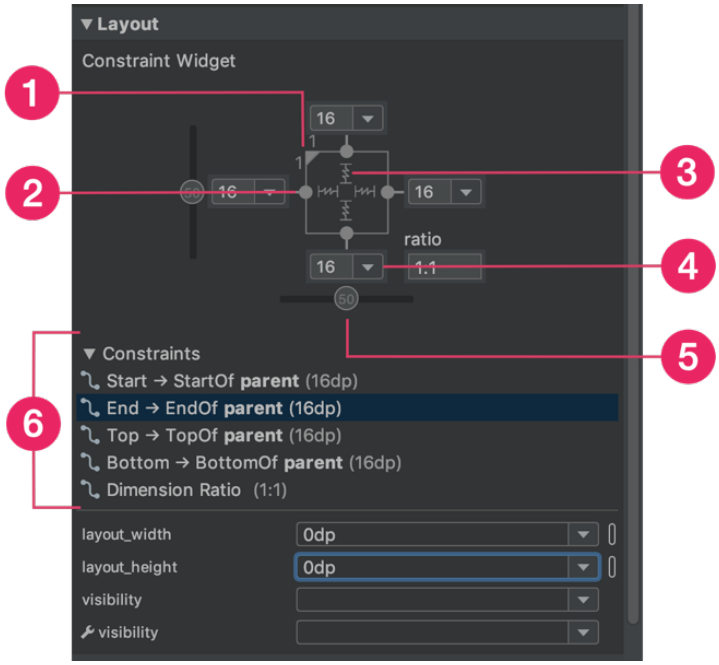
CMPS 312 Mobile Application Development

LAB 4: Android UI

Objective

This lab will be a demonstration of the Android user interface (UI) elements. You will learn how to design android application UIs, including its layout and resource files. By the end of the lab, you should be comfortable in implementing any kind of UI that depends on Buttons, Text Views, Checkboxes, etc..

PART A –Layout Basics using Constraint Layout and Card Views



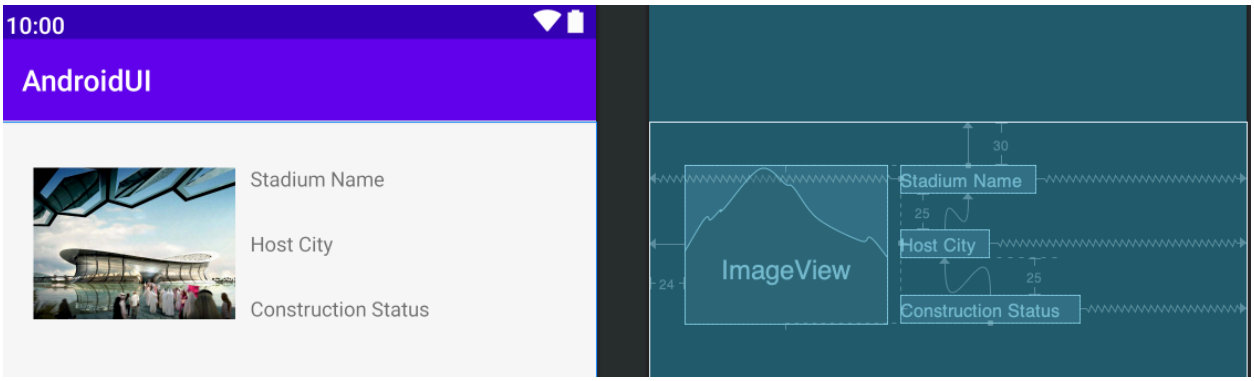
When selecting a view, the **Attributes** window includes controls for size ratio, deleting constraints, height/width mode, margins, and constraint bias. You can also highlight individual constraints in the Layout Editor by clicking on them in the constraint list. For more details about Constraint Layout https://developer.android.com/training/constraint-layout

A. Stadium Item Layout

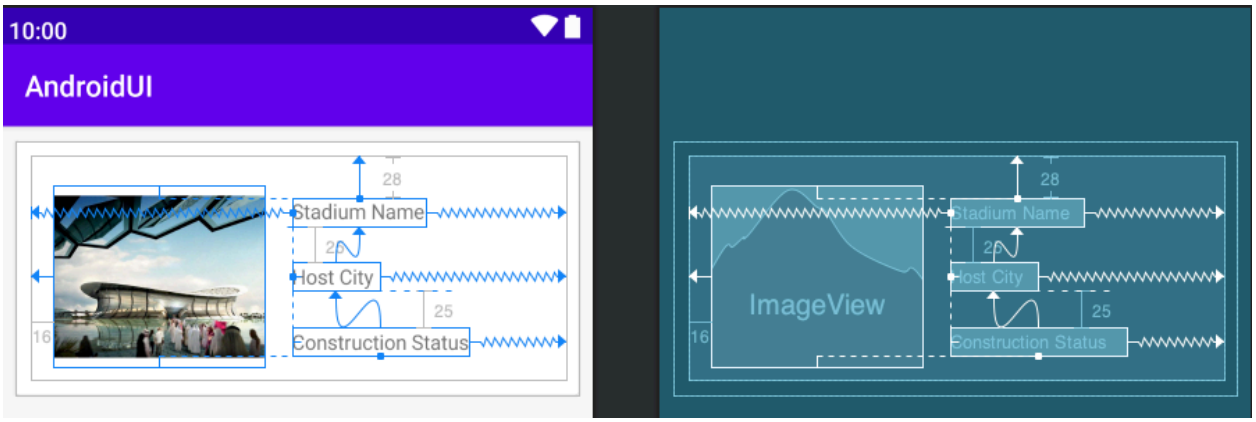
1. Create an application with the name "**Qatar 2022**" and package name: "**cmps312.qatar2022**"
2. Get the Assets folder in lab github repo and put it somewhere you can locate on your computer. We will be using this folder to accomplish the application shown below.
3. Open build.gradle and add recycler view dependency and card view dependency

```
implementation 'androidx.recyclerview:recyclerview:1.1.0'
implementation 'androidx.cardview:cardview:1.0.0'
```

