

## **A Day with Firebase**

**Duration:** 1 day

**Prerequisites:** Knowledge of Mobile Application Development and Cloud Environment

### **Module 1: Introduction to Firebase (1 Hour)**

#### **Theory (1.0 hr)**

- What is Firebase?
  - Core features overview: Auth, Firestore, Storage, Hosting, Functions
  - Firebase vs traditional backend
  - Pricing, project setup, and emulator suite
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### **Module 2: Firebase Authentication (1.5 Hours)**

#### **Theory (0.5 hr)**

- Firebase Auth overview
- Email/Password, Google, Facebook, Anonymous login
- Role-based access and rules

#### **Hands-on (1.0 hr)**

- Setup Firebase project and initialize Auth
  - Implement email/password login in mobile app
  - Secure an endpoint with Auth state
  - Add basic login/logout functionality
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### **Module 3: Realtime Database & Firestore (2.0 Hours)**

#### **Theory (0.5 hr)**

- Difference between Realtime DB and Firestore
- Firestore structure: documents, collections
- Security rules overview

#### **Hands-on (1.5 hr)**

- Connect mobile app to Firestore
  - Add CRUD operations for a "Tasks" collection
  - Use snapshot listeners to update UI in real-time
  - Set rules to secure user-specific data
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### **Module 4: Firebase Cloud Storage (1.0 Hour)**

#### **Theory (0.25 hr)**

- Firebase Storage overview

- Upload/download files
- Security rules and access control

#### **Hands-on (0.75 hr)**

- Upload an image from the mobile app
  - Retrieve and display file from Storage
  - Add metadata and handle file access permissions
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### **Module 5: Firebase Functions & Hosting (1.5 Hours)**

#### **Theory (0.5 hr)**

- Firebase Cloud Functions use cases
- Hosting static content for PWA or APIs
- Using Firebase CLI

#### **Hands-on (1.0 hr)**

- Write a simple callable Cloud Function (e.g., send email)
  - Host static app or JSON API endpoint
  - Test with Postman or directly from mobile app
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### **Module 6: Mini Project & Q&A (1 Hour)**

#### **Hands-on + Discussion**

- Build a small mobile app with:
  - User auth
  - Task list (CRUD via Firestore)
  - Image upload
  - Hosted cloud function
- Test and deploy