Lab 6
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CSE-660

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Part I – Creating Hello World program in Android.

Work done:

Installed Android Emulator and Android Studios for Hello world, Calculator and Fragments application.

Downloaded and Installed Android Studio 2.3.2 for activities.

Downloaded Android Emulator for Nexus-6.

MainActivity.java

The main activity is an entry point for app. When we build and run the app, the system launches an instance of this Activity and loads its layout.

For Helloworld Application

```
package com.example.amit.helloworld;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
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="com.example.amit.helloworld.MainActivity">

    <TextView
        android:layout_width="109dp"
```

```
        android:layout_height="102dp"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.291"
        tools:layout_editor_absoluteX="121dp" />

</android.support.constraint.ConstraintLayout>
```

Output :

Part II – Calculator with Android

MainActivity.java

```
public class MainActivity extends Activity implements View.OnClickListener{
    EditText t1;
    EditText t2;

    ImageButton divide;
    ImageButton plus;
    ImageButton minus;
    ImageButton multiply;

    TextView displayResult;

    String oper = "";

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // find the EditText elements (defined in res/layout/activity_main.xml
        t1 = (EditText) findViewById(R.id.t1);
        t2 = (EditText) findViewById(R.id.t2);

        plus = (ImageButton) findViewById(R.id.plus);
        minus = (ImageButton) findViewById(R.id.minus);
        multiply = (ImageButton) findViewById(R.id.multiply);
        divide = (ImageButton) findViewById(R.id.divide);

        displayResult = (TextView) findViewById(R.id.displayResult);

        // set  listeners
        plus.setOnClickListener( this );
        minus.setOnClickListener( this);
        multiply.setOnClickListener( this);
        divide.setOnClickListener( this);

    }

    // @Override
    public void onClick( View view ) {
        double num1 = 0;
        double num2 = 0;
        double result = 0;

        // check if the fields are empty
        if (TextUtils.isEmpty(t1.getText().toString())
                || TextUtils.isEmpty(t2.getText().toString())) {
            return;
        }
```

```
        // read EditText and fill variables with numbers
        num1 = Float.parseFloat(t1.getText().toString());
        num2 = Float.parseFloat(t2.getText().toString());

        // perform operations
        // save operator in oper for later use
        switch ( view.getId() ) {
            case R.id.plus:
                oper = "+";
                result = num1 + num2;
                break;
            case R.id.minus:
                oper = "-";
                result = num1 - num2;
                break;
            case R.id.multiply:
                oper = "*";
                result = num1 * num2;
                break;
            case R.id.divide:
                oper = "/";
                result = num1 / num2;
                break;
            default:
                break;
        }

        // form the output line
        displayResult.setText(num1 + " " + oper + " " + num2 + " = " + result);
    }
}
```

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout1"
        android:layout_marginLeft="12pt"
        android:layout_marginRight="12pt"
        android:layout_marginTop="4pt">
        <EditText
            android:layout_weight="1"
            android:layout_height="wrap_content"
            android:layout_marginRight="6pt"
            android:id="@+id/t1"
            android:layout_width="match_parent"
            android:inputType="numberDecimal">
        </EditText>
        <EditText
            android:layout_height="wrap_content"
```

```
            android:layout_weight="1"
            android:layout_marginLeft="6pt"
            android:id="@+id/t2"
            android:layout_width="match_parent"
            android:inputType="numberDecimal">
        </EditText>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout2"
        android:layout_marginTop="4pt"
        android:layout_marginLeft="6pt"
        android:layout_marginRight="6pt">
        <ImageButton
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:src="@drawable/plus"
            android:layout_weight="1"
            android:textSize="10pt"
            android:id="@+id/plus">
        </ImageButton>
        <ImageButton
            android:layout_height="wrap_content"
            android:src="@drawable/minus"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:textSize="8pt"
            android:id="@+id/minus">
        </ImageButton>
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout3"
        android:layout_marginTop="4pt"
        android:layout_marginLeft="6pt"
        android:layout_marginRight="6pt">

