

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF
KAZAKHSTAN

KAZAKH-BRITISH TECHNICAL UNIVERSITY

SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING

REPORT

Mobile Programming

Assignment 2

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Content

1. Introduction
2. Project Setup
3. Page Design
 - 3.1. Home Feed Page
 - 3.2. Profile Page
 - 3.3. Search Page
 - 3.4. Add Post Page
 - 3.5. Notifications Page
4. Navigation
5. User Interaction
6. Challenges and Solutions
7. Conclusion
8. References

Introduction

Android Studio is a desktop application that helps to create applications that run on Android OS.

In this work we will create a simple project with 5 pages. We will learn how to create a button, how to fill a RecyclerView and how to implement navigation between pages.

You can see the code by this link:

Link to Github project: <https://github.com/diikiin/assignment2-mob-pro>

Project Setup

As seen in Image 1, to setup our android project we need to select for which device we develop and optionally we can select the start activity.

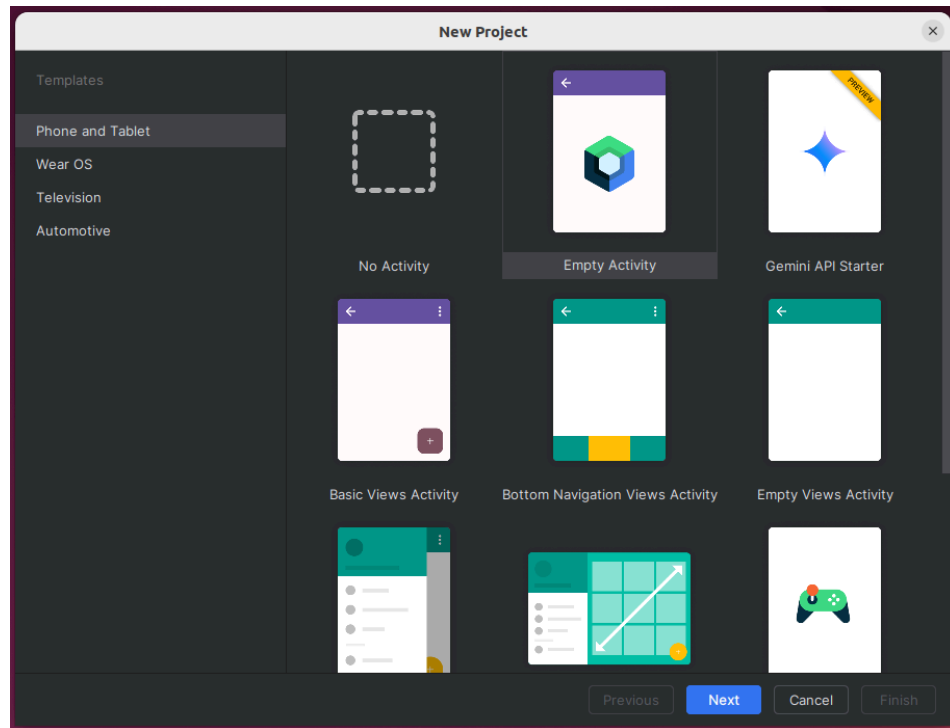


Image 1. Select application type

After that we can write the project name and select the minimum required SDK for launching our application.

