


**DR.AMBEDKAR INSTITUTE OF TECHNOLOGY,  
BANGALORE**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

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**MANUAL  
OF  
ANDROID PROGRAMMING**

	<b>SUBJECT TITLE: ANDROID PROGRAMMING LAB</b>		
	<b>SUBJECT CODE:16CSL75</b>	<b>No. of Credits:0:0:1.5:0</b>	<b>No. of Lecture hours per week:3</b>
	<b>Exam Duration :3 hours</b>	<b>Exam Marks: 50</b>	

**Course objectives:**

- 1) To learn and acquire art of Android programming.
- 2) To configure initial application, run in emulator.
- 3) Understand and implement Android's advanced User interface functions, audio video applications
- 4) Create, modify and query on SQLite database.
- 5) Present different ways of sharing data through the use of services.

<b>1.</b>	Write a program to create an Activity to read Employee Details (EmpId, Name, Age, Address) from user and store to database and create a menu with menu item (Show Details) on pressing menu details it must go to another activity with employee id search box and search button and display the employee details on the screen.
<b>2.</b>	Write a program to create an activity with a text box and three buttons (save, open and create) open must allow to browse the text file from sdcard and must display the contents of the file on textbox, save button must save the contents of text box to file, create button must allow file user to create a new file and save the entered contents of the textbox.
<b>3.</b>	Write a program to create an activity with two text boxes (date /time and note contents). Create a content provider to store the date and time and note contents to the database. Create another program with a Button (Fetch Today Notes) on press must access the note provider and display the notes stored for today's date.
<b>4.</b>	Create a program to create an activity with two buttons start and stop. On pressing start button the program must start the counter and must keep on counting until stop button is pressed.
<b>5.</b>	Create a program to receive the incoming SMS to the phone and put a notification on screen, on clicking the notification it must display sender number and message content on screen.
<b>6.</b>	Create a program to create a service that will put a notification on the screen every 5 seconds.
<b>7.</b>	Create an .aidl service to do add, subtraction and multiplication and create another application with two buttons to read the inputs and three button add,subtract and multiply to call add,subtract and multiply operation on .aidl service.
<b>8.</b>	Create an activity like a phone dialer with (1,2,3,4,5,6,7,8,9,0,*,#) buttons and call and save button on pressing the call button, it must call the phone number and on pressing the save button it must save the number to the phone contacts.

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**Course Outcomes:**

CO1: Understand the android OS and fundamental concepts in Android programming.

CO2: Demonstrate various components, layouts and views in creating Android applications

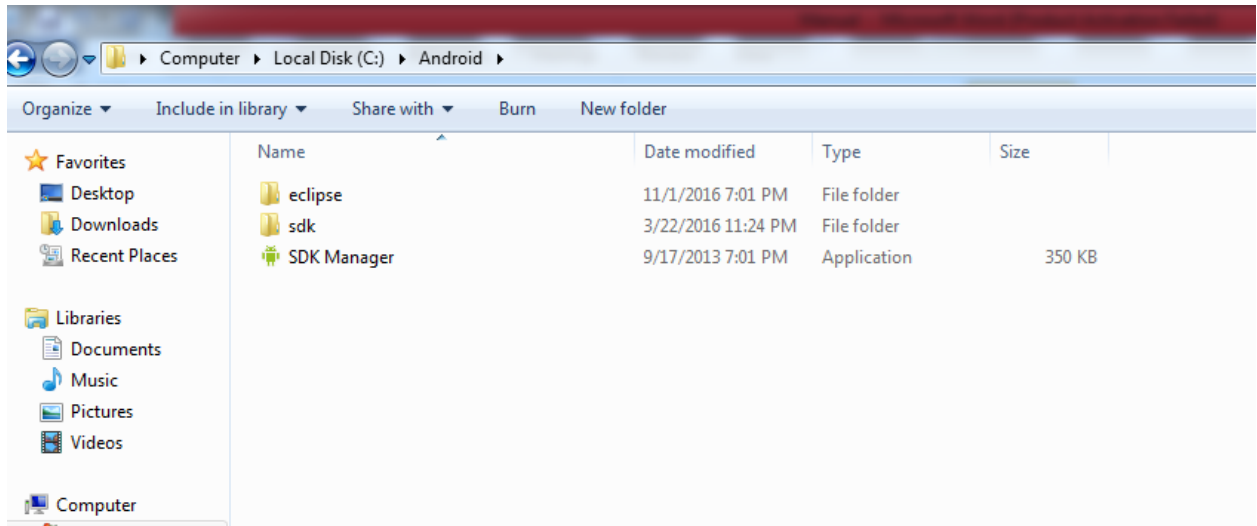
CO3: Design applications to save or to store data in SQLite

