



ToDo #3 - SQLite, animations, and fragments

Student Information App with Navigation

Objective

In this to-do, you will create a Student Information application that demonstrates your understanding of fundamental Android development concepts. The app will have two main fragments accessible through a bottom navigation bar, combining multiple Android components into a functional application.

Technical Requirements

1. SharedPreferences with Singleton Pattern

- Create a singleton class called SharedPrefManager
- Store at least 6 pieces of profile information:
 - Full Name
 - Student ID
 - Email
 - Phone Number
 - Department
 - Year of Study

2. SQLite Database

- Create a database helper class called DatabaseHelper
- Database name: StudentNotes.db
- Create a notes table with columns:
 - id (Primary Key, Auto-increment)
 - title (Text)
 - content (Text)
- Implement methods to:

- Add a new note
- Get the latest note
- Get total note count
- Delete all notes

3. Two Fragments with Navigation

- **ProfileFragment:** Display form for user information
- **NotesFragment:** Display interface for creating notes
- Implement a fragment transaction to switch between them
- Add visual feedback (button color change) to show active fragment:

Hint:

```
button.setBackgroundColor(getResources().getColor(android.R.color.holo_blue_dark));
```

Fragment Specifications

Profile Fragment Requirements

Functionality:

- Load existing profile data when the fragment opens
- Validate that Name and Student ID are not empty before saving
- Save all data using SharedPreferences singleton
- Show success message (Toast) when saved
- Apply animation to Save button when clicked
- Clear all fields and SharedPreferences when Clear is pressed

Notes Fragment Requirements

Functionality:

- Validate both title and content are not empty
- Save notes to SQLite database
- Update note count after each save
- Display the most recent note automatically
- Clear input fields after successful save
- Apply animation when note is saved

Fragments Screenshots

The image shows two side-by-side screenshots of mobile app fragments. The left fragment, titled 'My Profile', contains input fields for Full Name, Student ID, Email, Phone, Department, and Year, followed by 'Save Profile' and 'Clear Profile' buttons. The right fragment, titled 'My Notes', contains input fields for Note Title and Note Content, followed by 'Save Note' and 'Clear All Notes' buttons. Below these is a 'Total Notes: 1' label and a 'Latest Note' section displaying a note's details. Both fragments have a bottom navigation bar with 'Profile' and 'Notes' buttons.

My Profile

Full Name:
Enter your name

Student ID:
Enter your student ID

Email:
Enter your email

Phone:
Enter your phone number

Department:
Enter your department

Year:
1

Save Profile

Clear Profile

Profile Notes

My Notes

Note Title:
Enter note title

Note Content:
Enter your note here...

Save Note

Clear All Notes

Total Notes: 1

Latest Note:

Title: note1
Content: This is note1
Time: 2025-11-16 22:46:54

Profile Notes

Navigation Requirements (Main Activity)

Bottom Navigation Bar

- Active button should have a different color (holo_blue_dark)
- Inactive button should be gray

Navigation Behavior

- Default fragment on app launch: Profile Fragment
- Clicking navigation buttons should:
 - Replace current fragment with selected one
 - Change button colors to indicate active state
 - Don't add to back stack (direct replacement)

Animations Required

- Fade-in animation for the “My notes” and “My Profile” Texts.
- Scale animation when “Save Notes” button is clicked (scale-in and scale-out together)

What to Hand in:

1. Project.zip file (Size in KB)

From Android Studio: File → Export to zip file

Good Luck!