

● Week 1 — Getting Started with Android & Kotlin

- What is Android? Versions, architecture, and ecosystem
- Android Studio installation and setup
- Emulator vs real device testing
- Android project structure (manifest, res, java, gradle)
- Introduction to Kotlin programming
 - Variables, data types, and operators
 - Basic input/output
 - Conditionals and loops

Hands-On:

- Create “Hello World” app
- Write simple Kotlin console programs (sum calculator, loops)

Mini-Project:

- ☒ *Simple Calculator App* (basic arithmetic in Kotlin)

Week 2 — Kotlin Fundamentals & Android UI Basics

- Functions and parameters
- Classes, objects, and inheritance
- Collections (Lists, Sets, Maps)
- Android Layouts (LinearLayout, ConstraintLayout, FrameLayout)
- Views: TextView, EditText, Button, ImageView
- XML basics and view hierarchy

Hands-On:

- Design static UI with XML
- Handle Button clicks using `setOnClickListener()`

Mini-Project:

- ☒ *Login Screen UI* (Email + Password fields, Login button, Toast message)


Week 3 — Activities, Intents & App Navigation

- Activity lifecycle (`onCreate`, `onStart`, `onResume`, etc.)
- Explicit & Implicit Intents
- Passing data between Activities (`Intent.putExtra`)
- Back navigation & finishing activities
- Toasts, Snackbars, and basic dialogs

Hands-On:

- Create multiple screens (e.g., Home → Profile → Settings)
- Share data via Intent

Mini-Project:

-  *User Profile App* (enter data on one screen, show details on another)


● Week 4 — Lists & RecyclerView

- RecyclerView introduction
- Adapter & ViewHolder pattern
- LayoutManager (Linear, Grid)
- Click listeners for list items
- CardView design

Hands-On:

- Display static data list
- Load data from Kotlin model classes

Mini-Project:

-  *Contact List App* (display name, phone, and image in RecyclerView)


● Week 5 — Data Storage (SharedPreferences, SQLite, Room)

- SharedPreferences for simple key-value storage
- SQLite Database basics
- Room Database setup (Entities, DAO, Database class)
- CRUD operations (Create, Read, Update, Delete)

Hands-On:

- Save user preferences (dark mode toggle, etc.)
- Build Room database

Mini-Project:

-  *Notes App* (add, view, delete notes using Room DB)


● Week 6 — Networking & APIs (Retrofit + JSON)

- What is REST API
- Understanding JSON
- Retrofit library setup
- GET requests and parsing JSON
- Displaying API data in RecyclerView
- Handling errors and loading states

Hands-On:

- Call a public API (like OpenWeather or News API)
- Display response data in a list

Mini-Project:

-  *Weather App* (fetch current weather data using OpenWeather API)
- Jetpack overview


Week 7 — Jetpack Components & Modern Android

- ViewModel and LiveData
- Navigation Component
- Fragments (replacing multiple activities)
- BottomNavigationView
- ViewBinding & DataBinding

Hands-On:

- Convert multi-activity app to Fragment-based navigation
- Use LiveData for dynamic UI updates

Mini-Project:

-  *News App* (multiple fragments for categories, using ViewModel + LiveData)


Week 8 — Firebase, App Deployment & Final Project

- Firebase setup in Android Studio
- Firebase Authentication (Email/Google Sign-In)
- Firestore Database (store/retrieve user data)
- Firebase Storage (upload images/files)
- App signing, APK vs AAB
- Play Store publishing process

Hands-On:

- Build a simple Firebase login and save user data

Final Project:

-  *Chat App / Todo App with Firebase*
— Login + Add tasks/messages + Sync across devices