Department of
Computer Science and Engineering

Title: Implementation of Different Android Layouts

Mobile Application Development

CSE 402

Green University of Bangladesh

1 Objective(s)

- A layout defines the structure for a user interface of the android application. Android treats the layout files as resources. There are number of Layouts provided by Android which provide different view, look and feel accordingly. We've already worked with Linear Layout. This experiment is designed to implement Relative Layouts and Table Layouts in android development.

2 Problem analysis

Android Layout is used to define the user interface that holds the UI controls or widgets that will appear on the screen of an android application or activity screen. Relative Layout is a view group that displays child views in relative positions. Table Layout is a layout that arranges its children into rows and columns. In Relative Layout you can align two elements by right border, or make one below another, centered in the screen, centered left, and so on using the various layout properties available from LayoutParams of Relative Layout.In Table Layout one will use the TableRow element to build a row in the table. Each row has zero or more cells; each cell can hold one View object.

3 Implementation of Different Layouts

3.1 XML File implementing Table Layout

```
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TableRow
        android:layout_width="match_parent"
        android:layout_height="wrap_content">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1"
            android:text="Time" />

        <TextClock
            android:id="@+id/textClock"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="2"
            android:layout_marginLeft="20dp" />
    </TableRow>

    <TableRow>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1"
            android:text="First Name" />

        <EditText
            android:id="@+id/editText"
            android:layout_width="wrap_content"
```

```
            android:layout_height="wrap_content"
            android:layout_column="2"
            android:layout_marginLeft="20dp"
            android:ems="13" />
    </TableRow>

    <TableRow>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1"
            android:text="Last Name" />

        <EditText
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="2"
            android:layout_marginLeft="30dp" />
    </TableRow>

    <TableRow>

        <RatingBar
            android:id="@+id/ratingBar"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="2" />
    </TableRow>

    <TableRow
        android:layout_width="fill_parent"
        android:layout_height="fill_parent">

        <Button
            android:id="@+id/button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="2"
            android:text="Submit" />
    </TableRow>

</TableLayout>
```

3.2 XML File implementing Relative Layout

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Learning_RelativeLayout">
  <TextView
        android:id="@+id/ET1"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="false"
        android:layout_centerInParent="false"
```

```
12
13          android:layout_width="match_parent"
14          android:layout_height="wrap_content"
15          android:text="Relative Layout!!"
16          android:textSize="20dp"
17          android:textStyle="bold"
18          android:textColor="@android:color/holo_blue_dark"/>
19      <Button
20          android:id="@+id/btnadd"
21          android:layout_width="wrap_content"
22          android:layout_height="wrap_content"
23
24          android:layout_below="@id/ET1"
25          android:layout_marginLeft="100dp"
26          android:text="+" />
27      <Button
28          android:id="@+id/btnSub"
29          android:layout_width="wrap_content"
30          android:layout_height="wrap_content"
31
32          android:layout_below="@id/ET1"
33          android:layout_toRightOf="@+id/btnadd"
34          android:layout_marginLeft="20dp"
35          android:text="-" />
36      <Button
37          android:id="@+id/btnMul"
38          android:layout_width="wrap_content"
39          android:layout_height="wrap_content"
40
41          android:layout_below="@+id/btnadd"
42          android:layout_alignStart="@+id/btnadd"
43          android:text="*" />
44      <Button
45          android:id="@+id/btnDiv"
46          android:layout_width="wrap_content"
47          android:layout_height="wrap_content"
48
49          android:layout_below="@+id/btnSub"
50          android:layout_toRightOf="@+id/btnMul"
51          android:layout_alignStart="@+id/btnSub"
52          android:text="/" />
53
54      <Button
55          android:id="@+id/btnEqual"
56          android:layout_width="27dp"
57          android:layout_height="wrap_content"
58
59          android:layout_below="@+id/btnMul"
60          android:layout_alignStart="@+id/btnMul"
61          android:layout_alignEnd="@+id/btnDiv"
62
63          android:layout_marginStart="84dp"
64          android:layout_marginEnd="85dp"
65          android:text="=" />
66
67  </RelativeLayout>
```

4 Input/Output

Run the code and observe the output in the virtual device.

5 Discussion & Conclusion

From this experiments we learn about how different layouts work. In table layout views are in rows and columns. In Relative layout views are situated relative to parent or sibling views. This experiment is designed in a way to teach the students about some important layouts in android Development.

6 Lab Task (Please implement yourself and show the output to the instructor)

1. Design a Log-in page implementing Relative Layout.
2. Design a Calculator using Table Layout.

6.1 Problem analysis

Implement the lab tasks with the help of different features of Table Layout and Relative Layout as taught in the experiment.

7 Lab Exercise (Submit as a report)

- Design a calculator and a Log-in page using Grid Layout.

8 Policy

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