CO4: Demonstrate the sharing data with different application and sending SMS

CO5: Demonstrate how to write applications using services

## Installing Android:

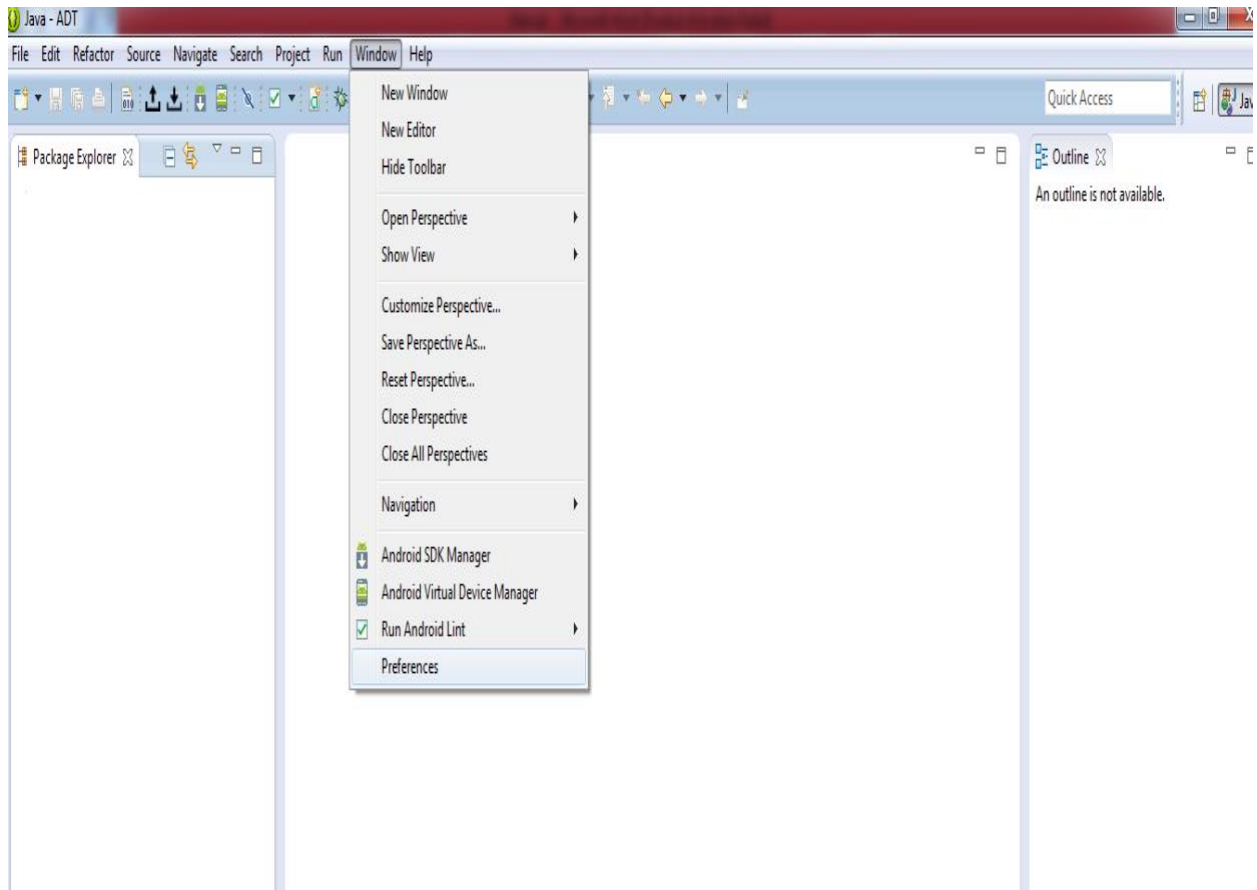
### Copy Android Folder to C: Drive



### Go to Eclipse Folder and launch eclipse icon

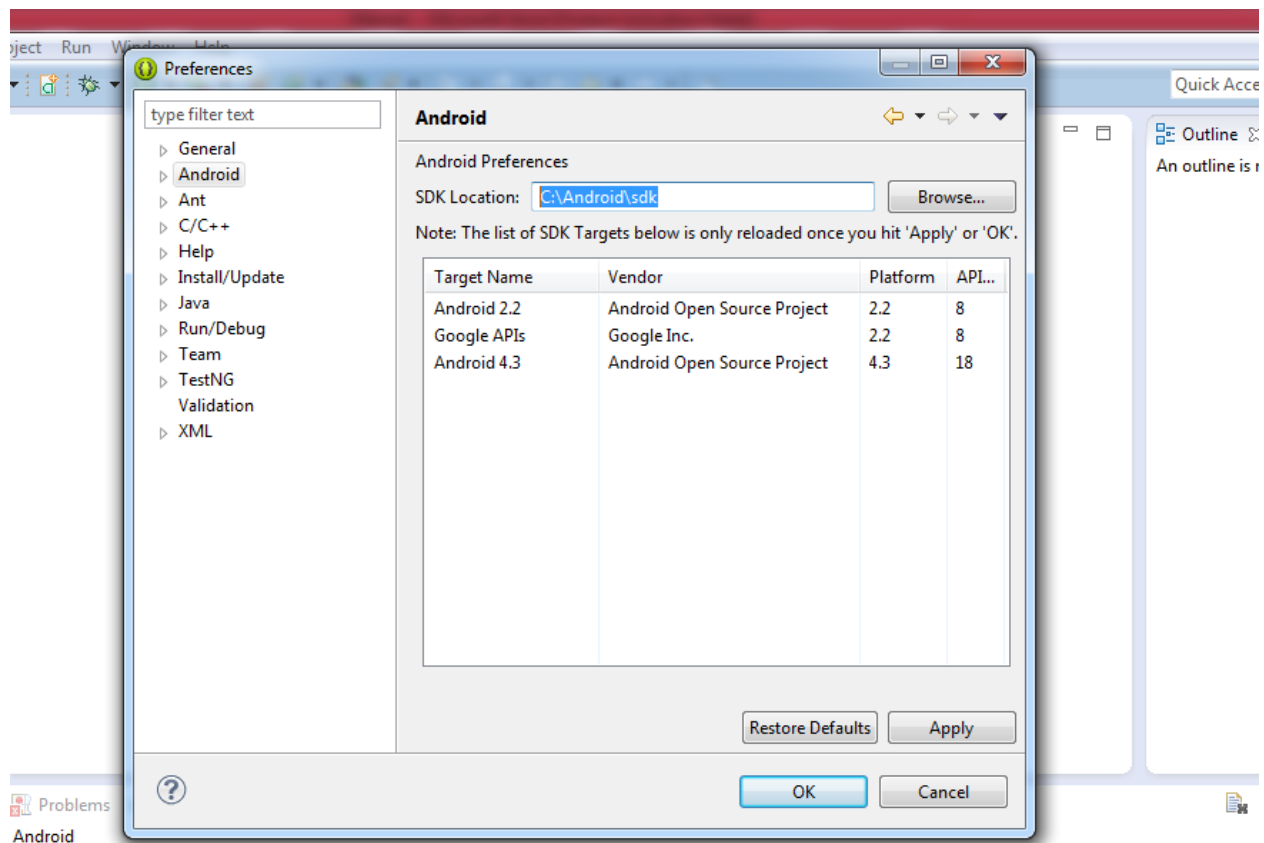
configuration	11/1/2016 7:01 PM	File folder	
dropins	4/16/2014 12:40 PM	File folder	
features	1/23/2016 5:24 PM	File folder	
p2	1/23/2016 5:16 PM	File folder	
plugins	1/23/2016 5:24 PM	File folder	
readme	11/24/2015 11:21 ...	File folder	
.eclipseproduct	2/4/2013 4:25 AM	ECLIPSEPRODUCT...	1 KB
artifacts	1/23/2016 5:24 PM	XML Document	84 KB
eclipse	2/4/2013 5:05 AM	Application	312 KB
eclipse	1/23/2016 5:24 PM	Configuration sett...	1 KB
eclipsec	2/4/2013 5:05 AM	Application	24 KB
epl-v10	2/4/2013 4:28 AM	Firefox HTML Doc...	17 KB
notice	2/4/2013 4:28 AM	Firefox HTML Doc...	9 KB

**To Check Eclipse is configured with Android Go to Window Preferences**



**And click Android SDK location must be pointing to SDK folder inside Android Folder, if it is not showing**

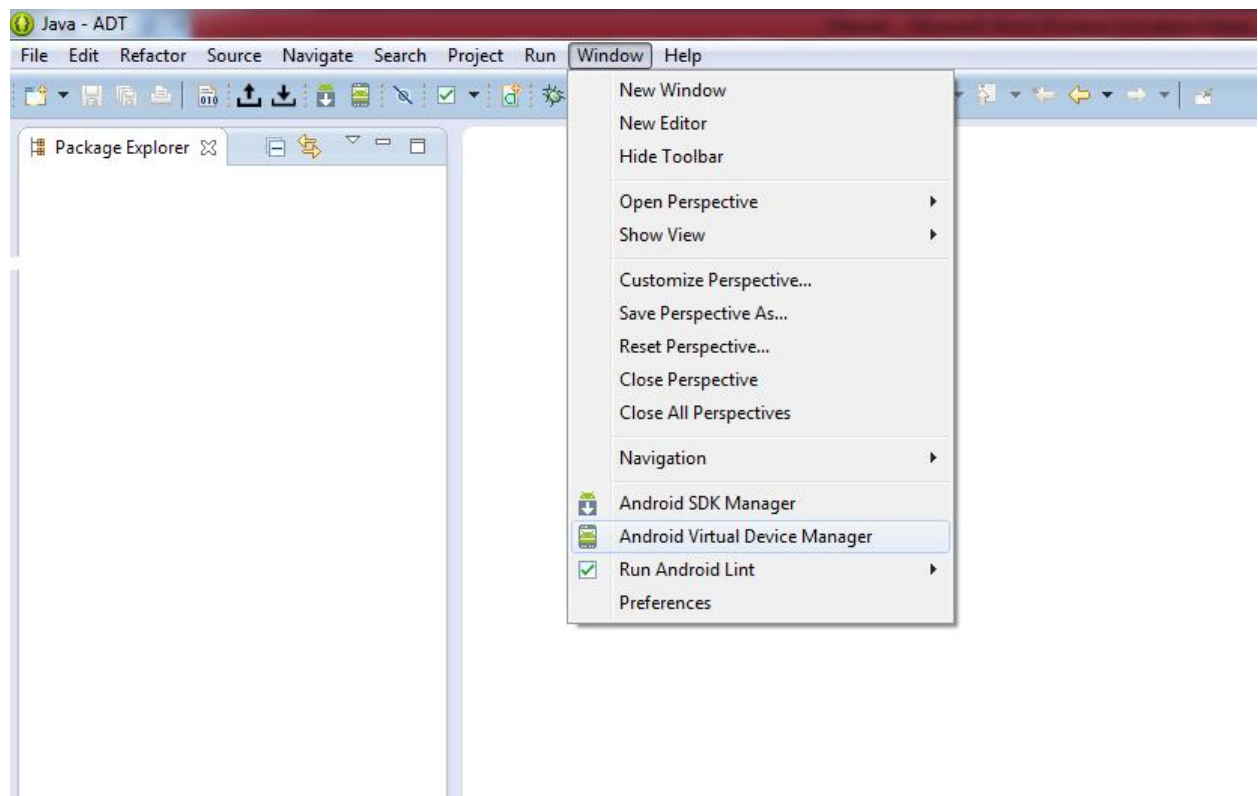
**Click Browse and browse to SDK location and press Apply and Press Ok**



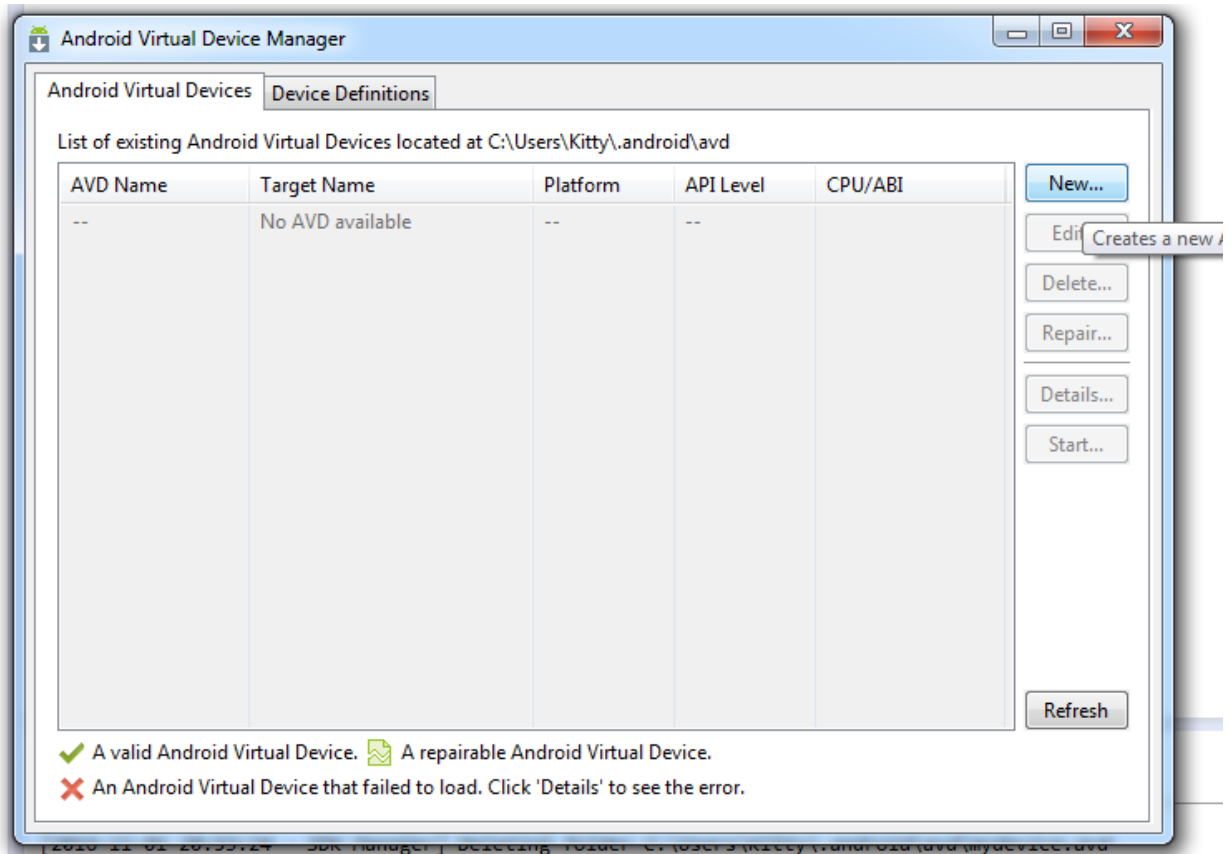
**Now Eclipse is Configured with Android**