        <ImageButton
            android:layout_height="wrap_content"
            android:src="@drawable/munus"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:textSize="10pt"
            android:id="@+id/multiply">
        </ImageButton>
        <ImageButton
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:src="@drawable/divide"
            android:textSize="10pt"
            android:id="@+id/divide">
        </ImageButton>
    </LinearLayout>
```

```
    <TextView
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_marginLeft="6pt"
        android:layout_marginRight="6pt"
        android:textSize="12pt"
        android:layout_marginTop="4pt"
        android:id="@+id/displayResult"
        android:gravity="center_horizontal">
    </TextView>
</LinearLayout>
```

Output:

Part III – Fragment in Android

Main-Activity.java

```
package com.concretepage.android;
import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.support.v4.app.FragmentActivity;
import android.support.v4.app.FragmentManager;
import android.support.v4.app.FragmentTransaction;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import com.cp.android.R;
public class MainActivity extends FragmentActivity{
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
        OnClickListener listener = new OnClickListener() {
             public void onClick(View view) {
                    Fragment fragment = null;
                    if(view == findViewById(R.id.button1)){
                         fragment = new FragmentOne();
                    } else {
                         fragment = new FragmentTwo();
                    }
                        FragmentManager manager = getSupportFragmentManager();
                        FragmentTransaction transaction = manager.beginTransaction();
                        transaction.replace(R.id.output, fragment);
                        transaction.commit();
             }
         };
        Button btn1 = (Button)findViewById(R.id.button1);
        btn1.setOnClickListener(listener);
        Button btn2 = (Button)findViewById(R.id.button2);
        btn2.setOnClickListener(listener);
    }
}
```

Fragmentone.java

```
package com.concretepage.android;
import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;
import com.cp.android.R;
public class FragmentOne extends Fragment {
    @Override
    public View onCreateView(LayoutInflater inflater,ViewGroup viewGroup, Bundle
savedInstanceState) {
        View view = inflater.inflate(R.layout.fragment_one, viewGroup, false);
        TextView output= (TextView)view.findViewById(R.id.msg1);
        output.setText("Fragment One");
        return view;
    }
}
```

Fragmenttwo.java

```
package com.concretepage.android;
import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;
import com.cp.android.R;
public class FragmentTwo extends Fragment {
    @Override
    public View onCreateView(LayoutInflater inflater,ViewGroup viewGroup, Bundle
savedInstanceState) {
        View view = inflater.inflate(R.layout.fragment_two, viewGroup, false);
        TextView output= (TextView)view.findViewById(R.id.msg2);
        output.setText("Fragment Two");
        return view;
    }
}
```

Activity_main.xml

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical">
  <LinearLayout
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:weightSum="4">
  <Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Fragment One"
    android:onClick="FragmentOneClick"
    android:layout_weight="2"/>

  <Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Fragment Two"
    android:onClick="FragmentTwoClick"
    android:layout_weight="2"/>
  </LinearLayout>

  <fragment
    android:id="@+id/fragment_switch"
    android:name="com.androidfragment.FragmentOne"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
```

```
        android:layout_marginLeft="5dp"
        android:layout_marginRight="5dp"
        android:layout_marginBottom="5dp"/>

</LinearLayout>
```

Fragment_one.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:text="Fragment One"
        android:textStyle="bold"
        android:textSize="20dp"
        android:textColor="#ffffff"
        android:gravity="center"
        android:background="#6ef46e"/>

</LinearLayout>
```

Fragment_two.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

    <TextView
        android:id="@+id/textView2"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Fragment Two"
        android:textStyle="bold"
        android:textSize="20dp"
        android:textColor="#ffffff"
        android:gravity="center"
        android:background="#ea99ea"/>

</LinearLayout>
```

Output: The fragment one is adjusted in such a way that it displays green color and fragment two displays pink color.