Mobile Applications

ESE III

CSC 203-4

4BScCM

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Title of the Domain

Chemyra – An E-commerce Fashion Application

Abstract

Chemyra is a feature-rich e-commerce fashion application designed to offer a comprehensive and interactive shopping experience. The app enables users to browse products, view detailed profiles, and access innovative utility tools such as a Price Calculator and a Fashion Timer. Developed using Android Studio with Kotlin, the application demonstrates proficiency in advanced UI components—including ConstraintLayout, RecyclerView, Navigation Drawer, and dynamic UI creation—without reliance on external databases. Chemyra not only meets academic lab requirements but also serves as a realistic prototype for modern mobile commerce solutions.

Implementation Details

Project Setup and Login Screen (Section 1)

- **Project Initialization:**
  - Created a new Android project using an Empty Activity template.
  - Configured the project to use Kotlin as the programming language.
- **Login Screen UI:**
  - Designed the login screen with essential UI components (TextView, ImageView, EditText, and Button).
  - Applied ConstraintLayout for responsive design and custom drawable backgrounds (e.g., for rounded EditText and buttons).
- **User Input Handling:**
  - Implemented input validation in `MainActivity` to ensure that both email and username are provided.
  - Navigated to the Profile screen by passing the entered data via explicit intents.

Profile Screen and Navigation (Section 2)

- **Profile Screen Layout:**
  - Developed a profile activity that displays the user's name, email, and avatar.

    - Integrated action buttons for “Edit Profile,” “Logout,” “More About App,” and navigation to the Home screen.
- **Data Passing:**
    - Utilized intent extras to transfer data from the login screen to the profile screen.
- **Navigation Flow:**
    - Ensured smooth transitions between screens using explicit intents.
    - Included code to finish activities to prevent unwanted back navigation.

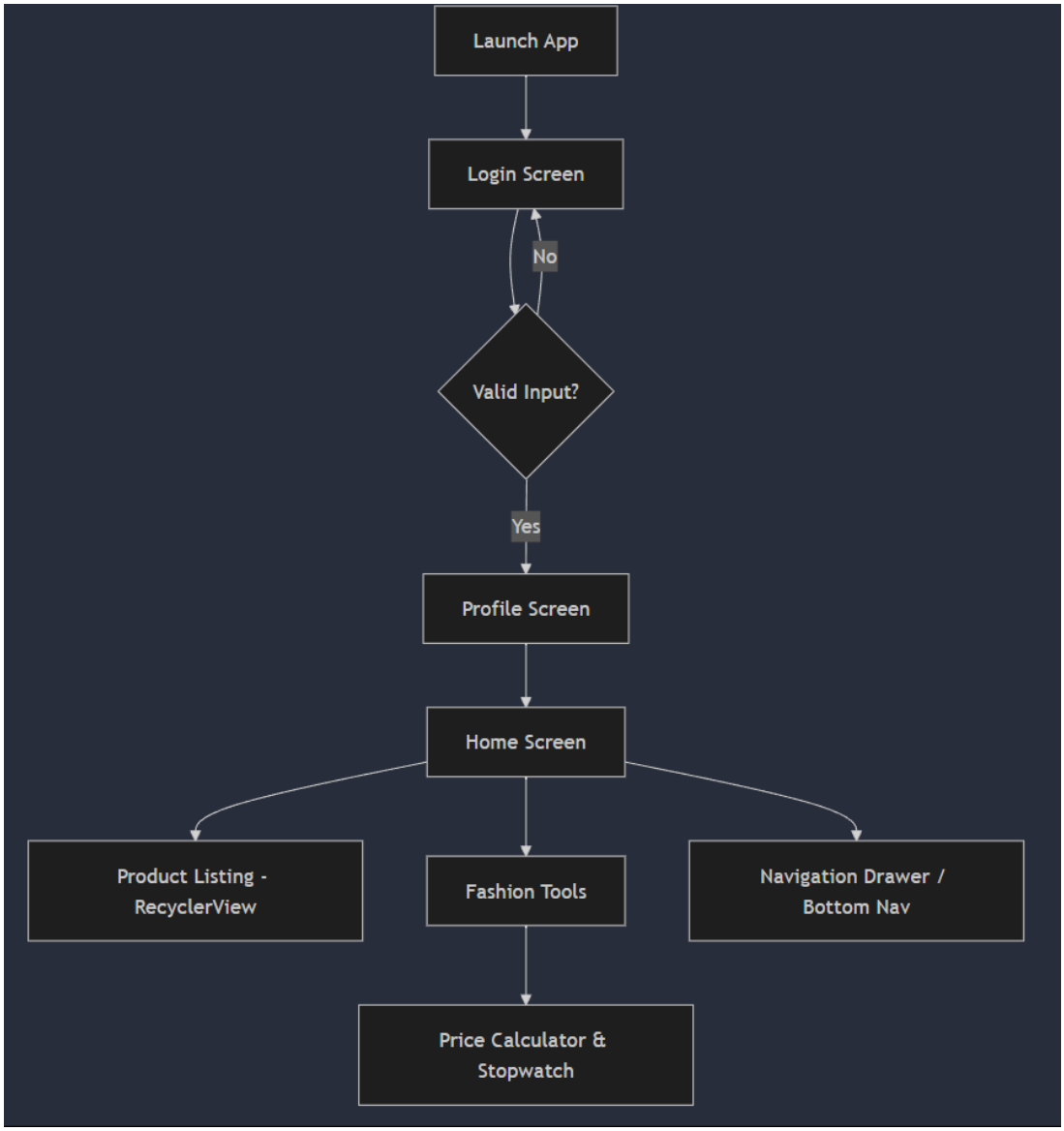
Advanced UI Components and Home Screen (Section 3)

