

**Name:** Jazib Ahmad

**Banner ID:** B00889804

### **Project Description:**

This project is a simple Android App where you can explore the different cities based on continents. On the first page, you will see a list of Continent. Then when you select a continent, it displays cards of cities where there is a picture and name of city. When you click on the city, it displays a button you can then see the picture, name, Language, and Population

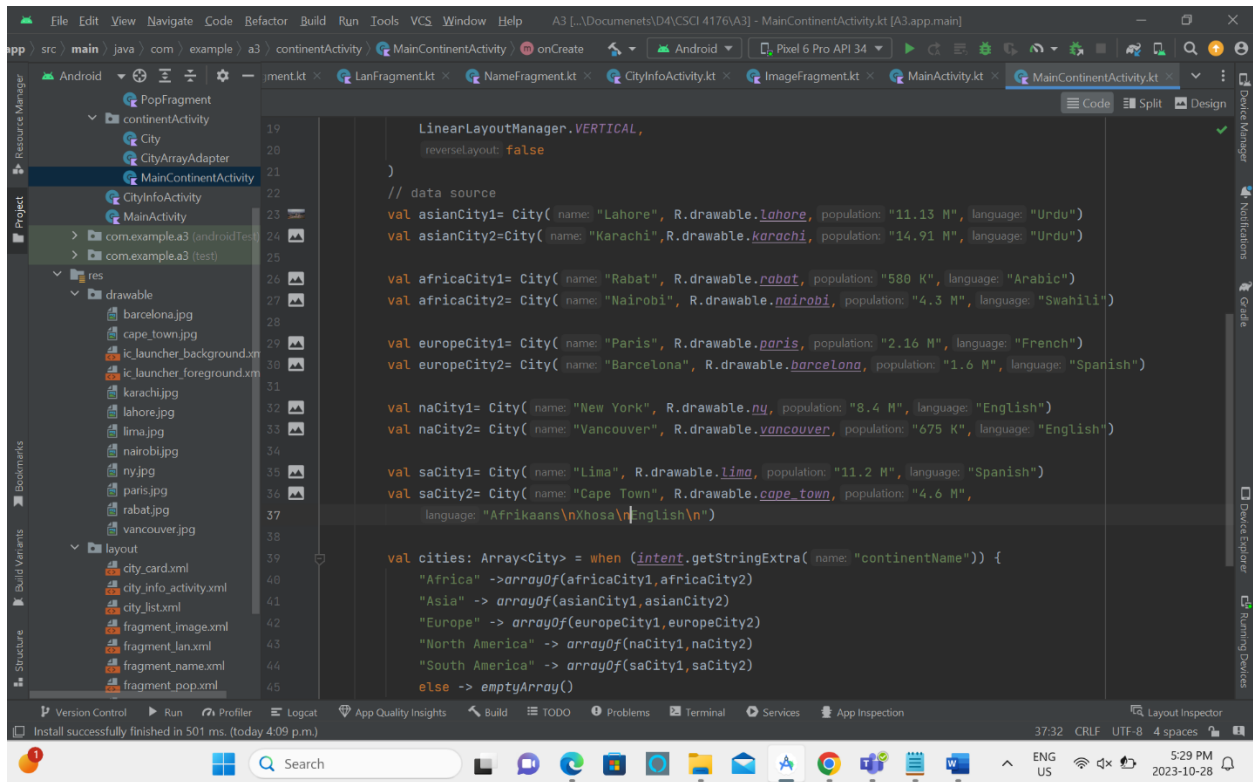
### **Technical Details:**

I have made four activities as you can see in the shots. In the main activity, it will host the **main\_activity** layout. Here it will list all the continents using list view. After clicking on any of the continents, the intent will take you to the **mainContinetActivity**. Here it will use the **city\_list** layout which further has **city\_cards** inside. This class is where you put source data of cities and can be further transferred. This activity uses the data class of the **city** and for data inside the cards, it uses **cityAdapters**. In that class, it sends data to **cityInfoActivity** through Intents and takes it to the same class through intent if clicks on any of the cards. Now here it uses the **city\_info\_layout** which has 4 buttons for each detail and after that a frame Layout for fragments. Each button has a respective fragment attached which further has their layouts. To change to data inside of fragments, “[new Instances \(\)](#)” are used to send and manipulate data. That is the project structure.

All the activities that are mentioned before were also declared in **AndroidManifest**. All the images are stored in “res/drawable”.