**Creating Emulator:**

**Go to Window -> Android Virtual Device Manage**

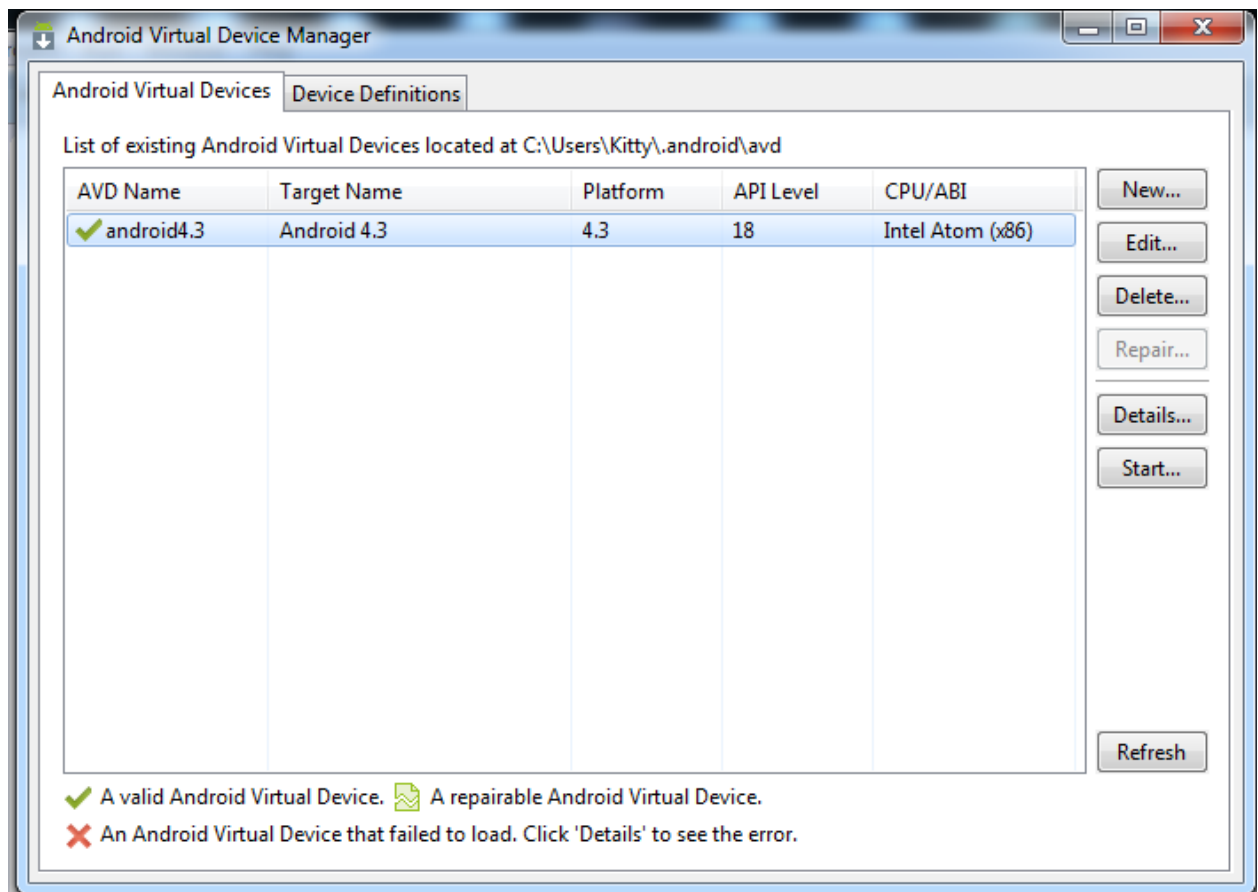


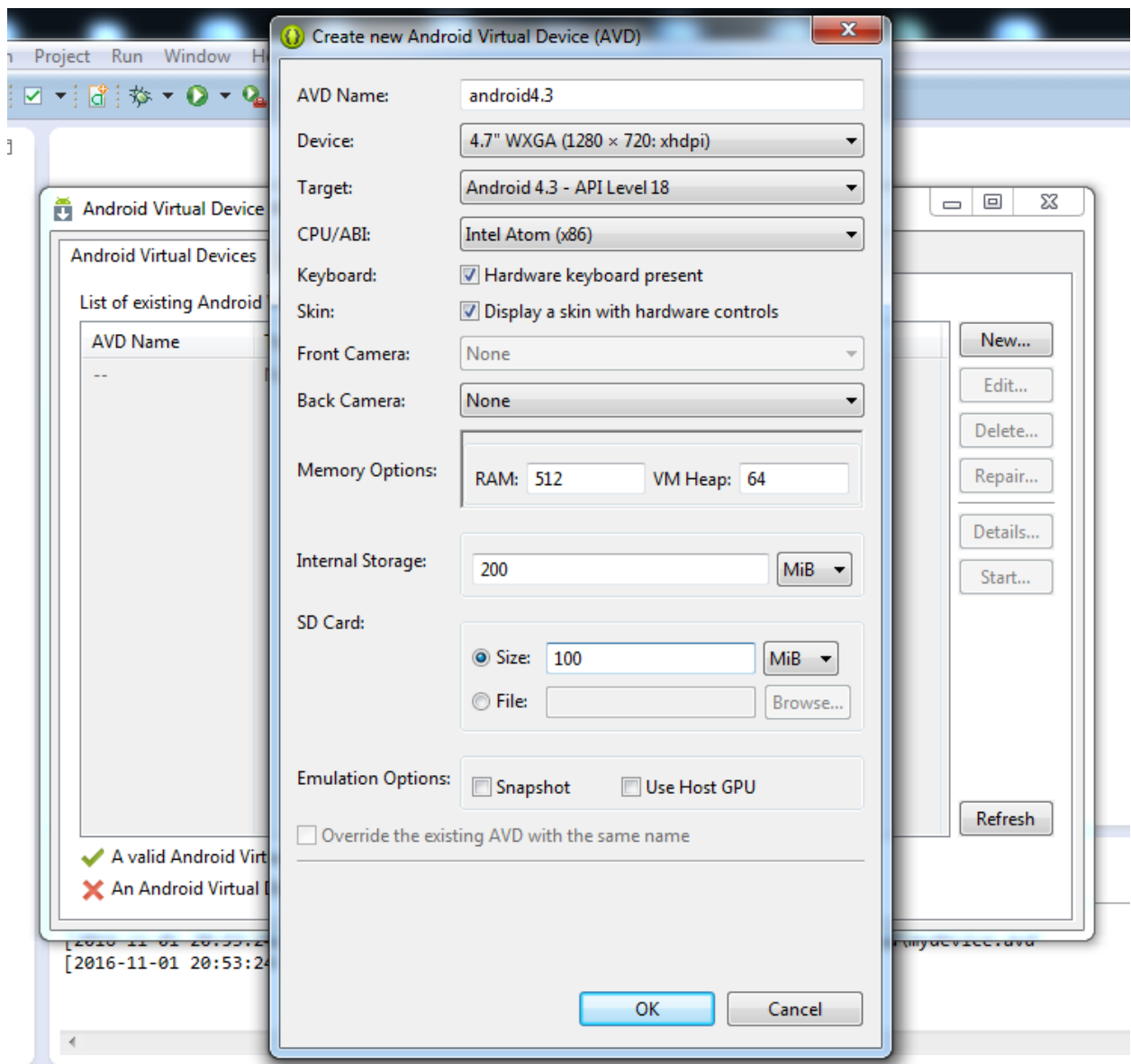
**Press New**



Enter the Emulator Details Device Name must contain small letters without space character  
enter necessary detail and press ok