- **Home Screen Development:**
    - Created a dynamic Home screen featuring a Toolbar, a Search CardView, and filter options within a HorizontalScrollView.
    - Incorporated a RecyclerView to display product listings with custom CardView layouts.
- **RecyclerView & Adapter:**
    - Developed a `Product` data model, along with a `ProductAdapter` to bind product data to individual cards.
    - Dynamically populated the RecyclerView with dummy product data.
- **Additional UI Controls:**
    - Implemented various input controls such as RadioButtons (grouped for single selection), CheckBoxes, ToggleButtons, and Switches.
    - Added a Bottom Navigation View and an options menu for further navigation.

Utility Tools – Fashion Tools (Section 4)

- **Integrated Fashion Tools Activity:**
    - Combined the Price Calculator and Fashion Timer into a single activity (fashion_tools) to demonstrate utility features.
- **Price Calculator Functionality:**
    - Dynamically created a calculator interface using a GridLayout for numeric input.
    - Implemented arithmetic operations and clear functions.
- **Stopwatch Implementation:**
    - Designed a stopwatch using a Handler and Runnable to update a timer display every second.
    - Provided Start, Stop, and Reset functionalities for user control.

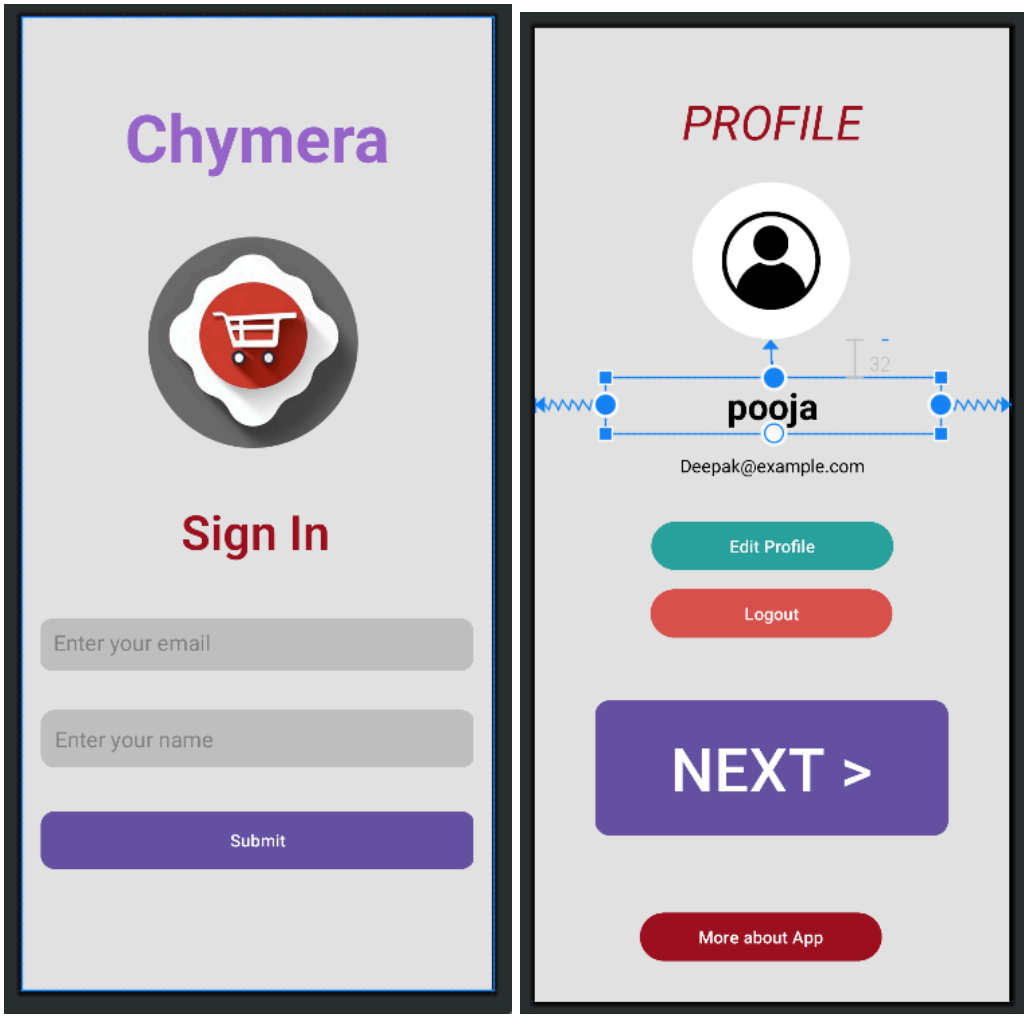
Workflow Diagram



Screenshots of the Developed Application

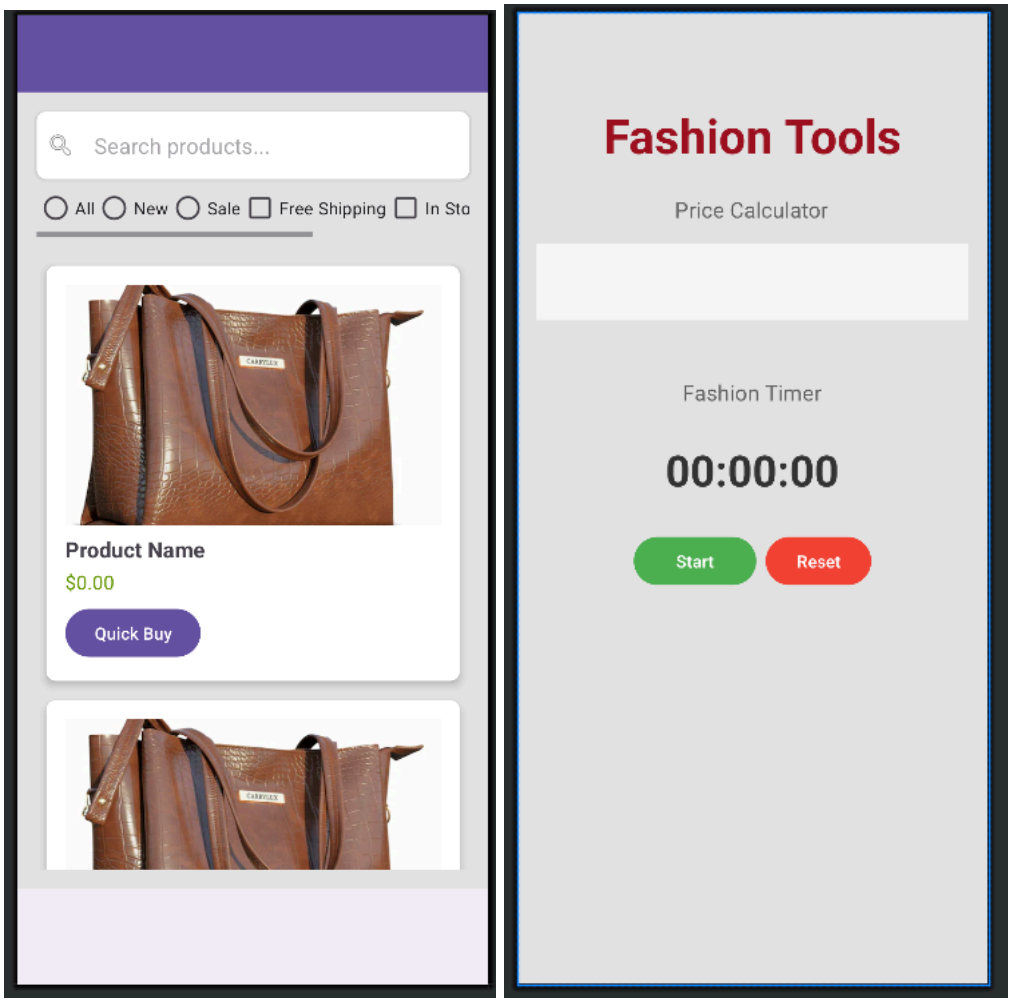
Insert screenshots here that capture the following:

- **Login Screen:** Showing the onboarding page where users enter their email and username.



- **Profile Screen:** Displaying user details and navigation options.

- **Home Screen:** Featuring the Toolbar, Search CardView, filter options, and RecyclerView with product listings.



- **Fashion Tools Screen:** Showcasing the Price Calculator and Fashion Timer (Stopwatch) functionalities.

Purpose and Practical Relevance (Impact of the Application)

Purpose:
Chemyra is designed to serve as a comprehensive prototype for an e-commerce fashion application. The project integrates a broad spectrum of Android UI components and interactions—ranging from basic inputs and dynamic lists to advanced features like a Price Calculator and Stopwatch. This multi-faceted approach bridges theoretical lab exercises with practical, real-world app development.

Practical Relevance:

- **Educational Value:**
  Chemyra allows students and developers to understand and apply key Android development concepts such as activity and fragment lifecycles, RecyclerView, ConstraintLayout, and dynamic UI creation without external dependencies like databases.
- **Real-World Application:**
  The integration of navigation (both side drawers and bottom navigation), interactive utility tools, and robust UI elements creates a scalable and modular framework. This framework can be further expanded with persistent storage, networking, and user authentication for a production-level app.
- **User Experience Enhancement:**
  By employing advanced UI components and custom interactions, the app provides an intuitive and visually appealing user experience, critical in today's competitive mobile market.

Conclusion

In conclusion, the Chemyra e-commerce application successfully demonstrates the practical integration of numerous Android UI components and interactions into a cohesive, real-world prototype. From the initial login and profile screens to the dynamic home screen and innovative utility tools, the project exemplifies how theoretical knowledge can be translated into functional and engaging mobile applications. Chemyra not only meets academic requirements but also provides a solid foundation for future enhancements, such as incorporating database connectivity, network operations, and real-time data updates. This project stands as a robust example of modern Android development that effectively blends educational objectives with practical usability.