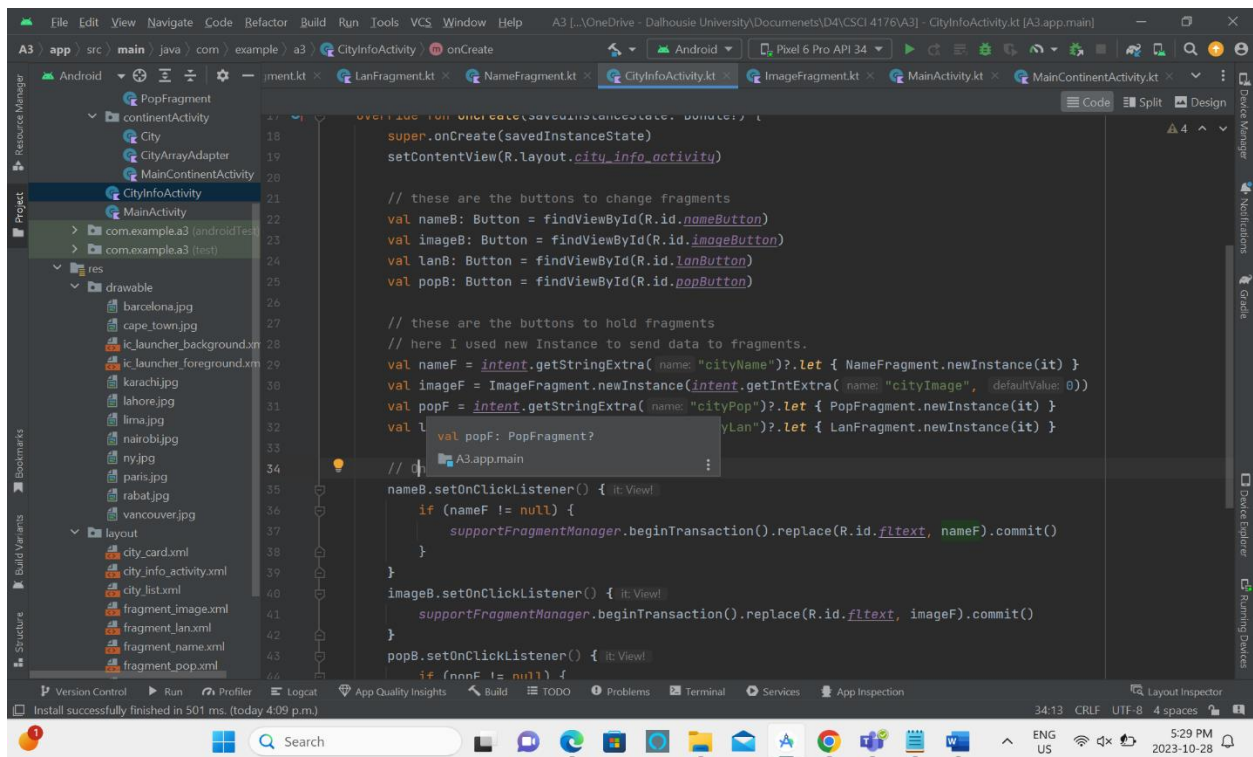
## Important Codes: -

Some of the important codes are: -



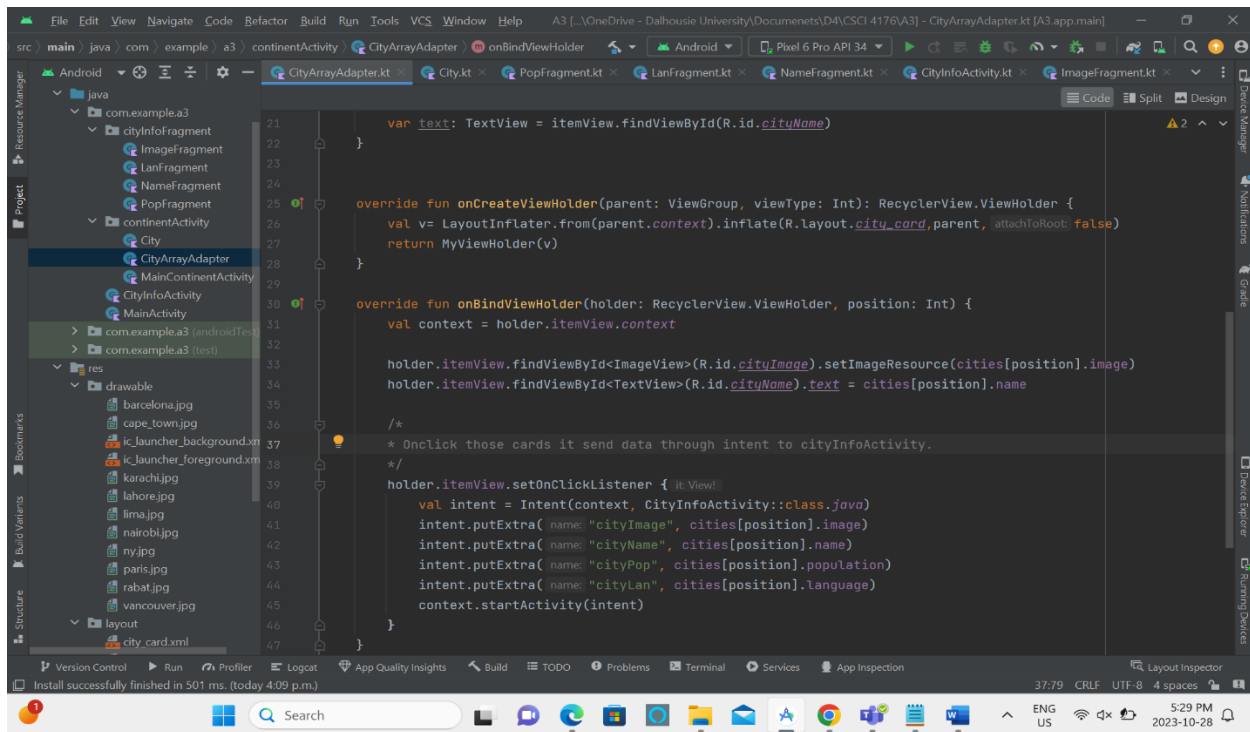
```
File Edit View Navigate Code Refactor Build Run Tools VCS Window Help A3 [...\Documents\A3] - MainActivity.kt [A3.app.main]
src > main > java > com > example > a3 > continentActivity > MainActivity.kt onCreate Android Pixel 6 Pro API 34
Resource Manager
Project
  continentActivity
    City
    CityArrayAdapter
    MainActivity
  com.example.a3 (androidTest)
  com.example.a3 (test)
  res
    drawable
      barcelona.jpg
      cape_town.jpg
      ic_launcher_background.xml
      ic_launcher_foreground.xml
      karachi.jpg
      lahore.jpg
      lima.jpg
      nairobi.jpg
      ny.jpg
      paris.jpg
      rabat.jpg
      vancouver.jpg
    layout
      city_card.xml
      city_info_activity.xml
      city_list.xml
      fragment_image.xml
      fragment_lan.xml
      fragment_name.xml
      fragment_pop.xml
  Structure
  Build Variants
  Version Control
  Run
  Profiler
  Logcat
  App Quality Insights
  Build
  TODO
  Problems
  Terminal
  Services
  App Inspection
  Layout Inspector
  Device Manager
  Notifications
  Grade
  Running Devices
  Install successfully finished in 501 ms. (today 4:09 p.m.)
37:32 CRLF UTF-8 4 spaces
1 Search
```

```
19      LinearLayoutManager.VERTICAL,
20      reverseLayout: false
21  )
22  // data source
23  val asianCity1= City( name: "Lahore", R.drawable.lahore, population: "11.13 M", language: "Urdu")
24  val asianCity2=City( name: "Karachi",R.drawable.karachi, population: "14.91 M", language: "Urdu")
25
26  val africaCity1= City( name: "Rabat", R.drawable.rabat, population: "580 K", language: "Arabic")
27  val africaCity2= City( name: "Nairobi", R.drawable.nairobi, populations: "4.3 M", language: "Swahili")