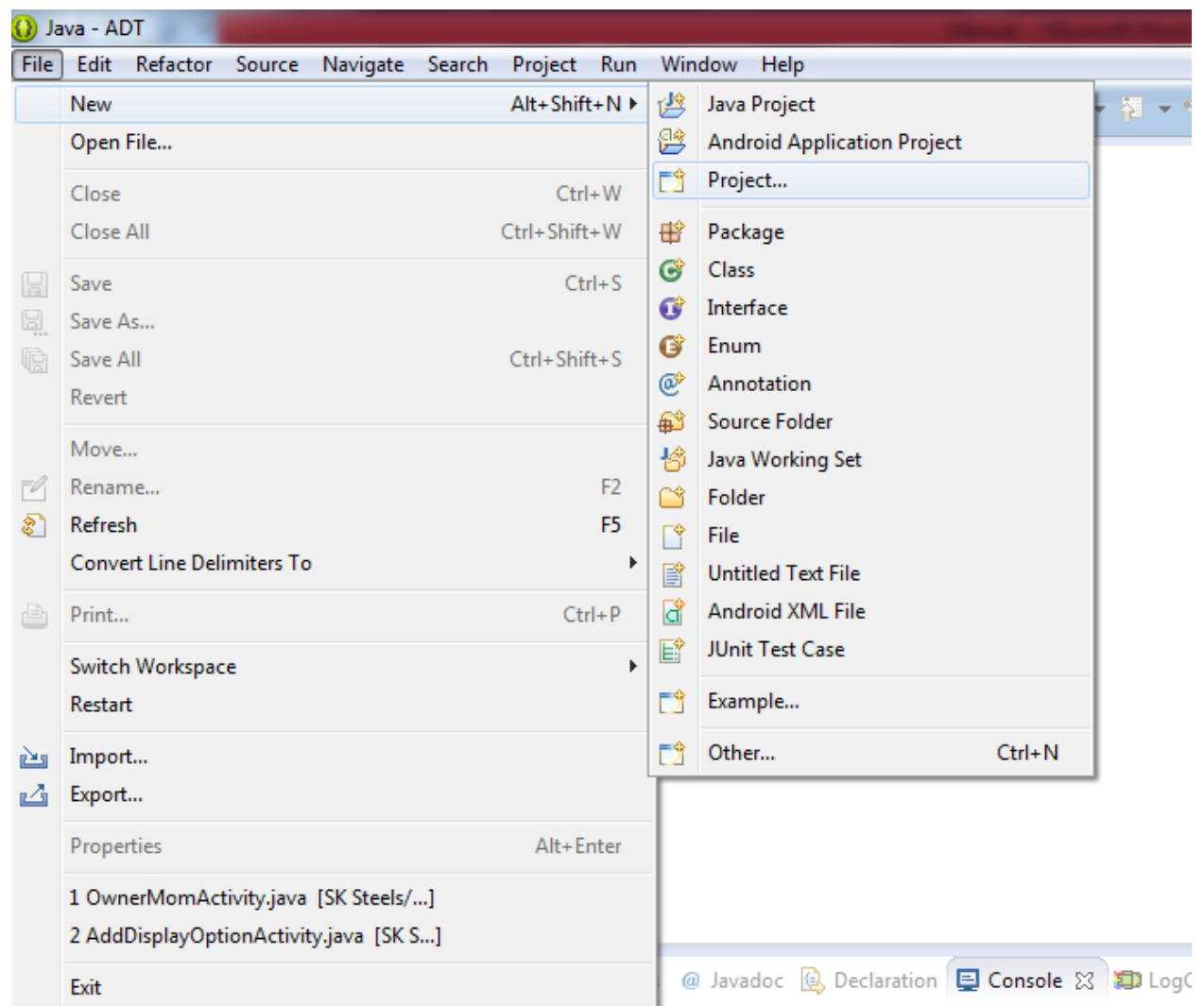




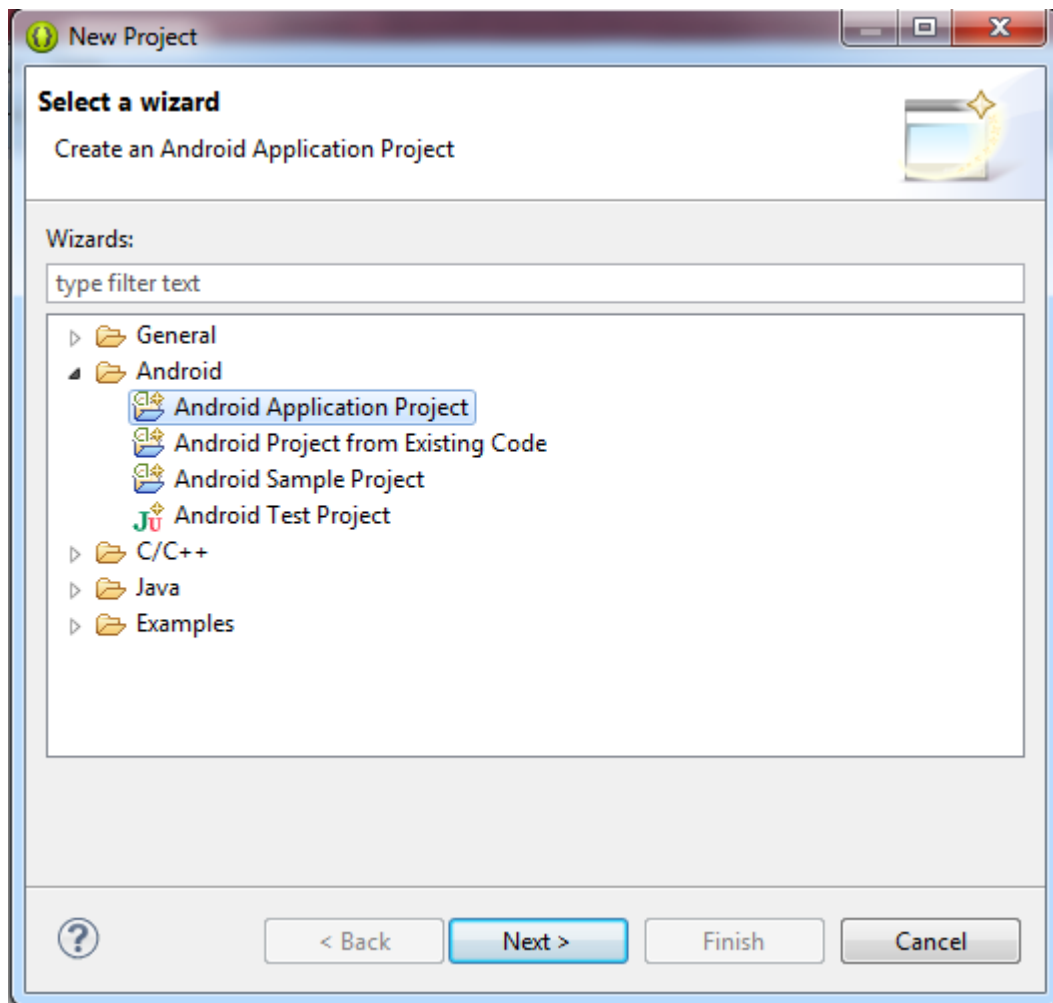


**Creating New Android in Eclipse:**

## Go to File -> Project



Expand Android and Select Android Application Project and press Next



**Enter Application Name, other two fields fill automatically**

New Android Application

**New Android Application**

⚠ The prefix 'com.example.' is meant as a placeholder and should not be used

Application Name:

Project Name:

Package Name:

Minimum Required SDK:

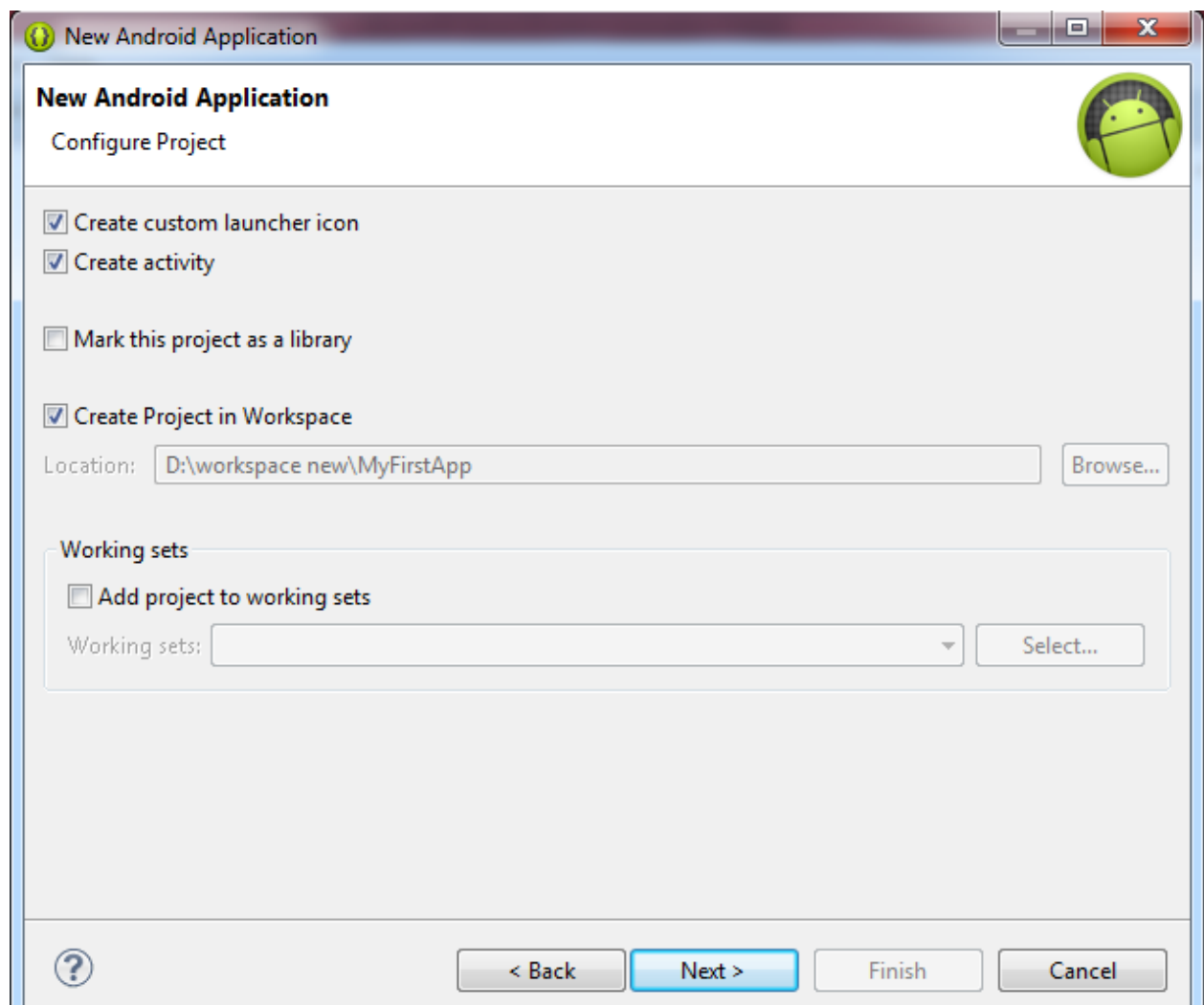
Target SDK:

