**Task 1: Creating a bounded service which can provide the service for basic arithmetic operations like addition, subtraction, multiplication and division.**

**XML:**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout 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"  
android:orientation="vertical"  
 android:paddingTop="20sp"  
 tools:context=".MainActivity">  
  
<LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <EditText  
 android:id="@+id/num1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
  
 <TextView  
 android:id="@+id/textViewadd"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="+" />  
 <EditText  
 android:id="@+id/num2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Add"  
 android:onClick="Addition"  
 />  
 <TextView  
 android:id="@+id/addanswer"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textSize="20sp"  
 android:gravity="center"  
 android:text="" />  
  
</LinearLayout>  
  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <EditText  
 android:id="@+id/num3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
  
 <TextView  
 android:id="@+id/textViewsub"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="-" />  
 <EditText  
 android:id="@+id/num4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Subtract"  
 android:onClick="Subtract"  
 />  
 <TextView  
 android:id="@+id/subanswer"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textSize="20sp"  
 android:text="" />  
 </LinearLayout>  
  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <EditText  
 android:id="@+id/num5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
  
 <TextView  
 android:id="@+id/textViewmul"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="\*" />  
 <EditText  
 android:id="@+id/num6"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Multiply"  
 android:onClick="Multiply"  
 />  
 <TextView  
 android:id="@+id/mulanswer"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textSize="20sp"  
 android:text="" />  
 </LinearLayout>  
  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <EditText  
 android:id="@+id/num7"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
  
 <TextView  
 android:id="@+id/textViewdiv"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="/" />  
 <EditText  
 android:id="@+id/num8"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter"/>  
  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Divide"  
 android:onClick="Divide"  
 />  
 <TextView  
 android:id="@+id/divanswer"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textSize="20sp"  
 android:text="" />  
 </LinearLayout>  
  
</LinearLayout>

**JAVA:**

**MyService:**

**package** com.example.hp.myapplication;  
**import** android.app.Service;  
**import** android.content.Intent;  
**import** android.os.Binder;  
**import** android.os.IBinder;  
**import** android.util.Log;  
**import** android.widget.Toast;  
**import** java.text.SimpleDateFormat;  
**import** java.util.Date;  
**import** java.util.Locale;  
**public class** MyService **extends** Service {  
  
 Integer **c**;  
 **private final** IBinder **bindingObject** = **new** MyLocalBinder();  
 @Override  
 **public** IBinder onBind(Intent intent) {  
 **return bindingObject**; }  
 **public** Integer add(Integer a,Integer b) { **return** a+b; }  
 **public** Integer sub(Integer a,Integer b){**return** a-b;}  
 **public** Integer mul(Integer a,Integer b) { **return** a\*b; }  
 **public** Integer div(Integer a,Integer b) {  
 **try** { **c**=a/b; }  
 **catch** (ArithmeticException e) { Log.*i*(**"error"**,**"Divide by zero exception"**); }  
 **return c**; }  
**public class** MyLocalBinder **extends** Binder {  
 **public** MyService getService(){  
 **return** MyService.**this**; }}}

**ActivityMain**

**package** com.example.hp.myapplication;  
  
**import** android.content.ComponentName;  
**import** android.content.Context;  
**import** android.content.Intent;  
**import** android.content.ServiceConnection;  
**import** android.os.IBinder;  
**import** android.support.v7.app.AppCompatActivity;  
**import** android.os.Bundle;  
**import** android.view.View;  
**import** android.widget.ArrayAdapter;  
**import** android.widget.EditText;  
**import** android.widget.Spinner;  
**import** android.widget.TextView;  
**public class** MainActivity **extends** AppCompatActivity {  
  
 MyService **services**;  
 **boolean isBound** = **false**;  
 EditText **number1**,**number2**,**number3**,**number4**,**number5**,**number6**,**number7**,**number8**;  
 Integer **num1**,**num2**,**num3**,**num4**,**num5**,**num6**,**num7**,**num8**,**answer**;  
 TextView **textadd**,**textsub**,**textmul**,**textdiv**;  
  
 **public void** Addition(View view){  
 **num1**=Integer.*parseInt*(**number1**.getText().toString());  
 **num2**=Integer.*parseInt*(**number2**.getText().toString());  
 **answer** = **services**.add(**num1**,**num2**);  
 **textadd**.setText(**answer**.toString());  
 }  
 **public void** Subtract(View view) {  
  
 **num3**=Integer.*parseInt*(**number3**.getText().toString());  
 **num4**=Integer.*parseInt*(**number4**.getText().toString());  
 **answer** = **services**.sub(**num3**,**num4**);  
 **textsub**.setText(**answer**.toString());  
 }  
  
 **public void** Multiply(View view) {  
  
 **num5**=Integer.*parseInt*(**number5**.getText().toString());  
 **num6**=Integer.*parseInt*(**number6**.getText().toString());  
 **answer** = **services**.mul(**num5**,**num6**);  
 **textmul**.setText(**answer**.toString());  
 }  
 **public void** Divide(View view) {  
  
 **num7**=Integer.*parseInt*(**number7**.getText().toString());  
 **num8**=Integer.*parseInt*(**number8**.getText().toString());  
 **answer** = **services**.div(**num7**,**num8**);  
 **textdiv**.setText(**answer**.toString());  
 }  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
 **number1**=(EditText)findViewById(R.id.***num1***);  
 **number2**=(EditText)findViewById(R.id.***num2***);  
 **number3**=(EditText)findViewById(R.id.***num3***);  
 **number4**=(EditText)findViewById(R.id.***num4***);  
 **number5**=(EditText)findViewById(R.id.***num5***);  
 **number6**=(EditText)findViewById(R.id.***num6***);  
 **number7**=(EditText)findViewById(R.id.***num7***);  
 **number8**=(EditText)findViewById(R.id.***num8***);  
 **textadd** = (TextView)findViewById(R.id.***addanswer***);  
 **textsub** = (TextView)findViewById(R.id.***subanswer***);  
 **textmul** = (TextView)findViewById(R.id.***mulanswer***);  
 **textdiv** = (TextView)findViewById(R.id.***divanswer***);  
  
 Intent i = **new** Intent(**this**, MyService.**class**);  
  
 bindService(i, **myconnection**, Context.***BIND\_AUTO\_CREATE***);  
 }  
 **private final** ServiceConnection **myconnection** = **new** ServiceConnection() {  
 @Override  
 **public void** onServiceConnected(ComponentName componentName, IBinder iBinder) {  
 MyService.MyLocalBinder binder = (MyService.MyLocalBinder) iBinder;  
 **services**= binder.getService();  
 **isBound** = **true**; }  
  
 @Override  
 **public void** onServiceDisconnected(ComponentName componentName) {  
 **isBound** = **false**; } };}