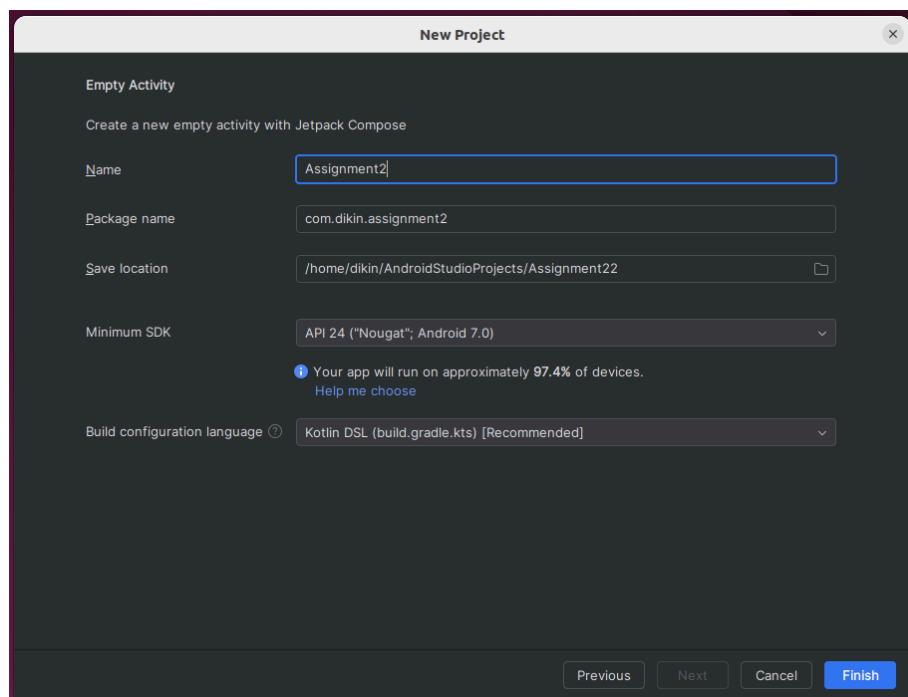


Image 2. Select basic settings

```
dependencies {

    implementation(libs.androidx.core.ktx)
    implementation(libs.androidx.lifecycle.runtime.ktx)
    implementation(libs.androidx.activity.compose)
    implementation(platform(libs.androidx.compose.bom))
    implementation(libs.androidx.ui)
    implementation(libs.androidx.ui.graphics)
    implementation(libs.androidx.ui.tooling.preview)
    implementation(libs.androidx.material3)
    implementation(libs.androidx.recyclerview)
    implementation(libs.androidx.fragment)
    implementation(libs.androidx.appcompat)
    implementation(libs.androidx.constraintlayout)
    implementation(libs.navigation.fragment)
    implementation(libs.navigation.ui)
    implementation(libs.material)

    testImplementation(libs.junit)

    androidTestImplementation(libs.androidx.junit)
    androidTestImplementation(libs.androidx.espresso.core)
    androidTestImplementation(platform(libs.androidx.compose.bom))
    androidTestImplementation(libs.androidx.ui.test.junit4)

    debugImplementation(libs.androidx.ui.tooling)
    debugImplementation(libs.androidx.ui.test.manifest)

    implementation(libs.glide)
    kapt(libs.glide.compiler)
}
```

Image 3. Import necessary dependencies

After we created our project we can implement libraries that we will use in our project.

In our case we need to implement:

libs.androidx.recyclerview to work with RecyclerView.

libs.androidx.fragment to work with Fragments.

libs.navigation.fragment to work with Navigation.

libs.glide to show images in our project.

Page Design

Home Feed Page

Home Feed is the main page of our application. It consists of a RecyclerView that shows a list of users' posts. Each post includes: username at the top, post image, number of likes and caption of image.