28
29  val europeCity1= City( name: "Paris", R.drawable.paris, population: "2.16 M", language: "French")
30  val europeCity2= City( name: "Barcelona", R.drawable.barcelona, population: "1.6 M", language: "Spanish")
31
32  val naCity1= City( name: "New York", R.drawable.ny, population: "8.4 M", language: "English")
33  val naCity2= City( name: "Vancouver", R.drawable.vancouver, population: "675 K", language: "English")
34
35  val saCity1= City( name: "Lima", R.drawable.lima, population: "11.2 M", language: "Spanish")
36  val saCity2= City( name: "Cape Town", R.drawable.cape_town, population: "4.6 M",
37      language: "Afrikaans\nXhosa\nEnglish\n")
38
39  val cities: Array<City> = when (intent.getStringExtra( name: "continentName")) {
40      "Africa" -> arrayOf(africaCity1,africaCity2)
41      "Asia" -> arrayOf(asianCity1,asianCity2)
42      "Europe" -> arrayOf(europeCity1,europeCity2)
43      "North America" -> arrayOf(naCity1,naCity2)
44      "South America" -> arrayOf(saCity1,saCity2)
45      else -> emptyArray()
```



```
File Edit View Navigate Code Refactor Build Run Tools VCS Window Help A3 [...\OneDrive - Dalhousie University\Documents\A3] - CityInfoActivity.kt [A3.app.main]
src > main > java > com > example > a3 > CityInfoActivity.kt onCreate Android Pixel 6 Pro API 34
Resource Manager
Project
  continentActivity
    City
    CityArrayAdapter
    MainActivity
  com.example.a3 (androidTest)
  com.example.a3 (test)
  res
    drawable
      barcelona.jpg
      cape_town.jpg
      ic_launcher_background.xml
      ic_launcher_foreground.xml
      karachi.jpg
      lahore.jpg
      lima.jpg
      nairobi.jpg
      ny.jpg
      paris.jpg
      rabat.jpg
      vancouver.jpg
    layout