Compile With:

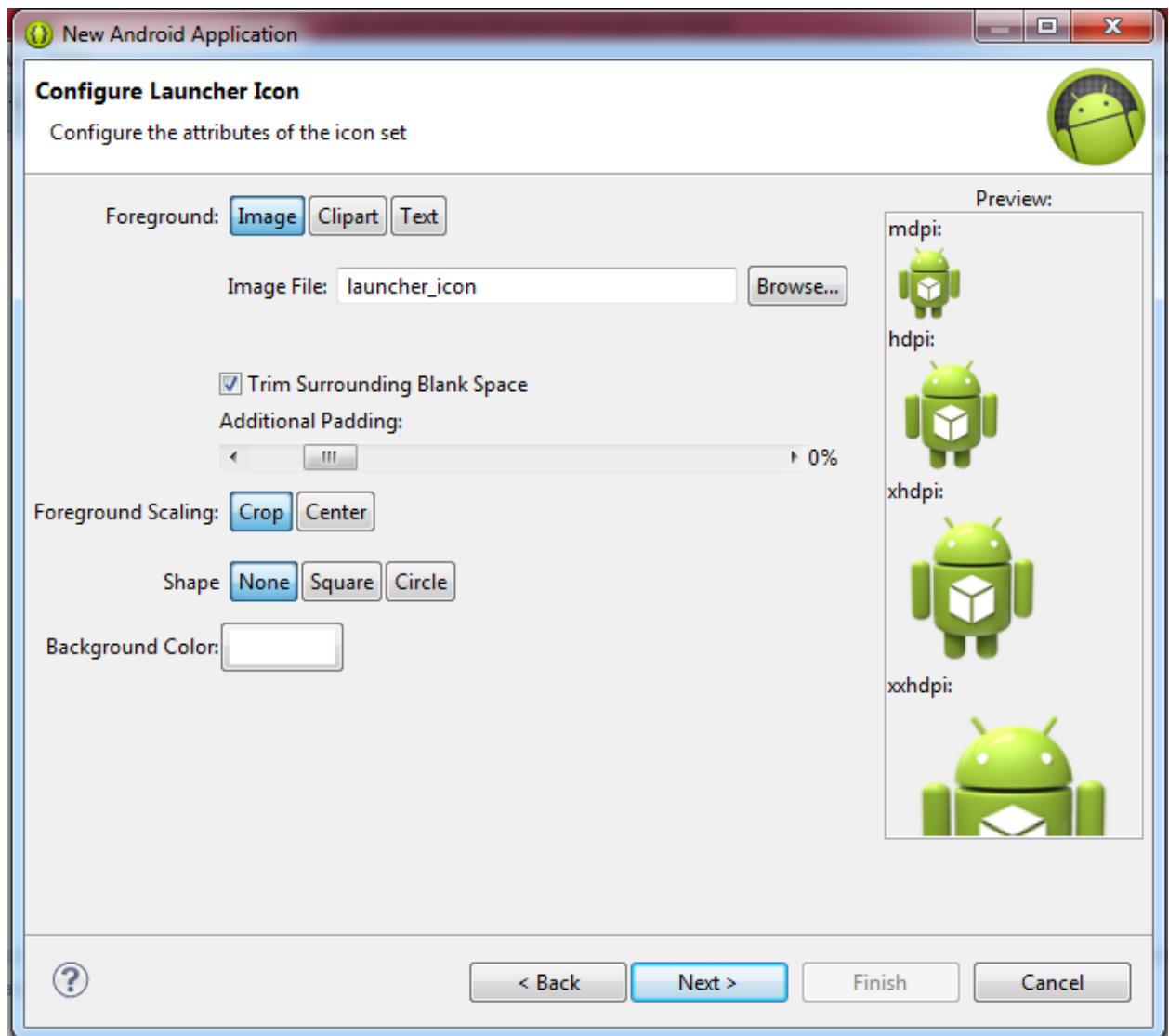
Theme:

💡 The application name is shown in the Play Store, as well as in the Manage Application list in Settings.

