***TASK # 01***

*Create Calculator application and persist result in shared preferences.*

***CODE***

***JAVA***

*package com.example.lab12;  
import android.content.SharedPreferences;  
import android.support.v7.app.AppCompatActivity;  
import android.os.Bundle;  
import android.util.Log;  
import android.view.Gravity;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
import android.widget.Toast;  
public class MainActivity extends AppCompatActivity {  
 public static final String SHARED\_PREFS = "sharedPrefs";  
 public static final String TEXT = "text";  
 TextView textView;  
 private String text;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_main);  
 textView = (TextView)findViewById(R.id.result\_text\_view);  
 loadData();  
 updateViews(); }  
 public void applyToast(View v){  
 Toast t = Toast.makeText(this,"this is text",Toast.LENGTH\_SHORT);  
 t.setGravity(Gravity.CENTER\_HORIZONTAL,0,0);  
 t.show(); }  
 public void buttonClear(View v){  
 TextView text = (TextView)findViewById(R.id.result\_text\_view);  
 text.setText("0"); }  
 public void addValueInView(View v){  
 Button btn = (Button) v;  
 String text = btn.getText().toString();  
  
 TextView view = (TextView)findViewById(R.id.result\_text\_view);  
 if(view.getText().toString().equals("0")){  
 view.setText("");  
 view.append(text); }  
 else{  
 view.append(text); } }  
 public void buttonDivide(View v){  
 v = (TextView)findViewById(R.id.result\_text\_view);  
 ((TextView)v).append("/"); }  
 public void buttonMultiply(View v){  
 v = (TextView)findViewById(R.id.result\_text\_view);  
 ((TextView)v).append("\*"); }  
 public void buttonSubtract(View v){  
 v = (TextView)findViewById(R.id.result\_text\_view);  
 ((TextView)v).append("-"); }  
 public void buttonAdd(View v){  
 v = (TextView)findViewById(R.id.result\_text\_view);  
  
 ((TextView)v).append("+"); }  
 public void buttonEqual(View v){  
 v = (TextView)findViewById(R.id.result\_text\_view);  
 try {  
 if (((TextView) v).getText().toString().contains("/")) {  
 int index = ((TextView) v).getText().toString().indexOf('/');  
 String stringNum1 = ((TextView) v).getText().toString().substring(0, index);  
 String stringNum2 = ((TextView) v).getText().toString().substring(index+1);  
 double num1 = Double.valueOf(stringNum1);  
 double num2 = Double.valueOf(stringNum2);  
 double ans = num1 / num2;  
 ((TextView) v).setText(String.valueOf(ans)); }  
 else if (((TextView) v).getText().toString().contains("+")) {  
 int index = ((TextView) v).getText().toString().indexOf('+');  
 String stringNum1 = ((TextView) v).getText().toString().substring(0, index);  
 String stringNum2 = ((TextView) v).getText().toString().substring(index+1);  
 double num1 = Double.valueOf(stringNum1);  
 double num2 = Double.valueOf(stringNum2);  
 double ans = num1 + num2;  
 ((TextView) v).setText(String.valueOf(ans)); }  
 else if (((TextView) v).getText().toString().contains("\*")) {  
 int index = ((TextView) v).getText().toString().indexOf('\*');  
 String stringNum1 = ((TextView) v).getText().toString().substring(0, index);  
 String stringNum2 = ((TextView) v).getText().toString().substring(index+1);  
 double num1 = Double.valueOf(stringNum1);  
 double num2 = Double.valueOf(stringNum2);  
 double ans = num1\*num2;  
 ((TextView) v).setText(String.valueOf(ans)); }  
 else if (((TextView) v).getText().toString().contains("-")) {  
 int index = ((TextView) v).getText().toString().indexOf('-');  
 String stringNum1 = ((TextView) v).getText().toString().substring(0, index);  
 String stringNum2 = ((TextView) v).getText().toString().substring(index+1);  
 double num1 = Double.valueOf(stringNum1);  
 double num2 = Double.valueOf(stringNum2);  
 double ans = num1-num2;  
 ((TextView) v).setText(String.valueOf(ans)); }  
 }catch (Exception e){  
 Log.e("error","Exception: "+e); }  
 finally {  
 saveData(); }  
 Toast t = Toast.makeText(this,"this is text",Toast.LENGTH\_SHORT);  
 t.setGravity(Gravity.CENTER\_HORIZONTAL,0,0);  
 t.show(); }  
 public void saveData() {  
 SharedPreferences sharedPreferences = getSharedPreferences(SHARED\_PREFS, MODE\_PRIVATE);  
 SharedPreferences.Editor editor = sharedPreferences.edit();  
 editor.putString(TEXT, textView.getText().toString());  
 editor.apply();  
 Toast.makeText(this, "Data saved", Toast.LENGTH\_SHORT).show(); }  
 public void loadData() {  
 SharedPreferences sharedPreferences = getSharedPreferences(SHARED\_PREFS, MODE\_PRIVATE);  
 text = sharedPreferences.getString(TEXT, ""); }  
 public void updateViews() {  
 textView.setText(text); }}*