      city_card.xml
      city_info_activity.xml
      city_list.xml
      fragment_image.xml
      fragment_lan.xml
      fragment_name.xml
      fragment_pop.xml
  Structure
  Build Variants
  Version Control
  Run
  Profiler
  Logcat
  App Quality Insights
  Build
  TODO
  Problems
  Terminal
  Services
  App Inspection
  Layout Inspector
  Device Manager
  Notifications
  Grade
  Running Devices
  Install successfully finished in 501 ms. (today 4:09 p.m.)
34:13 CRLF UTF-8 4 spaces
1 Search
```

```
18  super.onCreate(savedInstanceState) {
19      setContentView(R.layout.city_info_activity)
20
21  // these are the buttons to change fragments
22  val nameB: Button = findViewById(R.id.nameButton)
23  val imageB: Button = findViewById(R.id.imageButton)
24  val lanB: Button = findViewById(R.id.lanButton)
25  val popB: Button = findViewById(R.id.popButton)
26
27  // these are the buttons to hold fragments
28  // here I used new Instance to send data to fragments.
29  val nameF = intent.getStringExtra( name: "cityName")?.let { NameFragment.newInstance(it) }
30  val imageF = ImageFragment.newInstance(intent.getIntExtra( name: "cityImage", defaultValue: 0))
31  val popF = intent.getStringExtra( name: "cityPop")?.let { PopFragment.newInstance(it) }
32  val lanF = intent.getStringExtra( name: "cityLan")?.let { LanFragment.newInstance(it) }
33
34  // A3.app.main
35
36  nameB.setOnClickListener() { it: View?
37      if (nameF != null) {
38          supportFragmentManager.beginTransaction().replace(R.id.fltext, nameF).commit()
39      }
40  }
41  imageB.setOnClickListener() { it: View?
42      supportFragmentManager.beginTransaction().replace(R.id.fltext, imageF).commit()
43  }
44  popB.setOnClickListener() { it: View?
45      if (popF != null) {
```