4. Create a layout resource file and name it "stadium_item.xml"
5. Design a similar layout as the one shown below



6. Add a card view around the layout. It should look something similar to the image shown below.



B. Localization

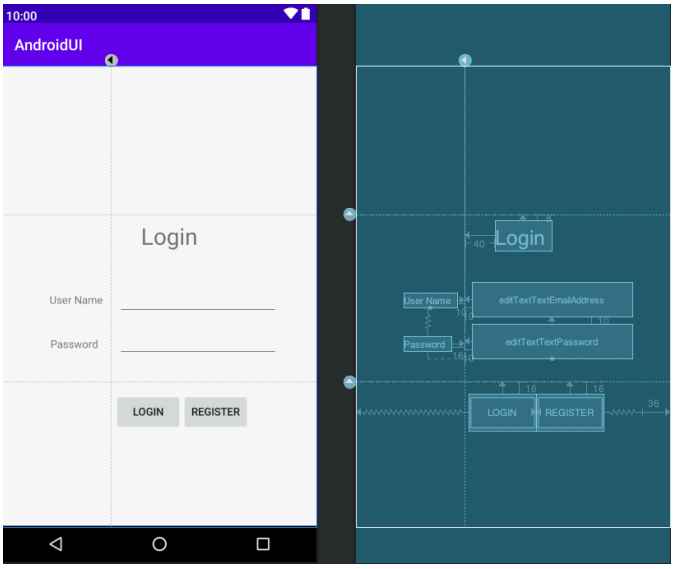
Android runs on many devices in many regions. To reach the most users, your app should handle text, audio files, numbers, currency, and graphics in ways appropriate to the locales where your app is used. Hence, provide an Arabic translation for the login application. Also, make sure you have one generic Arabic language translation and one for the Qatari Arabic Translation.

C. Designing for Tablet and Orientation Changes [Landscape]

1. Provide alternative layout orientation changes to the landscape of phone and Tablet for both application.
2. Provide alternative **drawables** for those layouts

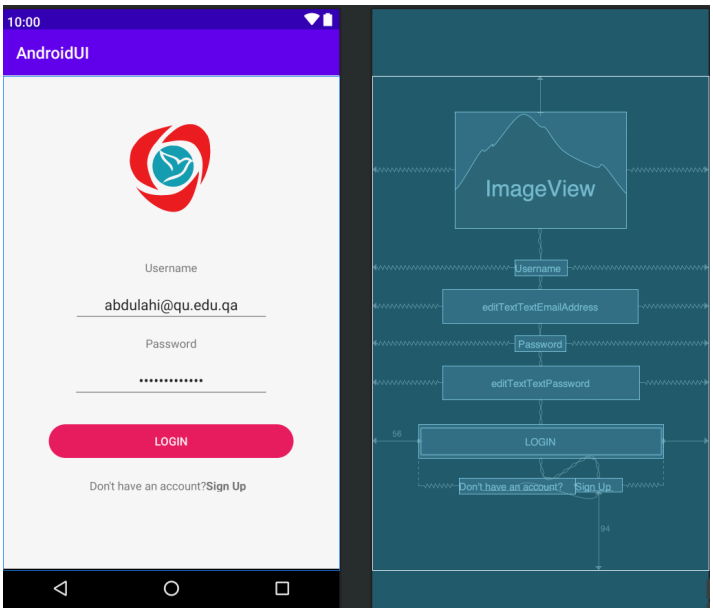
D. Login Screen Layout Design using chains, groups , gridlines and barriers

1. Create a new layout and call it login
2. Use gridlines for to constrain the UI elements
3. Use chain for the buttons
4. Extract all the hard-coded string values and put them on the **values/strings.xml**



Improved Login Screen

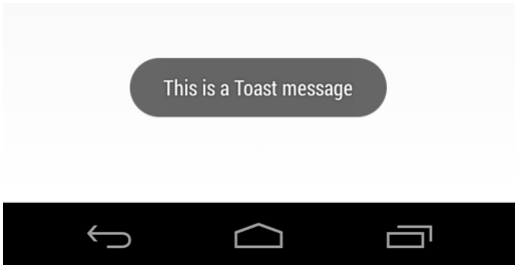
A. Create a another layout and call it login2
B. Download the shared logo or any logo you want
C. Create a round button using XML that you will use for the Login Button background
D. Using the techniques you have seen in the previous two layouts design the following



layout.

E. Extract all hard coded strings into values/strings.xml
F. Extract all dimensional values of your app and put them inside the values/dimens.xml . Some of the dimensions you need to add are
    a. [image width and height]
    b. Text sizes and so on

E. Working with Toast Messages



PART B –Practice Exercise

Implement the following application that allows the user to convert from one unit to another.

1. The application should ask the user what they would like to do as shown in the image 1. If the user did not select and tries to open you should toast a message saying "**Please choose one"**
2. If the user chooses the currency converter as shown in image below, then you should open the currency converter activity. This activity should allow them to convert from QR to USD.