Project Design Phase-II

Technology Stack (Architecture & Stack)

Technical Architecture:
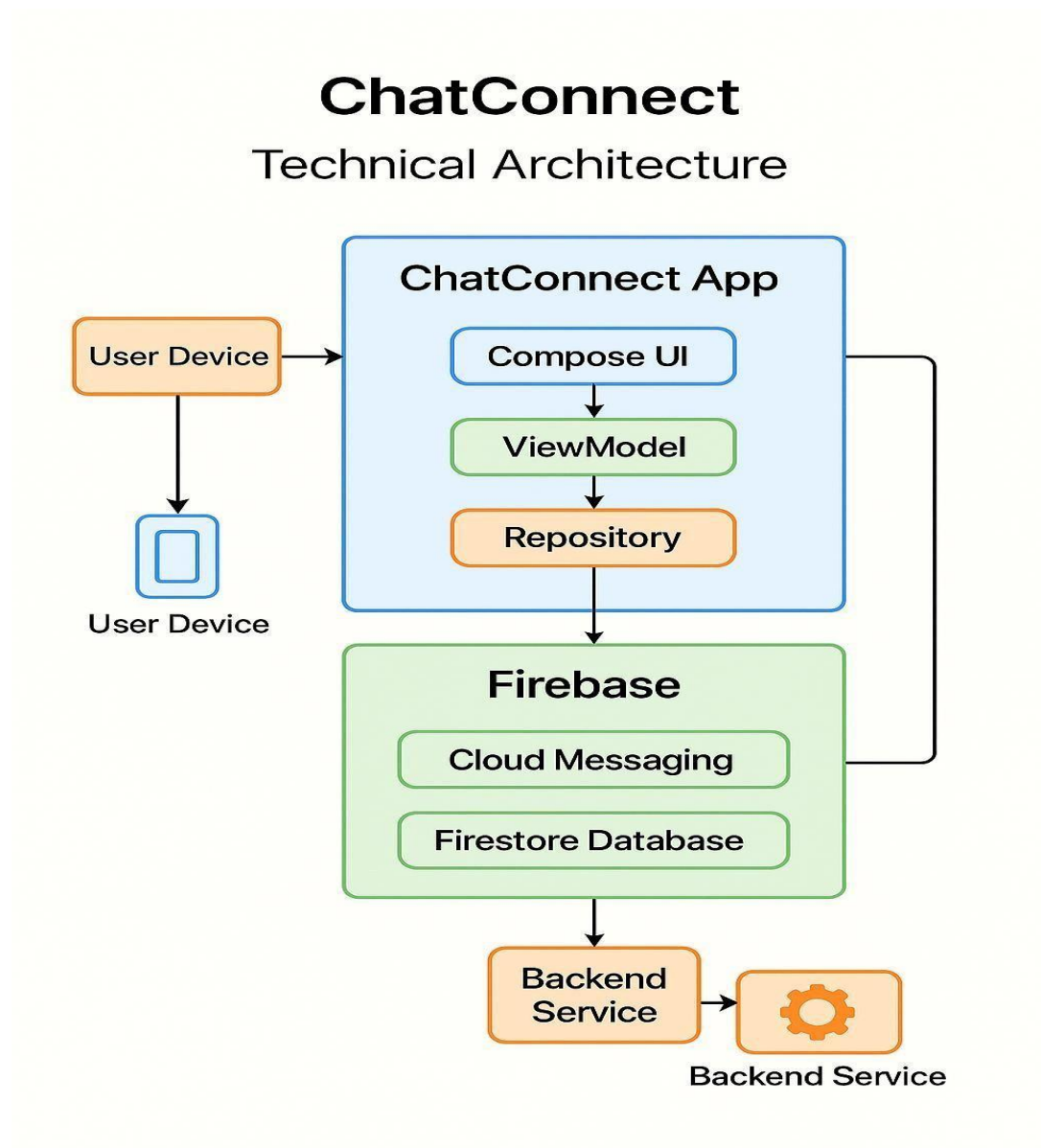
Table1: Components and Technology:

S.No	Component Description	Technology
1	User Interface	Jetpack Compose (Android), Kotlin, Material Design
2	Authentication & User Management	Firebase Authentication
3	Chat Messaging	Firebase Cloud Firestore, Firebase Cloud Messaging (FCM)
4	Media Upload and Storage	Firebase Storage
5	Notification System	Firebase Cloud Messaging (Push Notifications)
6	Chat Room Management	Firestore (for real-time updates and syncing), Kotlin
7	Navigation & Routing	Jetpack Navigation Component
8	Backend Services (Optional for Extensions)	Firebase Functions (for custom logic like analytics or moderation)
9	Analytics & Crash Reporting	Firebase Analytics, Firebase Crashlytics
10	Deployment & CI/CD	Google Play Console, GitHub Actions (optional for CI/CD)

Table2: Application Characteristics:

S.No	Application	Characteristics
1	User Interface	Responsive UI, built using Jetpack Compose; intuitive and adaptive layouts
2	Authentication & User Management	Secure login/signup with Firebase Auth; supports email/password and OAuth
3	Real-Time Messaging	Instant message updates via Firestore; supports emojis, text, images, videos
4	Media Upload and Storage	Efficient file storage and retrieval via Firebase Storage; scalable & secure
5	Notifications	Push notifications via FCM; real-time alerts for new messages or mentions
6	Chat Room Management	Dynamic chat room creation/joining with Firestore sync; supports custom groups
7	State Management	Real-time UI state updates using Compose ViewModel & State APIs
8	Navigation & Routing	Smooth screen transitions via Jetpack Navigation Component
9	Backend Services (Optional)	Serverless logic using Firebase Functions; extendable for analytics/moderation
10	Analytics & Crash Reporting	Usage insights via Firebase Analytics; realtime crash logging with Crashlytics