

Pet Adoption and Foster Care Android App

A native Android app connecting animal shelters with adopters and foster volunteers — pet listings, structured adoption applications, foster placement tracking and in-app messaging on a Kotlin + Firebase stack. Delivered built-to-order with report, PPT and Q&A.;

01. Title

Pet Adoption and Foster Care Android App

02. Introduction / Background

Animal shelters still coordinate adoptions over phone calls, social-media posts and paper forms. Listings go stale, applications get lost in chat threads, and foster volunteers — who house animals between rescue and adoption — are managed on spreadsheets if at all. A single mobile platform with verified shelter accounts, rich pet profiles and a transparent application pipeline addresses all three sides of this coordination problem.

03. Problem Statement

Adopters have no single place to discover animals near them or track where their application stands; shelters juggle scattered WhatsApp threads per applicant; foster placements are arranged ad hoc with no record of start/end dates. The project replaces this with role-based Android clients (shelter, adopter, volunteer) over one shared cloud backend.

04. Objectives

- Onboard verified shelters with profile pages, location and contact details.
- Publish rich pet profiles: photos, breed, age, vaccination, sterilisation and health notes.
- Implement a staged adoption workflow: Applied → Under review → Home visit → Approved/Rejected.
- Build a foster program module with volunteer availability and placement date tracking.
- Provide in-app adopter–shelter messaging and FCM push notifications for status changes.

05. Proposed Methodology

The app follows MVVM with a Repository pattern. Firestore collections model shelters, pets, applications, placements and chat threads, with security rules enforcing per-role access (a shelter edits only its own pets). Firebase Authentication handles phone/email sign-in; FCM topics per shelter plus per-user tokens drive notifications; Room caches listings and drafts for offline-first behaviour.

06. System Architecture / Working

Three role-based home screens share one codebase. Shelters create pet profiles that appear in the adopter feed; adopters filter, favourite and apply with a screening questionnaire; the shelter dashboard advances applications through review stages and

schedules home visits; both sides coordinate over scoped chat threads. Foster volunteers set availability windows; shelters issue placements linking pet, volunteer and dates, with overdue returns flagged.

07. Hardware / Software Requirements

- Android Studio, Kotlin, Android SDK (API 26+)
- Jetpack: Navigation, ViewModel, Room; Retrofit + Coroutines; Coil; Material 3
- Firebase: Authentication, Cloud Firestore, Cloud Messaging
- Google Maps SDK + API key (buyer-side) for shelter locations
- One Android test device (API 26 or above)

08. Expected Outcomes

- A working Android app with shelter, adopter and volunteer flows.
- A Firestore schema with role-based security rules.
- A debug APK plus seed dataset (14 pets, 4 shelters) for demonstration.
- A complete report, PPT and viva Q&A.;

09. Applications

- Demonstrating mobile architecture (MVVM) with a real cloud backend.
- Teaching role-based access control via Firestore security rules.
- A deployable starting point for NGO/shelter digitisation pilots.

10. Future Scope

- Online adoption-fee collection via a payment gateway.
- Voice/video calling inside chat threads.
- Adopter background-verification integrations.
- Multi-language support for regional shelters.