## Challenges & Learning Points:

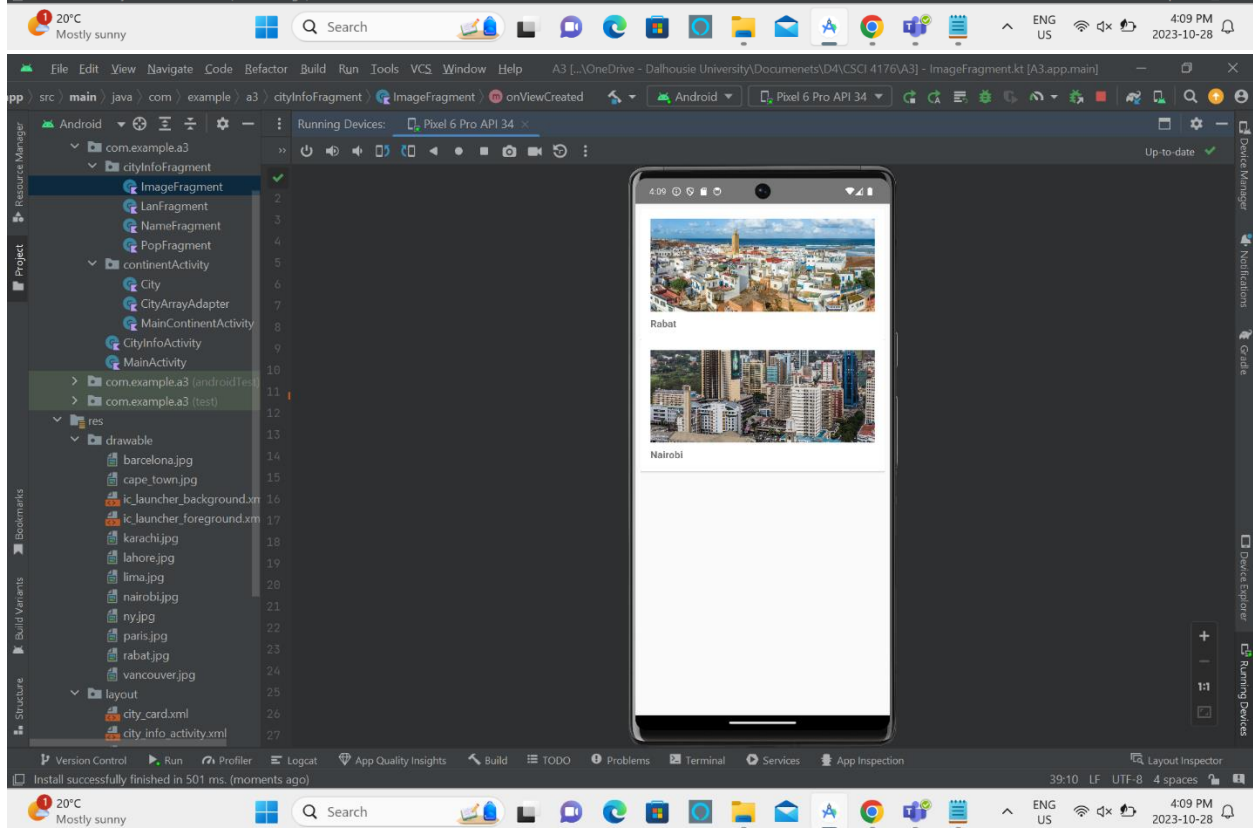
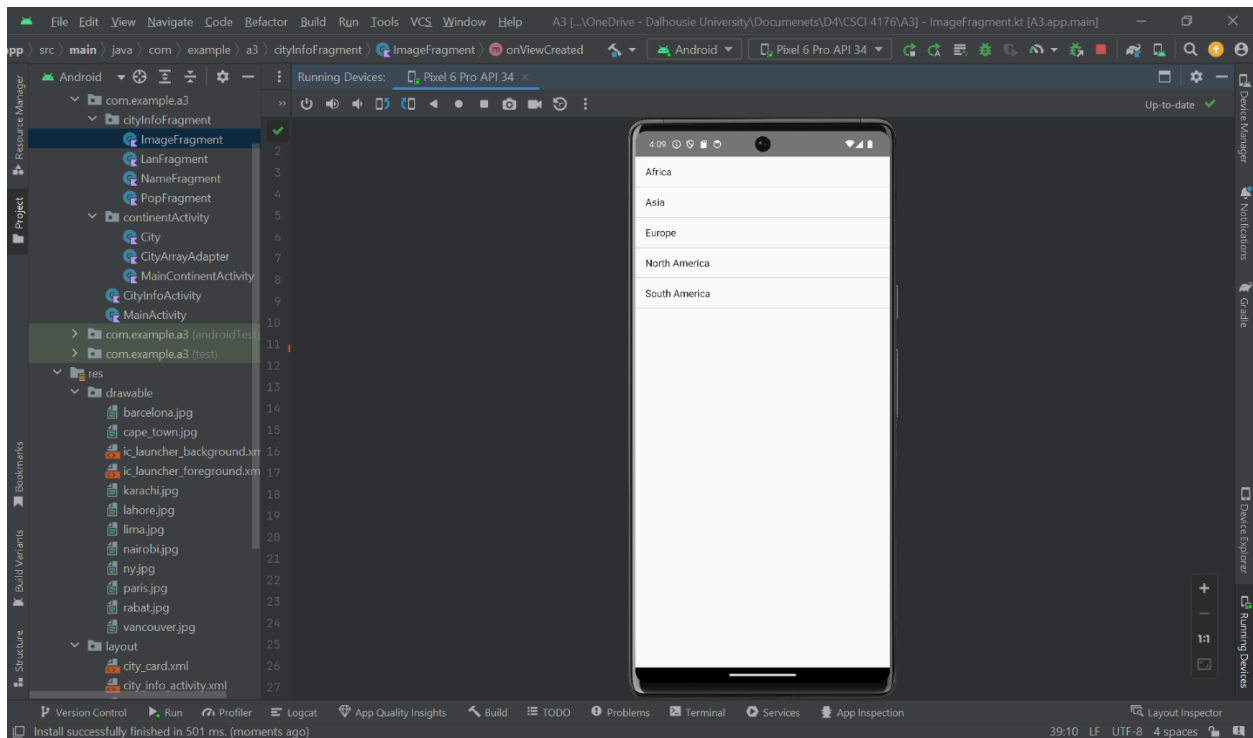
The main challenges were: -

