and you will have plenty of opportunities to improve.

Q: If I do well in the course, will you help me in finding part-time or full-time job?
A: Yes. We will help connect students with potential employers and find suitable job placement.