

# Google - Associate Android Developer

**Course Duration: 40 Hours**

**Course code: G-AAD**

## 1. Course Overview

The Google Associate Android Developer certification validates the skills of an entry-level Android developer. This course prepares participants with the knowledge and hands-on practice required to build, test, and debug Android applications using Java or Kotlin in Android Studio. Learners will also prepare for the performance-based exam covering app fundamentals, UI, data management, debugging, and testing.

## 2. What you'll learn?

- Understand the Android app components and lifecycle.
- Build responsive and interactive UIs.
- Work with data persistence (Room, SQLite, SharedPreferences).
- Use networking and REST APIs.
- Write unit tests and UI tests with JUnit and Espresso.
- Debug, optimize, and troubleshoot Android apps.
- Prepare and practice for the Google Associate Android Developer exam.

## 3. Target Audience

- Beginners and intermediate developers aiming for Google Associate Android Developer certification.
- Students and IT professionals pursuing a career in Android development.
- Developers transitioning from other platforms (Java, .NET, Web) into Android.

## 4. Pre-Requisites

- Basic programming experience in Java or Kotlin.

- Familiarity with object-oriented programming (OOP).
- Exposure to mobile app concepts (preferred).
- Android Studio installed with emulator or device access.

## 5. Course content

### 1. Hello Android

- Introduction to Android
- Android Flavors
- Android OS Architecture
- Gradle Build System
- Setting up Android Development Environment
- System Requirements
- Android Studio Installation
- Creating the First Android Application
- Understanding Project Hierarchy

### 2. User Interface & Event Handling

- Layouts & Views
- Resources
- User Input Control
- List View and Scrolling Views
- RecyclerView & Card View
- Themes & Styles
- Material Design
- Providing Resources for Adaptive Layouts
- Dialogs – Alert, Progress, and Custom
- Floating Action Button (FAB)
- Localization

### 3. Activities and Intents

- Activity Lifecycle
- Activity State
- Explicit Intent
- Implicit Intent
- Intent Resolution

### 4. Exploring Action Bar

- Accessing the Action Bar
- Option Menus
- Context Menus
- Popup Menus
- Navigation Drawer
- Tab Navigation
- Swipe View with View Pager

### 5. Broadcast Receivers & Notification

- Broadcast Receiver
- Sending a Broadcast

### 6. Services

- Creating Receiver
- Registering Broadcast Receiver
- Notification
- Integrating Notification with Broadcast Receiver
- Service Fundamentals
- Types of Services
- Service Declaration
- Creating a Service
- Extending Service Class

- Starting a Service
- Stopping a Service
- Creating a Bound Service
- Service Lifecycle

## **7. Fragments**

- What is a Fragment?
- Creating a Fragment
- Fragment Lifecycle
- Handling Fragment Events
- Fragment Communication

## **8. Background Tasks & Networking**

- AsyncTask
- AsyncTask with Progress Bar
- Android Networking
- Connecting to the Internet using AsyncTask
- Downloading an Image using AsyncTask
- Alarm Manager
- Job Scheduler
- Thread Handlers
- Introduction to REST Web Services
- Consuming REST Web Services

## **9. Data: Saving, Retrieving, Loading**

- Shared Preferences
- Setting & Retrieving Shared Preferences
- SQLite
- Storing Data using SQL in SQLite Databases
- Content Providers

- Sharing Data between Apps using Content Resolver

## **10. Maps with Android**

- Google Maps Android API
- Adding a Map to an Application
- Displaying User's Current Location
- Changing Map Type
- Map Gestures
- Map Markers

## **11. Testing Application**

- Using Logcat for Debugging
- Android Debugger Tool
- Android JUnit Testing
- Testing User Interface
- Espresso Testing

## **12. Application Deployment**

- Signing an Application
- Developer Console
- Deploying an App on Google Play