**Experiment 03: Write program to implement frame layout, table layout and relative layout**

**Learning Objective:** To write a program to implement login window using UI controls.

**Tools:** Android Studio

**Theory:**

Android Studio:

Android Studio is the official integrated development environment (IDE) for Android application development. It is based on the IntelliJ IDEA, a Java integrated development environment for software, and incorporates its code editing and developer tools. Every project in Android Studio has one or more modalities with source code and resource files. These modalities include Android app modules, Library modules, and Google App Engine modules.

The various components used in Android studio are:

View: The view is the component which Android Studio provides us to design the layouts of the app. So, we can understand view as a rectangular area which is going to contain some element inside it.

TextView: To add some text in your application.

EditText: This is used when you want to take some input from the users.

ImageView: To add some image in the application.

ProgressBar: To show the progress to something. For example, the loading screen.

Button: Buttons are used to trigger some action on the click of the button. It can be starting a new activity or something else.

ImageButton: It is used to make a clickable image.

CheckBox: CheckBox is used to select some options out of many available options.

DatePicker: To select some particular date.

Customizations available in a View are Width and Height of a View

wrap\_content: This will wrap the content of a view. For example, if you are using LinearLayout and the LinearLayout consists of two buttons and you are using the height of the LinearLayout as wrap\_content, then the height of the LinearLayout will be equal to the length under which both the buttons are present i.e. the LinearLayout is wrapping the contents present in it.

match\_parent: If a view is using match\_parent, then it will get the same size as its parent is having. For example, if LinearLayout is the parent view and the height of LinearLayout is 80dp, then if we are using Button inside the LinearLayout with height as match\_parent, then the height of the Button will also be 80dp i.e. matching the parent.

Resources: Resources is folder which contains the images or the layout files or some string values or something else. Following are the folders that are present inside the res folder:

Drawable: here, we put all our graphics, vector images, custom drawings.

Layout - here, we put all our screen layout files. example: activity\_main.xml

Mipmap - here, we put the images which are used to make the logo of the application.

Values - this folder contains four default files. colors.xml, dimens.xml, strings.xml, style.xml.

**Implementation:**

**Output:**

**Result and Discussion:** After performing the experiment I was able to implement frame layout, table layout and relative layout.

**Learning Outcomes:** The student should have the ability to

LO1: **explain** the details of Android Virtual Device.

LO2: **execute** a simple program on Android Studio

**Course Outcomes:** Upon completion of the course students will be able to execute a simple program on Android Studio.

**Conclusion:** We understood in this experiment the various UI components such as EditText, TextView, Button, ImageButton, ImageView and ViewPager, etc. We implemented an appealing user login page.

For Faculty Use

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| **Correction Parameters** | **Formative Assessment [40%]** | **Timely completion of Practical [ 40%]** | **Attendance / Learning Attitude [20%]** |  |
| **Marks Obtained** |  |  |  |