

SLRD

1. Project Overview

SLRD is an Android application designed for organizational project's, form's, and user's management with role-based access control. Built using Kotlin, XML layouts, SQLite database, and developed in Android Studio.

2. Technical Stack

- **IDE:** Android Studio
- **Programming Language:** Kotlin
- **UI Framework:** XML Layouts
- **Database:** SQLite
- **Architecture:** MVVM Pattern
- **Minimum SDK:** Android 9 (API 28)

3. Core Features

1. Dual Authentication System

- **Admin Login:** Single super-administrator access
- **Employee Login:** Role-based employee access

2. User Management

- **User Type Creation:** Admin creates custom roles with specific permissions
- **User Creation:** Admin creates employees and assigns them to user types
- **User Hierarchy:** Organizational structure display

3. Permission Framework

Project Permissions:

- Create, Read, Update, Delete projects

Form Permissions:

- Create, Read, Update, Delete forms

Comment Privacy Levels:

- Only You
- You and Team Member

- You and Director
- For All

4. Project Management

- Unlimited project creation (permission-based)
- Project lifecycle management
- Team collaboration features

5. Form Builder

- Dynamic form creation within projects
- Multiple field types support
- Custom field creation
- Data collection and storage
- Allocate Forms for filling to Team Members

6. Comment System

- Multi-level privacy controls
- Centralized comment management
- User collaboration features

4. User Roles & Capabilities

Admin Dashboard

- Create and manage user types
- Assign granular permissions
- Create new users
- View user hierarchy
- Monitor all comments
- System statistics overview
- Complete administrative control

Employee Dashboard

- Personal profile view
- Permission-based feature access
- Project creation and management

- Form building and data entry
- Comment participation
- Limited to assigned permissions

Database Structure

Core Tables:

- `users` - User profiles and credentials
- `user_types` - Role definitions and permissions
- `projects` - Project information and its credentials
- `forms` - Form structures and metadata
- `form_data` - Collected form responses
- `comments` - User comments with privacy levels

5. System Permissions

- **Location:** GPS and location services
- **Camera:** Photo capture capabilities
- **Device State:** System information access
- **Internet:** For Connectivity

6. Security Features

- Role-based access validation
- Permission checking at runtime
- Secure data storage

7. Key Workflows

Admin Workflow

1. Login as admin
2. Create user types with permissions
3. Create employees and assign user types
4. Monitor system activity
5. Manage comments and user hierarchy

Employee Workflow

1. Login with credentials
2. View personal dashboard
3. Create projects (if permitted)
4. Build forms within projects
5. Add form fields and collect data
6. Participate in comments

8. Application Architecture

UI Layer (XML + Activities)



ViewModel Layer (Business Logic)



Repository Layer (Data Access)



Database Layer (SQLite)

9. Development Environment

- **Project Structure:** Standard Android project layout
- **Build System:** Gradle
- **Dependencies:** AndroidX, Material Design, SQLite Database
- **Testing:** JUnit, Espresso

10. Key Benefits

- **Scalable:** Unlimited projects and forms
- **Flexible:** Custom user types and permissions
- **Secure:** Role-based access control
- **Collaborative:** Multi-level comment system
- **User-Friendly:** Intuitive dashboards for different roles