



# Android with Java Training Curriculum

## STRUCTURE



## Android with Java Training Curriculum

*“Learn Android Development, Java & Android Studio from Scratch.”*

### **Course Objectives:**

- Learn Android development, Java programming and Android studio from scratch
- Learn Java programming from a professional trainer from your own desk
- Create fun, engaging and real-world Android apps (using Java) you can show to your friends and family
- Learn how to work with APIs, web services and advanced databases
- Visual training method, offering users increased retention and accelerated learning
- Have all the tools you need to successfully design, code and sell your Android apps
- Breaks even the most complex applications down into simplistic steps
- Upload your android apps to the Google play and reach millions of android users
- Learn to build various Android and Java apps from scratch

### **Course Description:**

This “Android with Java” Training Course teaches you how to program core features and classes from the Java programming language that are used in Android, which is the dominant platform for developing and deploying mobile device apps.

In particular, this training program covers key Java programming language features that control the flow of execution through an app (such as Java’s various looping constructs and conditional statements), enable access to structured data (such as Java's built-in arrays and common classes in the Java Collections Framework, such as Array List and Hash Map), group related operations and data into classes and interfaces (such as Java's primitive and user-defined types, fields, methods, generic parameters, and exceptions), customize the behavior of existing classes via inheritance and polymorphism (such as subclassing and overriding virtual methods).

Learners will apply these Java features in the context of core Android components (such as Activities and basic UI elements) by applying common tools (such as Android Studio) needed to develop Java programs and useful Android apps.

### **Course Content Overview:**

- Module 1: Install & Setup Software for Android App Development
- Module 2: Java Fundamentals
- Module 3: Advanced Java Concepts
- Module 4: Android Studio IDE
- Module 5: App Visuals Designing
- Module 6: Debugging Errors
- Module 7: Activities and Navigation
- Module 8: Recycler Views and Android Layouts
- Module 9: Android Media Player
- Module 10: Storage in Android/HTTP Requests
- Module 11: Firebase and Google Maps
- Module 12: Create your first Android App
- Module 13: Upload/Publish Apps to Google Play
- Module 14: Placement Guide

## Course Content:

### Module 1: Install & Setup Software for Android App Development

- Introduction to Java
  - History of Java
  - Why do you need Java?
  - Java with Android significance
  - Android with Java Course Objectives
  - Java Applications and features
  - Java Installation Guide
- For Windows
  - Install JDK on Windows
  - Install IntelliJ on Windows
  - Install Android Studio on Windows
- For MAC OS
  - Install JDK on MAC OS
  - Install IntelliJ on MAC OS
  - Install Android Studio on MAC OS
  - Troubleshooting Tips

### Module 2: Java Fundamentals

- Learn About Java Language
- Java Compilation Process
- Introduction to Variables
- Integers and Concatenation
- Variables - Floats, Chars, Doubles and Shorts
- Variables - Booleans
- Java Basic Operations
- Relational Operators and If Statements
- Java Compilation Process
- Logical Operators and If Statements
- For and While Loops
- Introduction to Methods and Parameters
- Introduction to Methods and Return Types in Java

### Module 3: Java Advanced

- Introduction to Classes and Objects
- Create a class in Java
- Java Access Control
- Instance or Member Variables
- Java Access Modifiers
- Introduction to Constructors
- Overloading Constructors
- Inheritance in Java
- Java Polymorphism

- The Java Class Library
- Interfaces in Java
- Data Structures in Java
- Using Arrays
- Array List and HashMap in Java

#### **Module 4: Android Studio IDE**

- Android Studio IDE Overview
- Install Android Studio
- Run Android Studio
- Android File Structure
- XML Files - Android User Interface & Constraint Layout
- Android Studio - User Interface & XML Properties
- The R.java File
- String.xml
- The Manifest.xml File

#### **Module 5: Designing App Visuals**

- Text Views & Buttons
- Meters to Inches
- Random Colors in App
- Radio Buttons
- Seek bar
- Toggle Buttons
- Checkbox
- Alert Dialogs

#### **Module 6: Debugging in Java**

- What is Debugging?
- Debugging Syntax Errors
- Breakpoints and Logging
- Log Class
- Context in Android and Toast Class

#### **Module 7: Activities and Navigations**

- What is an Activity?
- Activity Life Cycle
- Navigations Overview
- Navigating Among Activities
- Navigate to a Different Activity
- Passing Data Between Activities
- Passing Data Back to First Activity
- Switching Activities

- Putting Extra
- Using Shared Preference
- List Activities with Custom Layouts
- List Activities with Custom Adapters
- Displaying multiple items in a List View

## **Module 8: Recycler Views and Android Layouts**

- Introduction to Recycler Views
- Create your first Recycler View
- Add Event Listener to Each Row
- Tap Show and Show Another Activity
- Deeper look at Android XML Layouts
- Linear Layout
- Relative Layout
- Table Layout
- Scroll View
- List View
- Android Styles Layouts
- Android Themes

## **Module 9: Android Media Player**

- Frame Animations
- Fading Animation
- Android Media Player Introduction
- Playing Audio with the Media Player
- More Audio Options
- Playing Video with the Media Player
- Recording and Storing Audio Content
- Build a Music Player: The Music Box

## **Module 10: Storage in Android/HTTP Requests**

- Storage in Android
- Internal Storage
- External Storage
- Web Communication and Storage
- Read/Write Text file
- Database Introduction
- SQLite in Android
- Introduction to HTTP Requests
- Networking Concepts
- Android Library
- Volley - JSON Array Request
- Volley - String Request
- Volley - JSON Object Request

## Module 11: Firebase and Google Maps

- Introduction to Cloud-based Services
- Login and Authorize
- Sign-in with Email
- Create Accounts
- Introduction to Google Maps
- What is Location-based apps?
- Add multiple markets to map
- Getting Current Locations
- Update Locations
- Introduction to Geo encoding
- How to get addresses?
- What is Parsing?
- How to use parsing in android apps?

## Module 12: Create your first Android App

- Create Hello World App
  - The Hello World Application
  - Working with the Emulator
  - Strings and Drawable
  - Introduce the Manifest
  - Understand the Activity Lifecycle
- Creating Listeners
  - Listeners Using an inner class
  - Listeners Using an interface
  - Listeners by Variable Name
  - Long Clicks
  - Keyboard Listeners
  - Understand Containers
  - List View
  - Work on Layouts
- Android Widgets
  - Custom Buttons
  - Toggle Buttons
  - Checkboxes and Radio Buttons
  - Spinners
  - Autocomplete Text Box
  - Map View
  - Web Views
  - Time and Date Pickers
- Integrating Web Services
  - Text Based Web Services
  - Sending data to a Web Services
  - Integrating a JSON based web service
- Creating Home Screen Widgets

- Creating the Widget Background
- Placing and Updating the Widget
- Events on the Widget
- Drawing and Animation
  - The Android Drawing API
  - Animation with XML
  - Programmatic Animation
- Geolocation
  - Determining Location
  - Integrating Google Maps
- Camera Hardware
  - Taking Pictures and Saving in the Album
  - Recording Video Content

### **Module 13: Upload/Publish Apps to Google Play**

- How to create a Google Developer Account?
- Create Icons
- Application Metadata
- Take Screenshots of your App
- Packaging your App
- Versioning your Apps

### **Module 14: Placement Guide**

- Tips to clear an Interview
- Common Interview questions and answers
- Android Interview Questions and Answers
- Resume Building Guide
- Attempt for Java Global Certification Exam
- Start applying for Jobs