***XML***

*activity main.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"*

*tools:context=".MainActivity">*

*<LinearLayout*

*android:layout\_width="match\_parent"*

*android:layout\_height="0dp"*

*android:layout\_weight="2"*

*android:orientation="horizontal"*

*android:background="#3183C9">*

*<TextView*

*android:id="@+id/result\_text\_view"*

*android:layout\_width="match\_parent"*

*android:layout\_height="match\_parent"*

*android:text="0"*

*android:gravity="center\_vertical"*

*android:paddingRight="30dp"*

*android:textColor="#FFF"*

*android:textSize="40sp" />  
 </LinearLayout>*

*<LinearLayout*

*android:layout\_width="match\_parent"*

*android:layout\_height="0dp"*

*android:layout\_weight="1"*

*android:orientation="horizontal">*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_7"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_8"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_9"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/divide"*

*android:onClick="buttonDivide"/>*

*</LinearLayout>*

*<LinearLayout*

*android:layout\_width="match\_parent"*

*android:layout\_height="0dp"*

*android:layout\_weight="1"*

*android:orientation="horizontal">*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_6"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"  
 android:text="@string/\_5"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_4"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/multiply"*

*android:onClick="buttonMultiply"/>*

*</LinearLayout>  
 <LinearLayout*

*android:layout\_width="match\_parent"*

*android:layout\_height="0dp"*

*android:layout\_weight="1"*

*android:orientation="horizontal">*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_3"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_2"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_1"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/minus"*

*android:onClick="buttonSubtract"/>*

*</LinearLayout>*

*<LinearLayout*

*android:layout\_width="match\_parent"*

*android:layout\_height="0dp"*

*android:layout\_weight="1"*

*android:orientation="horizontal">*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1*

*android:text="@string/c"*

*android:onClick="buttonClear"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/\_0"*

*android:onClick="addValueInView"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/equal"*

*android:onClick="buttonEqual"/>*

*<Button*

*android:layout\_width="0dp"*

*android:layout\_height="match\_parent"*

*android:layout\_weight="1"*

*android:text="@string/plus"*

*android:onClick="buttonAdd"/>*

*</LinearLayout>*

*</LinearLayout>*

*Strings.xml:*

*<resources>*

*<string name="app\_name">Lab12</string>  
<string name="\_7">7</string>*

*<string name="\_8">8</string>*

*<string name="\_9">9</string>*

*<string name="\_6">6</string>*

*<string name="\_5">5</string>*

*<string name="\_4">4</string>*

*<string name="\_3">3</string>*

*<string name="\_2">2</string>*

*<string name="\_1">1</string>*

*<string name="c">c</string>*

*<string name="\_0">0</string>*

*<string name="plus">+</string>*

*<string name="minus">-</string>*

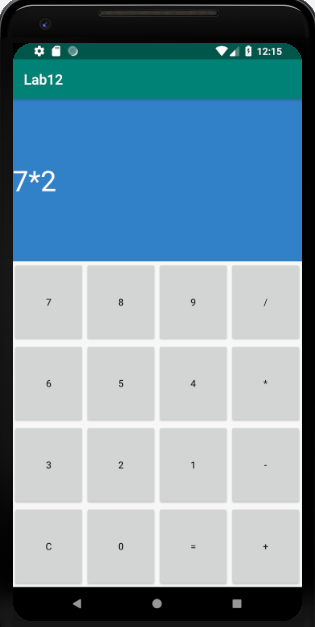
*<string name="multiply">\*</string>*

*<string name="divide">/</string>*

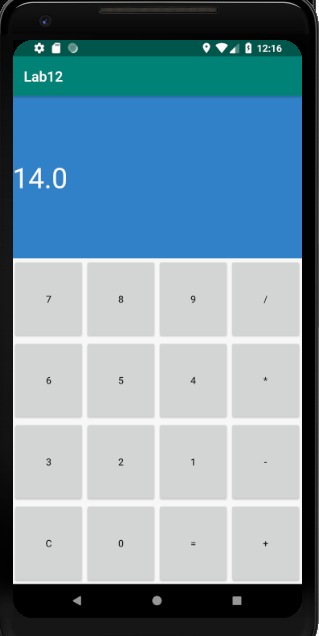
*<string name="equal">=</string>*

*</resources>*

***OUTPUT***

* *

*Go Back and again start application saved data will appear in text box.*

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