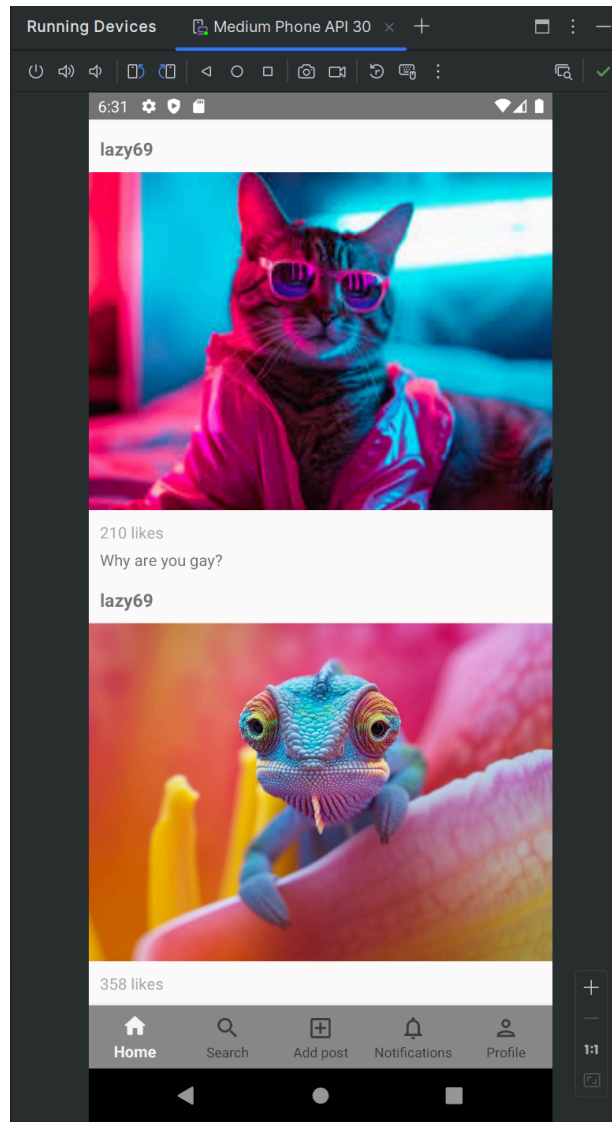


Image 4. Home Feed Page

Profile Page

Profile page is the page that shows current user info. In this page the user can see his profile picture, username, bio and posts. Posts are shown with a grid layout of 3 columns.

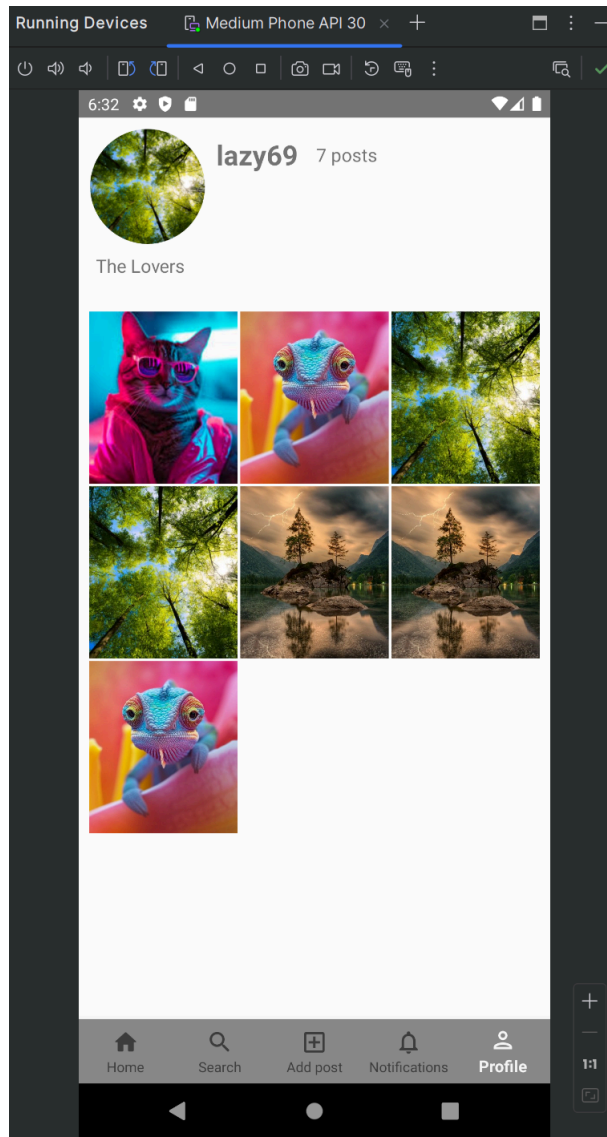


Image 5. Profile Page

Search Page

Search page is used for searching users. To search user needs to type some username in the search bar and there will be shown all users that are eligible for this username. For each user will be shown a profile picture, username and bio.

