BIRZEIT UNIVERSITY
Electrical and Computer Engineering Department
ENCS5150 – Advanced Computer Systems Engineering Laboratory
Android Project
Second Semester - 2025

Submission Deadline:
Discussion Date: the week after the submission deadline.
Team Work: Teams of two students
Total Points: 120; 40% out of the final grade

Project Description:

A real estate agency asks you to design and build an Android application that allows users to view, favorite, and reserve properties online or using a local database. The application must be user-friendly and as fast as possible.

The application should include the following features:

1. **Welcome Layout (10 Points)**

   ❖ A welcome screen with a "Connect" button.
   ❖ Pressing Connect will attempt to connect to a REST API to fetch a list of available property categories (apartments, villas, lands).
   ❖ https://mocki.io/v1/f208b41b-12f1-45d0-9b74-2a635f184a2d (You can replace https://example.com/images/... with your actual images.)
     • If the connection is successful, → Go to the Login/Register section.
     • If the connection fails, → Display an error message and stay on the welcome page.

2. **Login and Registration Layout (25 Points)**

   ❖ **2.1 Login (10 Points)**

     • The user can enter their email and password to log in.
     • "Remember Me" checkbox to save the email in **SharedPreferences**.

   ❖ **2.2 Registration (15 Points)**

     Fields to fill:
     • Email (primary key, must be a valid email).
     • First Name and Last Name (min 3 characters each).

- Password (at least 6 characters, must include one letter, one number, and one special character).
- Confirm Password (check that it matches the Password).
- Gender (spinner).
- Country and City (choose from 3 countries, each with 3 cities).
- Phone Number (with automatic country code based on selected country).

3. Home Layout (Customer Login) (10 Points)

- ❖ Use a Navigation Drawer with:
  - Home (About Us and Real Estate Company history).
  - Properties Menu.
  - Your Reservations.
  - Your Favorites.
  - Featured Properties.
  - Profile Management.
  - Contact Us (Call / Map / Email).
  - Logout.

4. Properties Menu (15 Points)

- ❖ Displays available properties grouped by type.
- ❖ Each property:
  - Shows thumbnail image, title, description details, price, location.
  - Buttons:
    - **Add to Favorites**
    - **Reserve Property** (opens a reservation details fragment).

- ❖ **Filters/Search**:
  - Search by **price range**, **location**, or **property type**.

5. Your Reservations (5 Points)
- ❖ List of properties the user has reserved, with reservation date and time.

6. Your Favorites (5 Points)
- ❖ List of properties added to favorites.
- ❖ Give the user the ability to reserve directly from favorites.
- ❖ Give the user the ability to remove from favorites.

7. Properties (5 Points)
- ❖ List of special offers or promoted properties.
- ❖ Users can reserve or add to favorites from this list, too.

8. Profile Management (10 Points)
- ❖ User can:
  - View/update their first name, last name, password, and phone number.

- Add profile picture.
  - ❖ Password update must respect the same security conditions as registration.

9. Contact Us Layout (5 Points)
- ❖ Three buttons:
  - **Call Us**: Call the agency number (e.g., +970599000000), which opens the phone application and puts this number automatically.
  - **Locate Us**: Opens Google Maps location of the agency.
  - **Email Us**: Opens Gmail with prefilled "to" field (RealEstateHub@agency.com).

10. Logout (5 Points)
- ❖ Logs out the user and returns to the login page.

11. Admin Home Layout (15 Points)
- ❖ Admin has a special Navigation Drawer with:
  - **Delete Customers**: Delete any customer.
  - **Statistics dashboard**: shows the number of users, number of reserved properties, most reserving customers' countries, and percentage of men and women based on their gender, specified in the sign-up.
  - **Add New Admin**: Add new admin (same rules as regular sign-up).
  - **View All Reservations**: List all reservations with customer names, dates, and property details.
  - **Admin can create special offers** on properties so that they appear in the featured properties section.
  - **Logout**: Logs the Admin out.
- ❖ To differentiate between the admin profile and the regular user, each must have a different role property.
- ❖ The application must have a pre-created static Admin account (Email: admin@admin.com, Password: Admin123!) to allow access to admin features.

12. UI Design [10 points]

- ❖ The UI design is open to student creativity, but it should be clear, structured, and user-friendly.
- ❖ A well-designed UI will be rewarded with full marks.

Technical notes to be considered in your application:

- ❖ Android Layouts (dynamic and static).
- ❖ Intents and Notifications (e.g., Toast).
- ❖ SQLite Database.
- ❖ Animations (frame or tween animation when switching screens or loading data) for example, make a heart shape get larger, then back to its original size when adding something to favorites, or applying a fade-in animation to property images or a bounce animation to Reserve buttons.
- ❖ Fragments (especially for property details, reservations, and favorites).
- ❖ Shared Preferences (for login persistence).

- ❖ RESTful API Integration.
- ❖ Data Validation and Exception Handling.

Notes:

- ❖ The application must be named following the format: FirstStudentID_SecondStudentID_CourseProject.
- ❖ Testing will be done on a **Pixel 3a XL device with API Level 26** (Graphics = Software). Ensure compatibility.
- ❖ Any form of **auto-generated code using AI tools (e.g., ChatGPT) will result in a zero mark**.
- ❖ You are allowed to use internet resources for learning, but plagiarism is strictly prohibited.

What to Submit?

1. **Project.zip file** (Export from Android Studio: File → Export to zip file)
2. **APK file** (Export from Android Studio: Build → Build Bundle(s) / APK(s) → Build APK(s))

Where to submit?

Submit both the APK file and ZIP file as a reply to the message on Ritaj.

Discussion

A discussion session will be scheduled after submission. Both team members must be present and ready to explain their code, make modifications, or add additional features if requested. Not attending the discussion will result in a grade of zero.