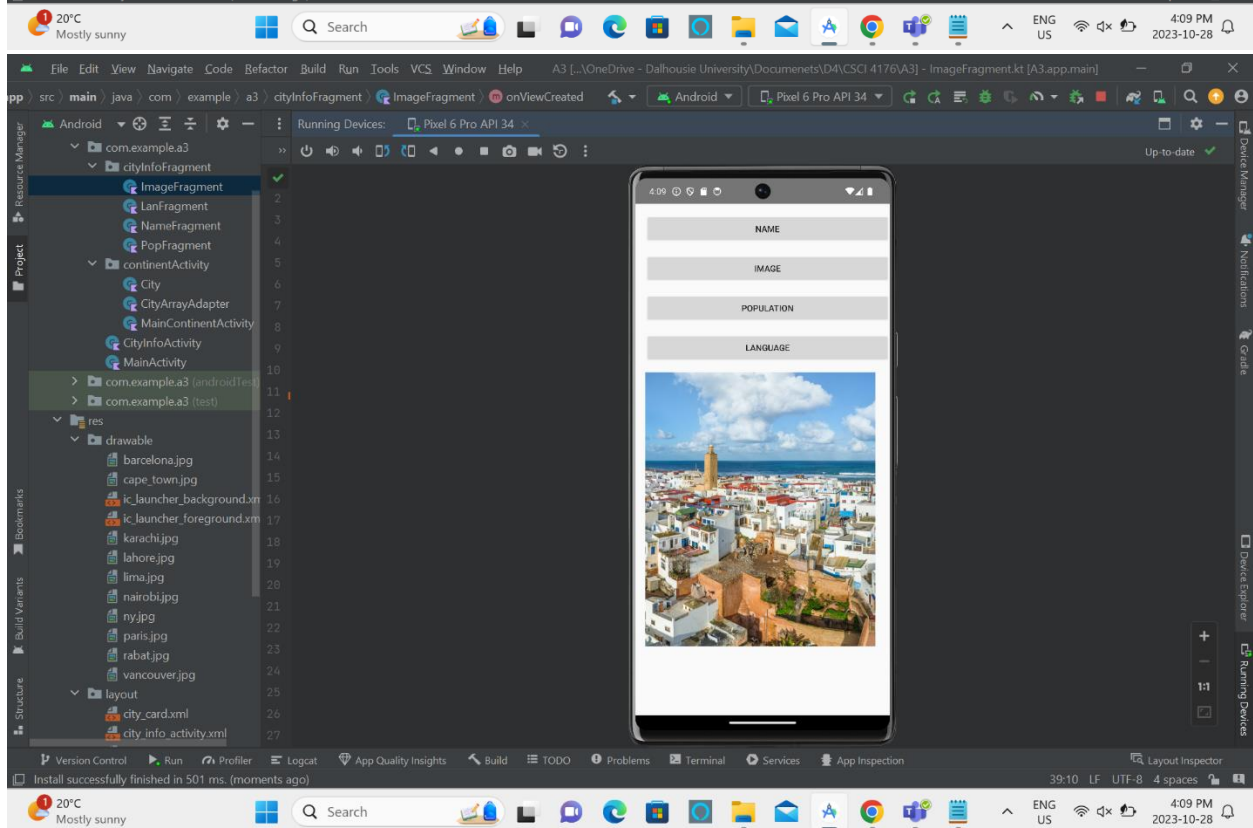
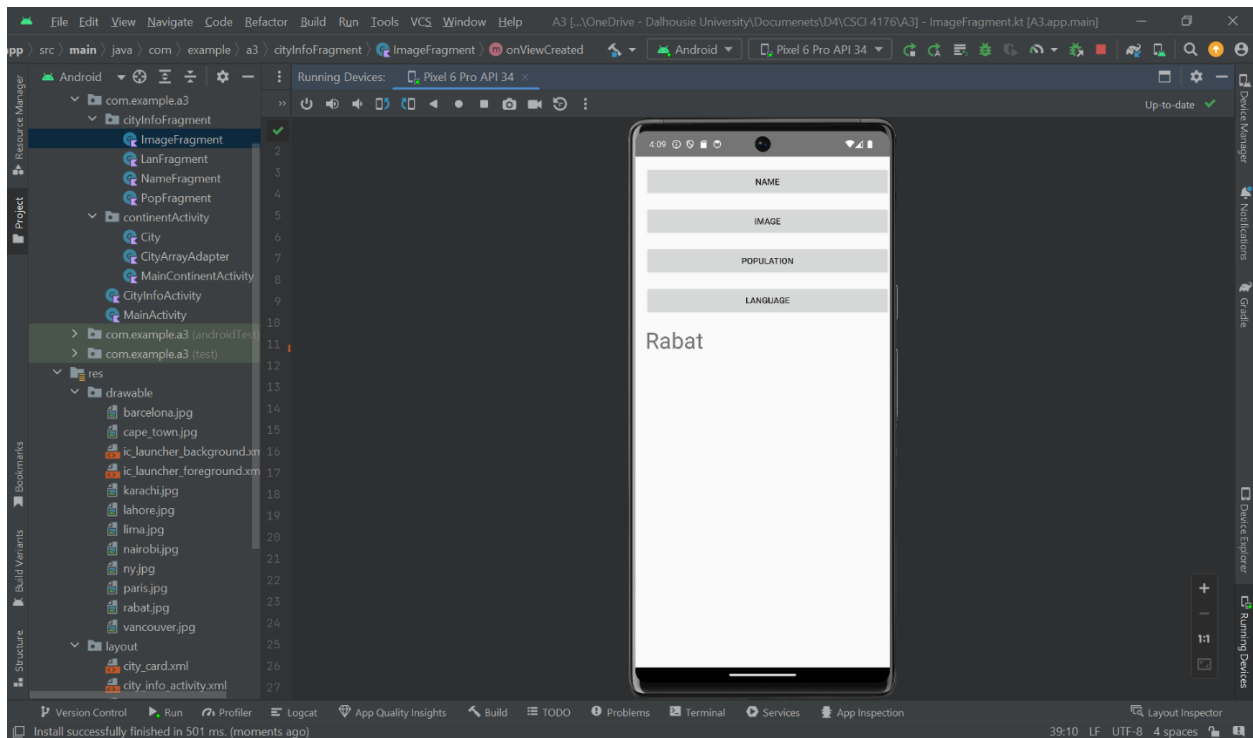
- Using Adapters to host multiple views.
- Sending data through intents in the fragments.
- Hosting multiple fragments.