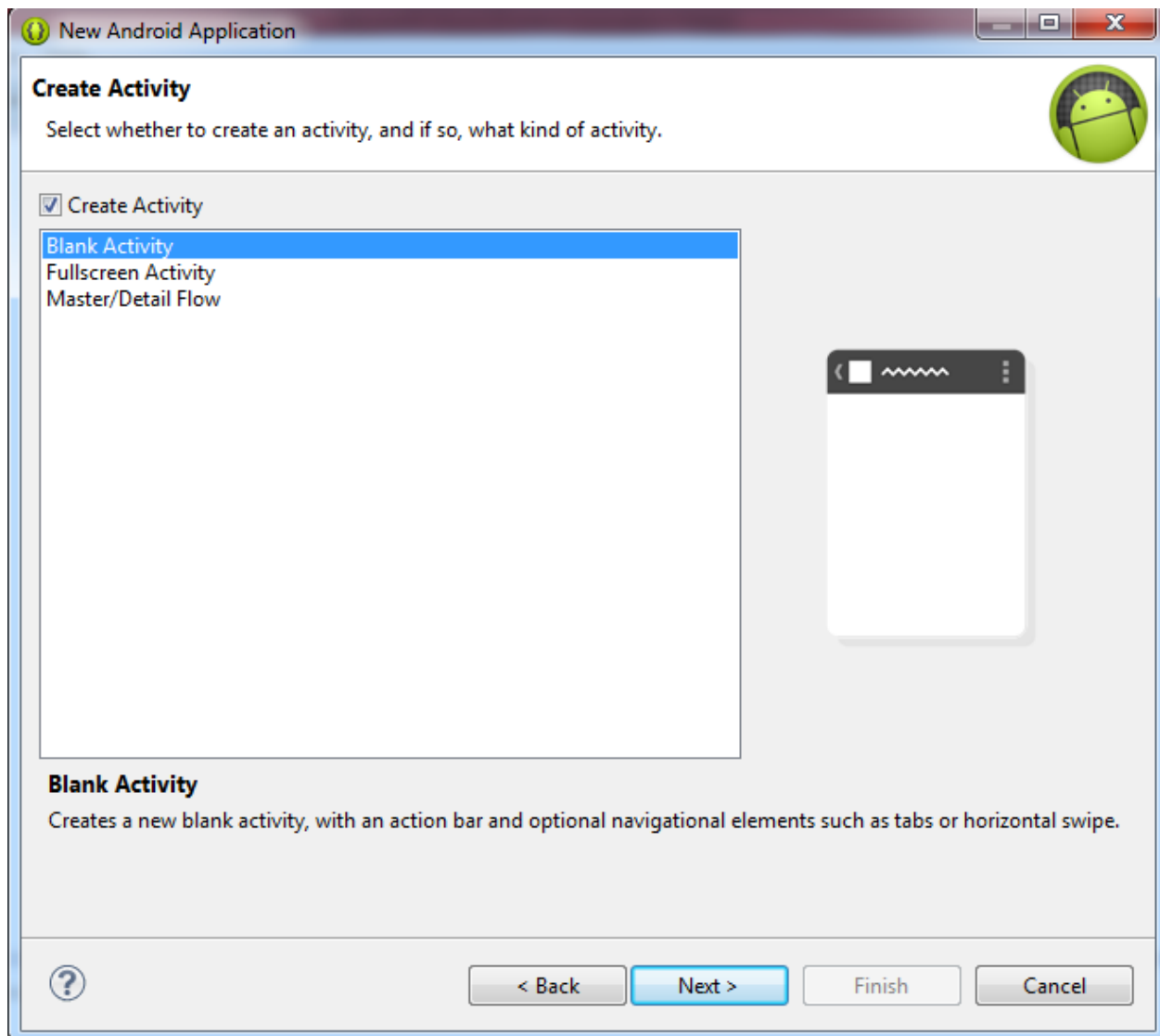
**Press Next**



**Press Next**



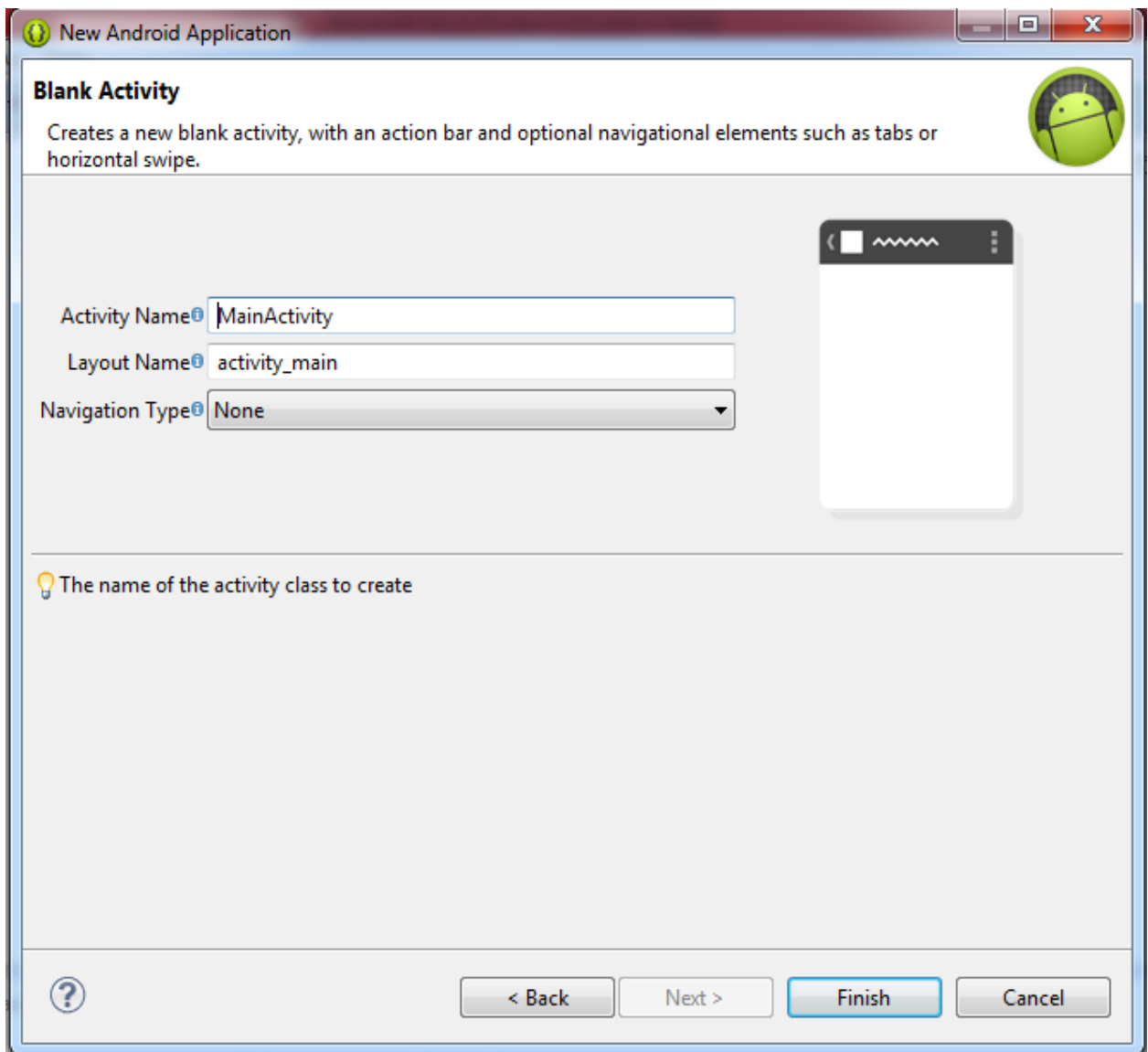
Press Next



57:00 - SDK Manager] hw.sensors.orientation=yes  
-----

Press Finish





57:22 [SDK Manager] by concept-orientation

## I. Hello world Program

```
<LinearLayoutxmlns: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">

<TextView
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:text="Welcome to Android world"/>

</LinearLayout>
```

## II. To create layout for username password and login button.

### activity\_main.xml

```
<LinearLayoutxmlns: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"
android:gravity="center">

<TextView
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:text="Username"/>

<EditTextandroid:layout_width="match_parent"
android:layout_height="wrap_content"
android:id="@+id/txt_user"/>

<TextView
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:text="Password"/>

<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:id="@+id/txt_pwd"/>

<Buttonandroid:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Login"
android:layout_gravity="center"
android:id="@+id/txt_login"/>

</LinearLayout>
```

## Strings.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<resources>
<stringname="app_name">Lab1</string>
<stringname="action_settings">Settings</string>
<stringname="hello_world">Hello world!</string>
<stringname="welcome">Welcome to Android Programming</string>
</resources>
```

## Main\_activity.Java

```
package com.example.lab1;
import android.os.Bundle;
import android.app.Activity;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener{

    EditText txtuser,txtpwd;
    Button txtlogin;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        txtuser=(EditText)findViewById(R.id.txt_user);
        txtpwd=(EditText)findViewById(R.id.txt_pwd);
        txtlogin=(Button)findViewById(R.id.txt_login);
        txtlogin.setOnClickListener(this);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }
}
```

```

    }

    @Override
    public void onClick(View arg0) {
        // TODO Auto-generated method stub
        if(arg0.equals(txtlogin))
        {
            String username=txtuser.getText().toString();
            String password=txtpwd.getText().toString();
            if(username.equals("admin") && password.equals("admin"))
            {
                Intent it=new Intent(this, MyNextActivity.class);
                startActivity(it);
            }
            else
            {
                Toast.makeText(getApplicationContext(), "LOGIN FAILED",
                Toast.LENGTH_LONG).show();
            }
        }
    }
}

```

### III. DATABASE CREATION

#### **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"
    android:gravity="center"
>

<Button android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Insertdata"
    android:layout_gravity="center"
    android:id="@+id/btn_insdata"/>

<Button android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Showdata"
    android:layout_gravity="center"
    android:id="@+id/btn_showdata"/>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="No Data"
    android:id="@+id/txt_nodata"/>

</LinearLayout>
```

#### **Main\_activity.java**

```
package com.example.database1;
import android.os.Bundle;
import android.app.Activity;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.view.Menu;
```

```

import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener {

    Button btninsdata, btnshowdata;
    TextView Ndata;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btninsdata=(Button)findViewById(R.id.btn_insddata);
        btninsdata.setOnClickListener(this);
        btnshowdata=(Button)findViewById(R.id.btn_showdata);
        btnshowdata.setOnClickListener(this);
        Ndata=(TextView)findViewById(R.id.txt_nodata);

    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        if(v.equals(btninsdata))
        {
            MyDatabase dat=new MyDatabase(this, "ambedkar.db", null, 1);
            SQLiteDatabase database=dat.getWritableDatabase();
            ContentValues cv= new ContentValues();
            cv.put("id", "123");
            cv.put("name", "Lavanya");
            cv.put("age", "25" );
            cv.put("address", "Nagarabhavi");
            database.insert("Employee", null, cv);
            database.close();
            Toast.makeText(this, "Data Inserted successfully", 15000).show();
        }
    }
}

```

```

    }
    else if(v.equals(btnshowdata))
    {
        MyDatabase dat=new MyDatabase(this, "ambedkar.db", null, 1);
        SQLiteDatabase database=dat.getReadableDatabase();
        String[] columns=new String[] {"id","name","age","address"};
        Cursor cu=database.query("Employee", columns, null, null, null, null, null);
        Ndata.setText("");
        while(cu.moveToNext())
        {

            String id=cu.getString(0);
            String name=cu.getString(1);
            String age=cu.getString(2);
String address=cu.getString(3);

            Ndata.append(id+ " " +name+ " "+age+ " "+address+"\n");

        }
    }
}

```

### **Mydatabase.java**

```

package com.example.database1;

import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteDatabase.CursorFactory;
import android.database.sqlite.SQLiteOpenHelper;

public class MyDatabase extends SQLiteOpenHelper{

    public MyDatabase(Context context, String name, CursorFactory factory,
        int version) {
        super(context, name, factory, version);
        // TODO Auto-generated constructor stub
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        // TODO Auto-generated method stub
        db.execSQL("create table employee (id TEXT,name TEXT,age TEXT,address
TEXT)");
    }
}

```



```
}
```

```
@Override
```

```
public void onUpgrade(SQLiteDatabase arg0, int arg1, int arg2) {  
    // TODO Auto-generated method stub
```

```
}
```

```
}
```

## Lab programs

**1. Write a program to create an Activity to read Employee Details (EmpId, Name, Age, Address) from user and store to database and create a menu with menu item (Show Details) on pressing menu details it must go to another activity with employee id search box and search button and display the employee details on the screen.**

### **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"
    android:gravity="center"
    >
```

```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Employee_id"/>
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_id"/>
```

```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Employee_name"/>
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_name"/>
```

```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Employee_age"/>
```

```
<EditText android:layout_width="match_parent"
```

```
android:layout_height="wrap_content"
android:id="@+id/txt_age"/>
```

```
<TextView
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Employee_address"/>
```

```
<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:id="@+id/txt_address"/>
```

```
<LinearLayout
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:layout_gravity="center">
```

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Submit"
android:layout_gravity="center"
android:id="@+id/btn_submit"/>
```

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Search"
android:layout_gravity="center"
android:id="@+id/btn_search"/>
```

```
</LinearLayout>
```

```
</LinearLayout>
```

**Search.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:layout_width="fill_parent"
    android:layout_height="wrap_content"

    android:text="Enter Employee id" />

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_empid"/>

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Search"
    android:layout_gravity="center"
    android:id="@+id/txt_search"/>

<TextView
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="Text view"
    android:id="@+id/txt_display"/>

</LinearLayout>

