

# **Google for Developers** Android Basics with Compose course process document

# This process document will guide you in

- How to sign in (Registration)?
- Guide you to access the course
- How you can create your profile
- Create the custom web address

# Part-1 Registration

## Step: 1 Click on the link given below: https://developer.android.com/



### Step: 2 Click on Sign In



## **<u>Step: 3</u>** Enter Gmail ID and Click on Next.



## **<u>Step: 4</u>** Enter Password and Click on Next.



## **Registration Completed**



# Part-2 Course Enrollment

### **<u>Step: 5</u>** Click on the course link given below:

## https://developer.android.com/courses/android-basics-compose/course



#### Course goals

- Understand the fundamentals of Kotlin and Jetpack Compose
- Build a series of basic Android apps
- Use Android app architecture, Jetpack libraries and work with data according to Modern Android Development practices



#### Prerequisites

- Basic computer skills
- Basic math skills
- A computer that can run Android Studio (see system requirements)
- (Optional) Android device



## Step: 6 Click on Start course



# Android Basics with Compose

Android Basics with Compose is a self-paced, online course on how to build Android apps using the latest best practices. It covers the basics of building apps with Jetpack Compose, the recommended toolkit for building user interfaces on Android.



Course goals

Prerequisites

### **Step: 7** Observe the pathways provided, scroll down to explorer the pathways



Set up Android Studio

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introductory programming on

### **<u>Step: 8</u>** Click on Explorer option under pathway and complete the pathway to earn badges





Learn programming basics and create your first Android app.

- · Write simple Kotlin programs that display text output.
- Download and install Android Studio.
- Build an Android app with a simple user interface that displays text and images.
- · Run the app on a device or emulator.



#### Introduction to Kotlin

Pathway 1 | Duration: 3 hours Learn introductory programming concepts in Kotlin.



### Setup Android Studio

Pathway 2 | Duration: 4 hours

Install and set up Android Studio, create your first project, and run it on a device or emulator.



### Build a basic layout

Pathway 3 | Duration: 3 hours

Build an Android app with a simple user interface that displays text and images.

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Continue learning the fundamentals of Kotlin, and start building more interactive apps.

- Use conditionals, function types, classes, and lambda expressions in Kotlin.
- Understand how composition and recomposition works.
- · Add a button to an app UI and respond to user taps.
- Create an app that works with data entered by the user.
- · Learn how to use state to display data and reflect the changes automatically when the data gets updated.
- Write unit tests to test isolated functions.



#### Kotlin fundamentals

Pathway 1 | Duration: 8 hours Learn more fundamentals of Kotlin, object-oriented programming, and lambdas.



#### Add a button to an app

Pathway 2 | Duration: 6 hours Learn how to respond to a button click in an Android app.



#### Interacting with UI and state

Pathway 3 | Duration: 7 hours

Create a tip calculator app that calculates the tip from user input.

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### Unit 3: Display lists and use Material Design

3 Pathways | Duration: 15 hours

Build apps that display a list of data and learn how to make your apps more beautiful with Material Design.

- Use data classes, functions, and collections in Kotlin.
- · Create a scrollable list in an app that displays both text and images.
- Add click listeners to interact with list items.
- Add an app bar to the app and modify the app theme.
- · Use Material Design to build modern and intuitive user interfaces, using colors, shapes and typography.



### More Kotlin fundamentals

Pathway 1 | Duration: 8 hours

Learn additional Kotlin programming concepts that will enable you to build more interesting and fun Android apps.



#### Build a scrollable list

Pathway 2 | Duration: 4 hours

Create an app that displays a scrollable list of text and images using Compose.



#### Build beautiful apps

Pathway 3 | Duration: 3 hours

Make your apps more beautiful and intuitive to use with Material Design, animations, and accessibility best practices.



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Unit 4: Navigation and app architecture 3 pathways | Duration: 27 hours



Learn the best practices of app architecture to build more complex apps. Enhance your users' ability to navigate across, into and back out from the various screens within your app for a consistent and predictable user experience.

- · Explain activities and their lifecycles.
- · Understand Modern Android architecture.
- · Use StateFlow and UDF pattern to work with state and events.
- · Add a ViewModel to save data and state.
- · Set up and use the Navigation component with Compose.
- · Understand what responsive UI is.
- · Use window class sizes to build for different screen sizes.
- · Add a navigation drawer to an app.



#### Architecture Components

Pathway 1 Duration: 9 hours

Learn about app architecture and how to use ViewModels, UI State, and StateFlow to build more complex apps.



#### Navigation in Jetpack Compose

Pathway 2 | Duration: 6 hours

Learn how to use the Navigation component to build more complex apps with more screens and how to navigate and pass data between different composables.



#### Adapt for different screen sizes

Pathway 3 | Duration: 13 hours

In this pathway, you'll learn how to adapt your app to different screen sizes and provide a better user experience, as well as how to test your adaptive UI. v

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### Unit 5: Connect to the internet 2 Pathways | Duration: 14 hours



Use Kotlin coroutines to perform multiple tasks at once, and learn about HTTP and REST to get data from the internet using Retrofit. Then use the Coil library to display images in your app.

- · Describe the basics of concurrency and how to use coroutines in an Android app.
- Define and understand the data layer in Modern Android app architecture.
- Implement a repository to centralize data access.
- Use Retrofit to retrieve data from a remote server.
- Load and display images using the Coil library.
- Implement dependency injection to decouple the classes, making it easier to test, maintain, and scale the app.