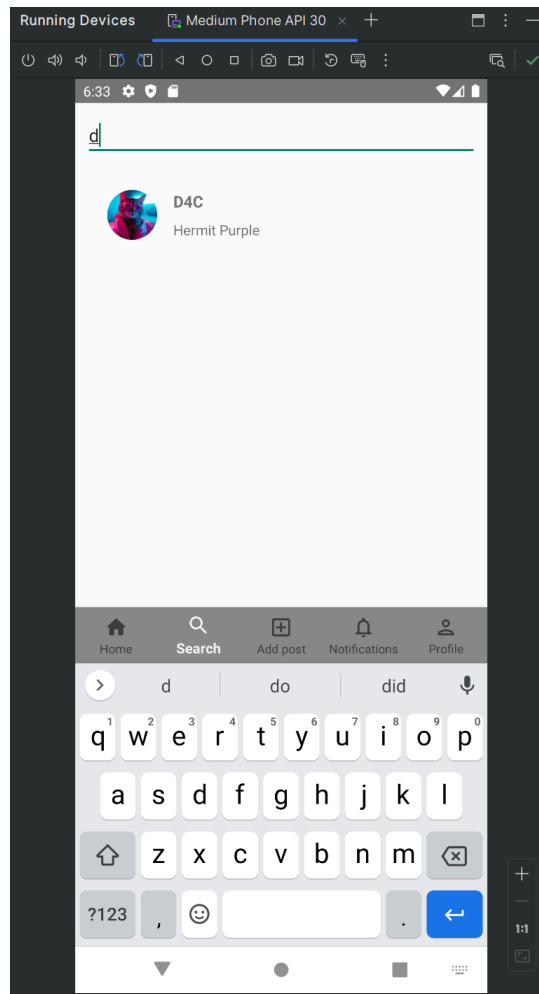


Image 6. Search page

Add Post Page

To add a new post user needs to go to the Add post page. Here he can give permission to see all images in the phone to the application and select the image, write a caption and submit a new post.

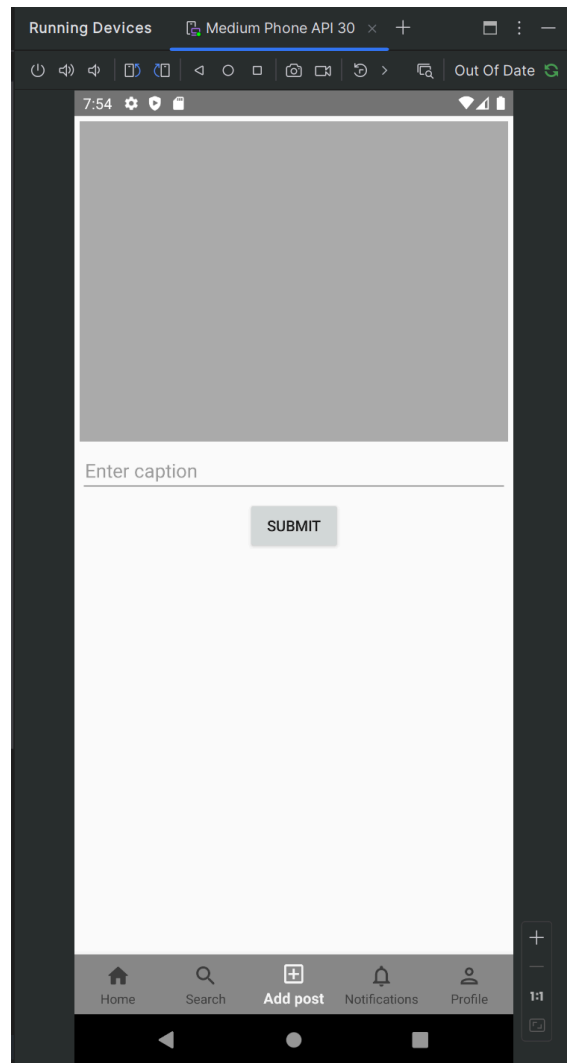


Image 7. Add Post Page

Notifications Page

As shown on Image 8, in the Notifications page the user can see the notifications that came to him. Each notification includes a profile picture and username of who liked or commented and when it was.