```

### **Main\_activity.java**

```

package com.example.employeedetails;

import android.os.Bundle;
import android.app.Activity;
import android.content.ContentValues;
import android.content.Intent;
import android.database.sqlite.SQLiteDatabase;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener {

```

```
EditText txtid,txtname,txtage,txtaddress;  
Button btnsubmit,btnsearch;
```

**@Override**

```
protected void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_main);  
    txtid=(EditText)findViewById(R.id.txt_id);  
    txtname=(EditText)findViewById(R.id.txt_name);  
    txtage=(EditText)findViewById(R.id.txt_age);  
    txtaddress=(EditText)findViewById(R.id.txt_address);  
    btnsubmit=(Button)findViewById(R.id.btn_submit);  
    btnsubmit.setOnClickListener(this);  
    btnsearch=(Button)findViewById(R.id.btn_search);  
    btnsearch.setOnClickListener(this);  
  
}
```

**@Override**

```
public boolean onCreateOptionsMenu(Menu menu) {
```

```
// Inflate the menu; this adds items to the action bar if it is present.
```

```
    getMenuInflater().inflate(R.menu.main, menu);  
    return true;
```

```
}
```

**@Override**

```
public void onClick(View v) {  
    // TODO Auto-generated method stub  
    Toast.makeText(this, "buttonclicked", 15000).show();
```

```
    if(v.equals(btnsubmit))  
    {
```

```
        String sid=txtid.getText().toString();  
        String sname=txtname.getText().toString();  
        String sage=txtage.getText().toString();  
        String saddress=txtaddress.getText().toString();
```

```
        SQLiteDatabase dat=new SQLiteDatabase(this,MyDatabase.DATABASE_NAME, null,  
1);
```

```
        SQLiteDatabase database=dat.getWritableDatabase();  
        ContentValues cv= new ContentValues();  
        cv.put("id", sid);  
        cv.put("name", sname);
```

```

        cv.put("age",sage );
        cv.put("address", saddress);
        database.insert("Employee", null, cv);
        database.close();
        Toast.makeText(this, "Data Inserted successfully", 15000).show();
    }
    else if(v.equals(btnsearch))
    {
        Intent it=new Intent(this,SearchActivity.class);
        startActivity(it);
    }
}
}
}

```

### Mydatabase.java

```

package com.example.employeeedetails;

import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteDatabase.CursorFactory;
import android.database.sqlite.SQLiteOpenHelper;

public class MyDatabase extends SQLiteOpenHelper
{
    public static String DATABASE_NAME="Employee.db";
    public static String EMPLOYEE_TABLE="employee";

    public MyDatabase(Context context, String name, CursorFactory factory,
        int version) {
        super(context, name, factory, version);
        // TODO Auto-generated constructor stub
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        // TODO Auto-generated method stub
        db.execSQL("create table employee (id TEXT,name TEXT,age TEXT,address
TEXT)");
    }

    @Override

```

```

        public void onUpgrade(SQLiteDatabase arg0, int arg1, int arg2) {
            // TODO Auto-generated method stub

        }
    }

```

### Searchactivity.java

```

package com.example.employeedetails;

import android.app.Activity;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class SearchActivity extends Activity implements OnClickListener{

    EditText txtempid;
    Button btnsearch;
    TextView txtdisplay;

    public void onCreate(Bundle b)
    {
        super.onCreate(b);
        setContentView(R.layout.search);

        txtempid=(EditText)findViewById(R.id.txt_empid);
        btnsearch=(Button)findViewById(R.id.txt_search);
        txtdisplay=(TextView)findViewById(R.id.txt_display);

        btnsearch.setOnClickListener(this);

    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        Toast.makeText(this, "Button clicked", 15000).show();
        if(v.equals(btnsearch))
    }

```

```

        {

            String eid=txttempid.getText().toString();

            MyDatabase dat=new MyDatabase(this, MyDatabase.DATABASE_NAME, null,
1);

            SQLiteDatabase database=dat.getReadableDatabase();
            String[] columns=new String[] { "id","name","age","address"};
            String where="id=?";
            String[] value= new String[] { eid.trim() };
            Cursor cu=database.query(MyDatabase.EMPLOYEE_TABLE, columns, where,
value, null, null, null, null);
            txtdisplay.setText("");
            if(cu.moveToNext())
            {

                String id=cu.getString(0);
                String name=cu.getString(1);
                String age=cu.getString(2);
                String address=cu.getString(3);

                txtdisplay.append(id+ " " +name+ " "+age+ " "+address+"\n");

            }

            else
            {

                Toast.makeText(this, "No Id Exist", 15000).show();

            }

        }
    }
}

```

### Manifest.xml

```

<?xmlversion="1.0"encoding="utf-8"?>
<manifestxmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.employeedetails"
android:versionCode="1"
android:versionName="1.0">

<uses-sdk
android:minSdkVersion="8"
android:targetSdkVersion="18"/>

<application

```



```

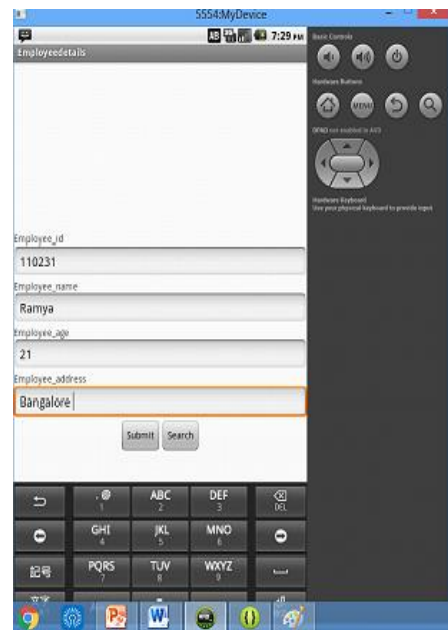
android:allowBackup="true"
android:icon="@drawable/ic_launcher"
android:label="@string/app_name"
android:theme="@style/AppTheme">
<activity
android:name="com.example.employeedetails.MainActivity"
android:label="@string/app_name">

<intent-filter>
<actionandroid:name="android.intent.action.MAIN"/>
<categoryandroid:name="android.intent.category.LAUNCHER"/>
</intent-filter>
</activity>
<activity android:name="SearchActivity"> </activity>
</application>

</manifest>

```

OUTPUT::







**2. Write a program to create an activity with a text box and three buttons (save, ,open and create) open must allow to browse the text file from sdcard and must display the contents of the file on textbox, save button must save the contents of text box to file, create button must allow file user to create a new file and save the entered contents of the textbox.**

### **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"
    android:gravity="center">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:gravity="center">

        <Button
            android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
android:text="Create new file"
android:id="@+id/btn_create"
android:layout_gravity="left"/>
```

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Open"
android:id="@+id/btn_open"
android:layout_gravity="right"/>
```

```
</LinearLayout>
```

```
<TextView
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:gravity="center"
android:text="File:"
android:id="@+id/lbl_file" />
```

```
<EditText
android:layout_width="match_parent"
android:layout_height="200dp"
android:id="@+id/txt_content"/>
```

```
<Button android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Save"
android:layout_gravity="center"
android:id="@+id/btn_save"/>
```

```
</LinearLayout>
```

## Dialog\_layout.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:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter File Name"/>
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_filename"/>
```

```
</LinearLayout>
```

### Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p2"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
    <uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"/>

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p2.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

## MainActivity.java

```
package com.example.p2;
```

```
import java.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;
import java.io.OutputStreamWriter;
```

```
import android.os.Bundle;
import android.os.Environment;
import android.app.Activity;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
```

```
public class MainActivity extends Activity implements OnClickListener {
```

```
    TextView lblFile;
    EditText txtContent;
    Button btnCreate,btnSave,btnOpen;
```

```
    int FILE_CHOOSE_REQUEST=1;
```

```
    String filepath;
```

```
    String filename;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        lblFile=(TextView)findViewById(R.id.lbl_file);
```

```
        txtContent=(EditText)findViewById(R.id.txt_content);
```

```
btnCreate=(Button)findViewById(R.id.btn_create);  
btnCreate.setOnClickListener(this);
```

```
btnSave=(Button)findViewById(R.id.btn_save);  
btnSave.setOnClickListener(this);
```

```
btnOpen=(Button)findViewById(R.id.btn_open);  
btnOpen.setOnClickListener(this);
```

```
}
```

```
@Override
```

```
public boolean onCreateOptionsMenu(Menu menu) {  
    // Inflate the menu; this adds items to the action bar if it is present.  
    getMenuInflater().inflate(R.menu.main, menu);  
    return true;  
}
```

```
public void onActivityResult(int requestCode,int resultCode, Intent data)  
{
```

```
    super.onActivityResult(requestCode, resultCode, data);
```

```
    if(resultCode==RESULT_OK)  
    {
```

```
        filepath=data.getData().getPath();  
        filename=filepath.substring(filepath.lastIndexOf("/")+1);  
        filepath=filepath.substring(0,filepath.lastIndexOf("/"));
```

```
        readFromFile(filepath,filename);  
        lblFile.setText(filepath+"/"+filename);
```

```
    }  
    else  
    {
```

```
        Toast.makeText(this,"Wrong Choice of File",  
Toast.LENGTH_LONG).show();  
    }
```