### Get data from the internet

Pathway 1 | Duration: 6 hours

Implement coroutines to perform tasks concurrently without blocking the app, and learn about HTTP and REST to get data from the internet.



### Load and display images from the internet

Pathway 2 | Duration: 3 hours

Apply architecture best practices to the app and use Coil to download and display images.

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Learn how to store data locally on the device and keep your apps working through any network disruptions for a smooth and consistent user experience.

- Learn the basics of SQL to insert, update, and delete data from a SQLite database.
- Use the Room library to add a database to an Android app.
- Use Database Inspector to test and debug database issues.
- Use Preference DataStore to store user preferences.



### Introduction to SQL

Pathway 1 | Duration: 2 hours Learn how to use SQL to read and manipulate data in a relational database.



#### Use Room for data persistence

Pathway 2 | Duration: 6 hours

Use the Room library to easily create and use relational databases in an Android app.



### Store and access data using keys with DataStore

Pathway 3 | Duration: 2 hours

Learn how to store simple, key-value pair data with Preferences DataStore in an Android app

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Unit 7: WorkManager 1 Pathway | Duration: 6 hours

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Use Android Jetpack's WorkManager API to schedule necessary background work, such as data backups or fresh content downloads, that keeps running even if the app exits or the device restarts.

- Define long running tasks that need to run in background work.
- Add WorkManager to an Android app.
- Create a Worker object and enqueue work.
- Create constraints on WorkRequests.
- Use the Background Task Inspector to inspect and debug WorkManager.



### Schedule tasks with WorkManager

Pathway 1 | Duration: 3 hours

Learn when and how to use WorkManager, an API that handles background work that needs to run regardless of whether the application process is still running.

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Unit 8: Views and Compose 2 Pathways | Duration: 4 hours

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Learn how to use Compose and the older UI toolkit based on Views side-by-side in the same app. In this unit, you will learn interoperability APIs and best practices to add a new feature to an existing app in Views, use an existing library that uses Views, or use a UI component that is not yet available in Compose.

- Understand the View-based UI toolkit and build app UI using XML.
- Add a composable in an app built with Views.
- Add Navigation component to the app and use it to navigate between fragments.
- Use AndroidView to display views.
- Add existing View-based UI components in a Compose app.



### Android Views and Compose in Views

Pathway 1 | Duration: 3 hours

Learn the basics of building apps with Android Views and how to add a composable in an app built with Views.



### Views in Compose

Pathway 2 | Duration: 1 hours

Learn how to add and use existing Views inside an app built with Jetpack Compose.



1. There are 8 units in Android Basics with Compose course.

2.Open 8 units and explorer the pathways to complete the course.





Introduction to Kotlin



Set up Android Studio



**Build a basic layout** 









**Kotlin fundamentals** 

Add a button to an app

Interact with UI and state









More Kotlin fundamentals

**Build a scrollable list** 

**Build beautiful apps** 





**Architecture Components** 



Navigation in Jetpack Compose

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Adapt for different screen sizes

# Unit-5



Get data from the internet



Load and display images from the internet

# Unit-6



Introduction to SQL



Use Room for data persistence



Store and access data using keys with DataStore

Unit-7



### Schedule tasks with WorkManager

# Unit-8



### **Android Views and Compose in Views**



**Views in Compose** 

# **PART-3 Google Developer Profile**

### **Step: 9** Click on the options as show below.



# Android Basics with Compose

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Start course

Course goals

Prerequisites

## **Step: 10** Select dashboard.



Prerequisites

## Step: 11 Click on My Profile option.



### Your activity <sup>®</sup>

Your activity across Google developer sites and events.

#### Updated page



### **Step: 12** Click on **Settings icon** option.



Step: 13 Enter your name and match it with the certificate upload profile name as shown below. Make sure to add space between your first name, Middle name and the last name.



## **Step: 14** Verify the details. [EXAMPLE]



# **PART-4 Create Custom Web Address**

Steps to make Google Developer Profile Public

## Step: 15 Click on Settings option.



## **Step: 16** Click on **Account** tab.



Participate in Dory Q&A In order to participate you'll be added into a google group with access to Dory, our Q&A system for

### Step: 17 Click on Public radio button. Please don't select Private radio button



Close account

## **Step: 18** Enter **your name & college name** as shown below and click on **save option**.

Google for Developers Pro	ducts  Solutions Events Developer Profile More	Q Search	💮 English 👻	(I) P
Dashboard Saved Pages My Profile	My Community Settings Help			
	Profile privacy settings			
	Private Your profile is only visible to you and is not accessible publicly. Please note that if you a an application to access your profile data, that application will be able to view your priva data. Public Your profile, including name, biography, avatar image, pronoun, location and social links publicly to anyone. Learn more.	authorize ate profile		
	Set custom web address			
	Choose a unique profile web address when you make your profile public.			
	yourfullname_collegename	Save		
	3-30 characters. Must contain a letter and no spaces,			



Step:18 - Creates a google developer custom address(Google Developer Profile URL) to show case the google badges on online webpage.

# <u>URL would be</u>: https://g.dev/ravikumar\_ramcollege

Search the URL in google to see the profile and share it for internship evaluation.

Above given example doesn't exist

# How to get AICTE internship certficate ?

- Ans: Follow the steps given below:
- 1. Open the given link.

## LINK: <a href="https://internshipadmin.eduskillsfoundation.org/">https://internshipadmin.eduskillsfoundation.org/</a>

2. Enter the AICTE internship registered mail ID and submit the Public Google Developer profile URL.

Note: Make sure you have earned all the badges as shown in above pages.





www.eduskillsfoundation.org