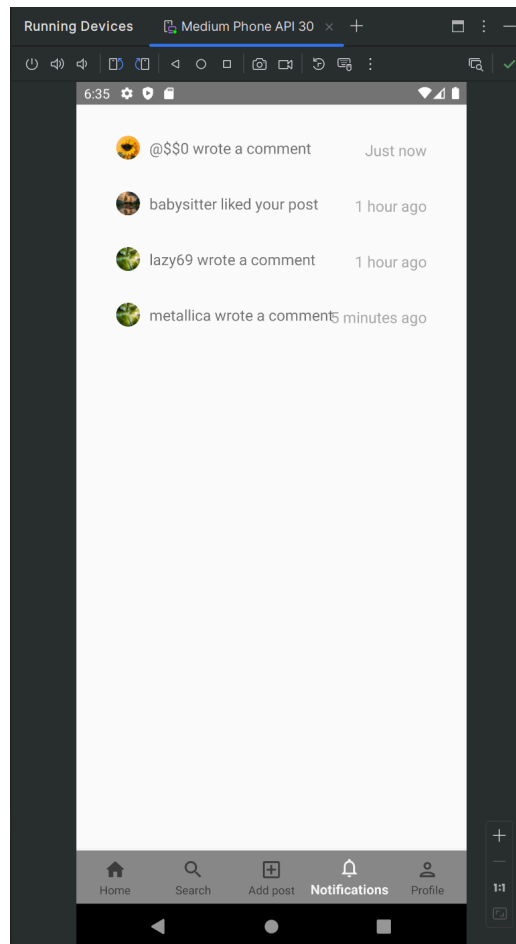


Image 8. Notifications Page

Navigation

To navigate between all of these pages we implemented BottomNavigationView. As shown on Image 9, each navigation item consists of an icon and page name. If the user clicks Home then he will go to the Home Feed page etc.

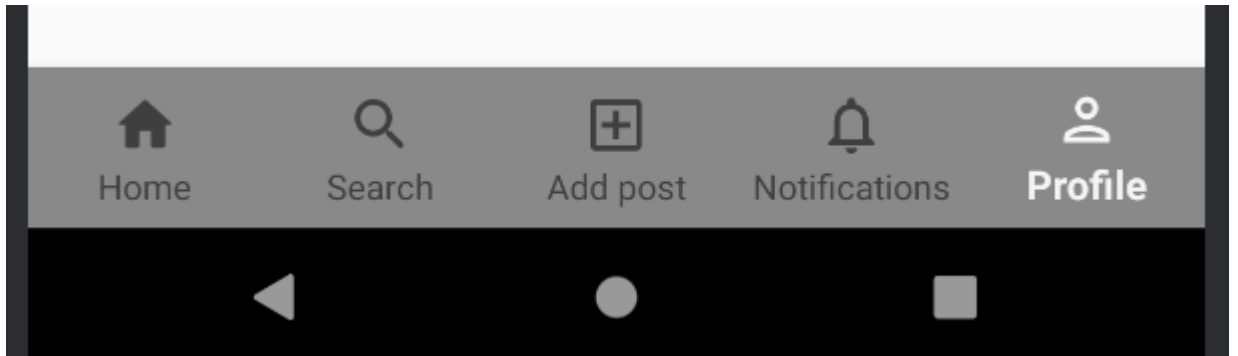


Image 9. Bottom Navigation Bar

User Interaction

Users can like posts by clicking at image or like button under image. It will increase the number of likes on the image. If user clicks to username it will redirect to user's profile page.