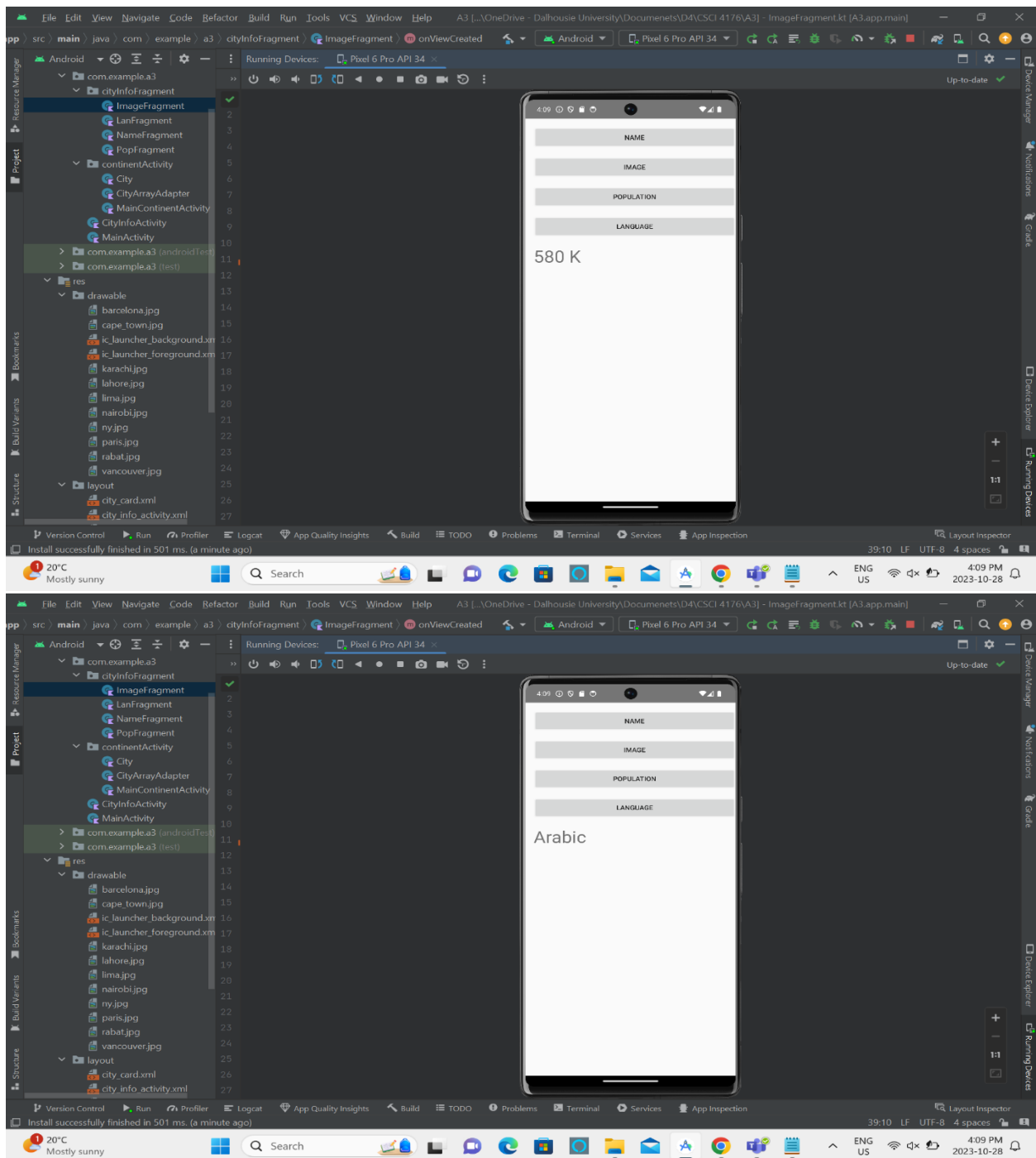
The learning points were: -

- How to use adapters
- How to implement multiple views
- How to use instances
- How to use drawable resources

## Results & Screenshots:







## Conclusion: -

Overall, it was a great learning experience. One of the features that I would like to add is to go back to navigation. Also, I would like to use APIs to display to fetch data.

## References of Images

- Lahore: - <https://pixabay.com/images/search/lahore/>
- Karachi: - [https://en.wikipedia.org/wiki/File:Karachi\\_City.jpg](https://en.wikipedia.org/wiki/File:Karachi_City.jpg)
- Rabat: - <https://www.airpano.com/360article/rabat-morocco/>
- Nairobi: - [https://en.m.wikipedia.org/wiki/File:Nairobi\\_City\\_centre\\_including\\_Basilica.jpg](https://en.m.wikipedia.org/wiki/File:Nairobi_City_centre_including_Basilica.jpg)
- Paris: - <https://stock.adobe.com/ca/search?k=paris>
- Barcelona: - <https://www.gettyimages.ca/photos/barcelona-spain>
- New York: - <https://www.istockphoto.com/photos/new-york-city>
- Vancouver: - <https://www.pexels.com/search/vancouver/>
- Lima: - <https://www.istockphoto.com/photos/lima-peru>
- Cape Town: - <https://www.istockphoto.com/photos/cape-town>