Specialised Programme on Mobile App Development- Spanish (2 Weeks)

Pre-requisite

- Knowledge of Java programming language

Aim

The aim of a specialized program in Android app development is to equip learners with the technical skills and practical experience needed to design, build, and deploy high-quality Android applications. The program focuses on mastering java, utilizing Android Studio, and understanding the Android SDK and APIs.

Learners will gain expertise in creating intuitive user interfaces (UI/UX), integrating device hardware, implementing secure and scalable backend connections, and optimizing app performance.

With an emphasis on project-based learning, the program prepares individuals for real-world challenges in Android development, empowering them to create innovative solutions and succeed as professional Android developers.

Objectives

- Build interactive Android apps with navigation, storage, and networking.
- Work with Firebase for authentication and data storage.
- Understand how to use Material Design principles to create polished UIs.
- Be ready to deploy and publish their apps to the Play Store.

Course Contents

Introduction of Mobile App Development
Introduction of Mobile platforms for App Development
Introduction to Android Operating System

- History
- Various versions of Android
- Why develop for Android?

Setting up Android App development Environment

- Downloading JDK and Android studio
- Installing and configuring Android Studio
- The Developer workflow
- Hello World! – Android

Understanding an Android Studio Project

- Various folders in Android studio project
- Intro to Android Manifest.xml
- Intro to res folder
- What is Gradle?
- Various aspects of build.gradle file

Introduction to Fundamental Components of Android OS

- Activity
- Service
- Content Provider
- Broadcast Receiver

Activity

- What is an Activity?
- Activity Life Cycle
- Various states and lifetimes of an Activity
- Starting an Activity

Intent

- What is an Intent?
- Various uses of Intent
- Intent: An IPC mechanism
- Types of Intent
- Implicit intent
- Explicit intent

Context

- What is Context?
- Various uses of context
- Data sharing using Intent
- Sharing objects using Intents

Android UI Design

- What is a View, View Group and Layout?
- Android View System

Android Layouts

- Linear layout
- Relative layout
- Frame layout
- Constrained layout
- Various View attributes
- Button, TextView and EditText
- Various UI Events and Event listeners
- ScrollView
- Spinner
- Checkbox
- Radio Button
- Date and Time Pickers
- Switch and Toggle
- ImageView

Menus and Pop ups

- Contextual Action Modes
- Pop up Menu

Fragment

- What is a Fragment?
- Creating a Fragment
- Fragment Life Cycle
- Communication between Fragment and Activity
- Fragment Transactions: Add, Replace, and Remove fragments
- Master Detail View using Fragments
- Types of Fragments
- Dialog Fragment
- List fragment

Introduction to Material Design

- What is Material Design?
- Adding material design support to your App
- Material design colour scheme and Themes

Introduction to RecyclerView

- ListView vs RecyclerView: Advantages of RecyclerView
- Implementing RecyclerView.Adapter class
- Implementing RecyclerView. ViewHolder class
- Handling click events in RecyclerView
- Floating Action Button
- SnackBar

Android Storage

- Storing data in Shared Preferences
- Storing organized Data into SQLite DB
- Content Values and Cursors
- CRUD operations on SQLite DB
- Searching from table in SQLite DB

Deployment and Publishing

- Debugging and Testing
- Using Logcat for debugging.
- Testing apps on emulators and physical devices.
- Preparing for Publishing
- Creating a signed APK.
- Steps to upload the app to the Google Play Store.