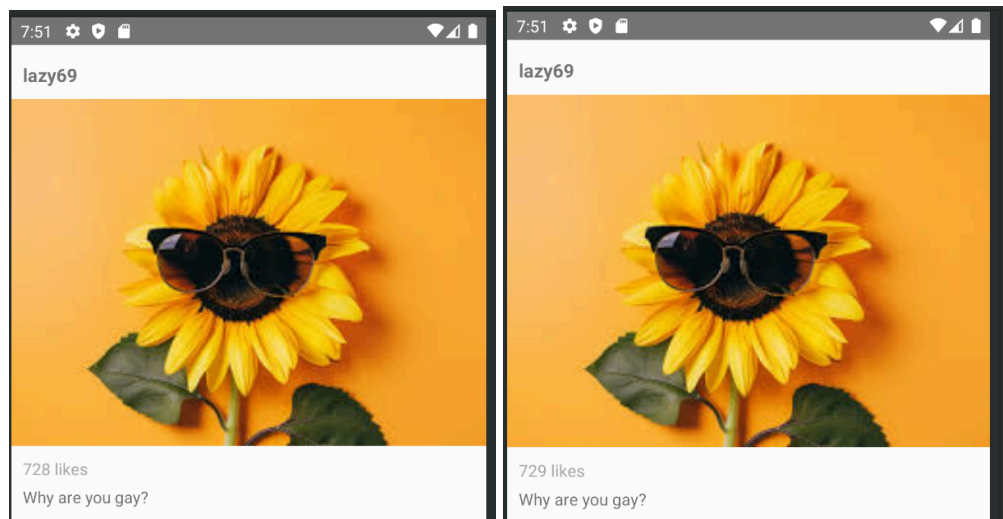


Image 10. Liking post

Also, user can add new post. It will appear at main and profile pages.

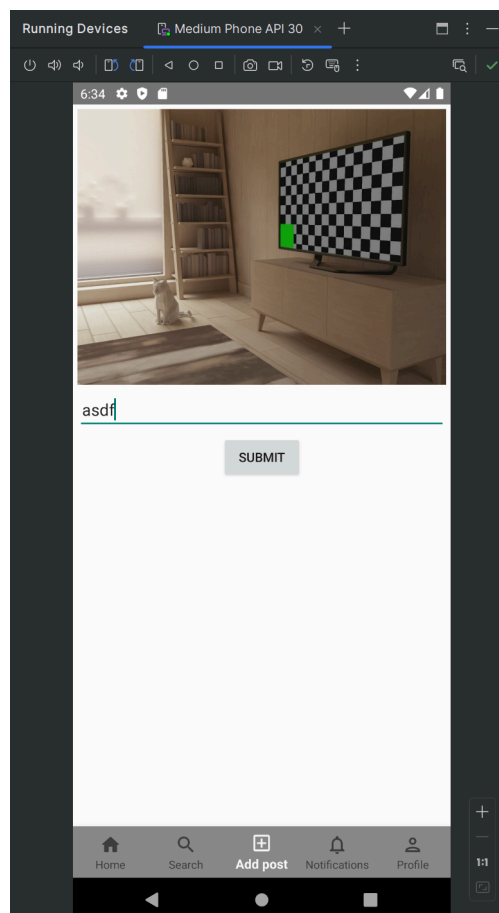


Image 11. Post image

Challenges and Solutions

Creating several instagram like pages was hard work that took many human hours. Creating an Add Post element was hard to implement because we don't have a database to store users and posts data. So, to implement this we created static mock data of users and posts to which we added new post data to save it. To make navigation between these pages more suitable for users took a couple of hours. But, all this work was done and here we have a functional application.

Conclusion

In this work we learned how to create multiple layouts with adapters and how to navigate between them. We created 5 pages and filled them with mock data. We learned how to implement bottom navigation to the application and how to create listener to page elements. It was hard and long work that we'll continue in the next works.

References

1. Android Studio Documentation: <https://developer.android.com/guide>
2. Kotlin Documentation: <https://kotlinlang.org/docs/home.html>
3. Github project: <https://github.com/diikiin/assignment2>