```
}
```

```
public void writeToFile(String path,String filename)  
{
```

```
    try {
```

```

        FileOutputStream fileout=new FileOutputStream(new
File(path+"/"+filename));
        OutputStreamWriter outputWriter=new OutputStreamWriter(fileout);
        outputWriter.write(txtContent.getText().toString());
        outputWriter.close();

        //display file saved message
        Toast.makeText(getBaseContext(), "File Saved successfully!",
        Toast.LENGTH_SHORT).show();

    } catch (Exception e) {
        Toast.makeText(getBaseContext(), e.getMessage(),
        Toast.LENGTH_SHORT).show();
    }
}

```

```

public void readFromFile(String path,String filename)
{
    try {

        FileInputStream fileIn=new FileInputStream(path+"/"+filename);
        InputStreamReader inputReader= new InputStreamReader(fileIn);

        BufferedReader br=new BufferedReader(inputReader);
        String data=br.readLine();
        while(data!=null)
        {
            txtContent.append(data);
            data=br.readLine();
        }
        br.close();

    } catch (Exception e) {
        Toast.makeText(getBaseContext(),e.getMessage(),
        Toast.LENGTH_SHORT).show();
    }
}

```

```

public void onShowCreateDialog()
{
    AlertDialog.Builder builder=new AlertDialog.Builder(this);
    final View dialogView=getLayoutInflater().inflate(R.layout.dialog_layout, null);
    builder.setView(dialogView);
    builder.setPositiveButton("Ok", new DialogInterface.OnClickListener() {

```

**@Override**



```

        public void onClick(DialogInterface arg0, int arg1) {
            // TODO Auto-generated method stub
            EditText
txtFilename=(EditText)dialogView.findViewById(R.id.txt_filename);

            filepath=Environment.getExternalStorageDirectory().getAbsolutePath();
            filename=txtFilename.getText().toString();
            File f=new File(filepath+"/"+filename);
            try {
                f.createNewFile();
            } catch (IOException e) {
                // TODO Auto-generated catch block
                Toast.makeText(getApplicationContext(),
""+e.getLocalizedMessage(), Toast.LENGTH_LONG).show();
            }

            lblFile.setText(filepath+"/"+filename);

        }
    });
    builder.setNegativeButton("Cancel", null);
    AlertDialog dialog=builder.create();
    dialog.show();
}

```

```

@Override
public void onClick(View v) {
    // TODO Auto-generated method stub

    if(v.equals(btnOpen))
    {
        Intent it=new Intent(Intent.ACTION_GET_CONTENT);
        //it.setType("*.");
        it.setType("file/*");
        startActivityForResult(it, 0);
    }
    else if(v.equals(btnCreate))
    {
        onShowCreateDialog();
    }
    else if(v.equals(btnSave))
    {
        writeFile(filepath, filename);
    }
}

```

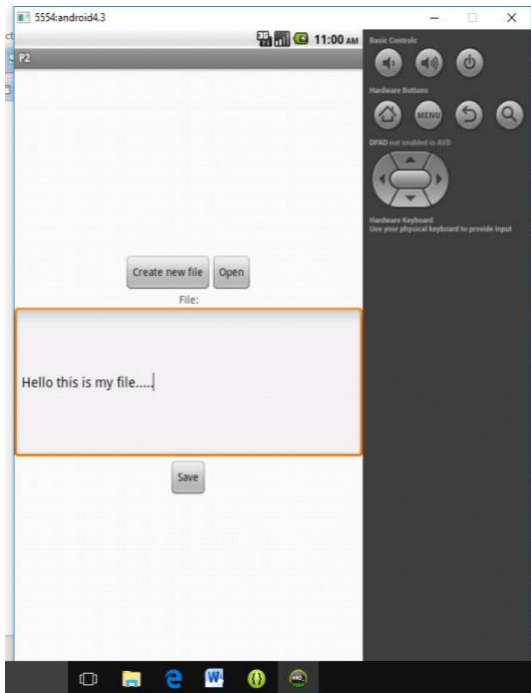
```

    }

}

```

OUTPUT:



**3. Write a program to create an activity with two text boxes (date /time and note contents). Create a content provider to store the date and time and note contents to the database. Create another program with a Button (Fetch Today Notes) on press must access the note provider and display the notes stored for today's date.**

### **Content Provider part**

#### **ActivityMain.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"
    tools:context=".MainActivity"
    android:gravity="center"
    android:orientation="vertical" >

    <TextView
        android:layout_width="match_parent"

```

```
    android:layout_height="wrap_content"
    android:text="Enter Date:" />
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_date" />
```

```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter Note Content:" />
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_Content"
    android:height="200dp" />
```

```
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Add Note"
        android:id="@+id/btn_add_note" />
```

```
</LinearLayout>
```

## Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p3noteprovider"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p3noteprovider.MainActivity"
            android:label="@string/app_name" >
```

```

        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>

    <provider android:name="NotesProvider"
        android:authorities="com.example.notesprovider"
        android:exported="true"/>

</application>

</manifest>

```

### MainActivity.java

```

package com.example.p3noteprovider;

import android.net.Uri;
import android.os.Bundle;
import android.app.Activity;
import android.content.ContentValues;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener {

    EditText txtDate,txtContent;
    Button btnAddNote;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtDate=(EditText)findViewById(R.id.txt_date);
        txtContent=(EditText)findViewById(R.id.txt_Content);

        btnAddNote=(Button)findViewById(R.id.btn_add_note);
        btnAddNote.setOnClickListener(this);
    }
}

```

```

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}

```

```

@Override
public void onClick(View v) {
    // TODO Auto-generated method stub

    if(v.equals(btnAddNote))
    {
        String sdate=txtDate.getText().toString();
        String scontent=txtContent.getText().toString();

        ContentValues values = new ContentValues();
        values.put("note_date",sdate);
        values.put("content",scontent);
    }
}

```

```

getContentResolver().insert(Uri.parse("content://com.example.notesprovider/notes"),
values);

```

```

                Toast.makeText(getBaseContext(),"Data        Inserted        Successfully",
Toast.LENGTH_LONG).show();
            }

        }

    }
}

```

### NotesProvider.java

```

package com.example.p3noteprovider;

import android.content.ContentProvider;
import android.content.ContentValues;
import android.content.Context;
import android.content.UriMatcher;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteQueryBuilder;
import android.net.Uri;

public class NotesProvider extends ContentProvider
{

```

```

static final String URL = "content://com.example.notesprovider/notes";
SQLiteDatabase db;
ProviderDatabase dbHelper;

static final UriMatcher uriMatcher;
static{
    uriMatcher = new UriMatcher(UriMatcher.NO_MATCH);
    uriMatcher.addURI("com.example.notesprovider", "notes",1);
}

@Override
public int delete(Uri arg0, String arg1, String[] arg2) {
    // TODO Auto-generated method stub
    return 0;
}

@Override
public String getType(Uri arg0) {
    // TODO Auto-generated method stub
    return null;
}

@Override
public Uri insert(Uri arg0, ContentValues cv) {
    // TODO Auto-generated method stub
    db = dbHelper.getWritableDatabase();
    db.insert(ProviderDatabase.TABLE_NAME,null,cv);
    db.close();
    return null;
}

@Override
public boolean onCreate() {
    // TODO Auto-generated method stub

    dbHelper=new
ProviderDatabase(getContext(),ProviderDatabase.DATABASE_NAME+".db",null,1);
    return (db == null)? false:true;

}

@Override
public Cursor query(Uri uri, String[] arg1, String arg2, String[] arg3,
String arg4) {
    // TODO Auto-generated method stub

    Cursor cursor=null;

```

```

        db = dbHelper.getReadableDatabase();
        cursor=
db.query(ProviderDatabase.TABLE_NAME,arg1,arg2,arg3,arg4,null,null);
        return cursor;

    }

    @Override
    public int update(Uri arg0, ContentValues arg1, String arg2, String[] arg3) {
        // TODO Auto-generated method stub
        return 0;
    }
}

```

### ProviderDatabase.java

```

package com.example.p3noteprovider;

import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteDatabase.CursorFactory;
import android.database.sqlite.SQLiteOpenHelper;

public class ProviderDatabase extends SQLiteOpenHelper
{
    public static String DATABASE_NAME="noteprovider";
    public static String TABLE_NAME="notes";
    public static String COLUMN_DATE="note_date";
    public static String COLUMN_NOTE="content";

    public ProviderDatabase(Context context, String name,
        CursorFactory factory, int version) {
        super(context, name, factory, version);
        // TODO Auto-generated constructor stub
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        // TODO Auto-generated method stub

        db.execSQL("create table notes (note_date TEXT,content TEXT)");

    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int arg1, int arg2) {

```

```
// TODO Auto-generated method stub
```

```
}  
}
```

## Content Resolver part

### 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"  
    tools:context=".MainActivity"  
    android:orientation="vertical"  
    android:gravity="center">  
  
    <TextView  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"  
        android:text="Enter Date to Search"/>  
  
    <EditText android:layout_width="match_parent"  
        android:layout_height="wrap_content"  
        android:id="@+id/txt_search"/>  
  
    <Button  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"  
        android:id="@+id/btn_search"  
        android:text="Search"/>  
  
    <TextView  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:text="Data To Show"  
        android:id="@+id/lbl_message"/>  
  
</LinearLayout>
```

### Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
    package="com.example.p3providerclient"  
    android:versionCode="1"  
    android:versionName="1.0" >
```



```

<uses-sdk
    android:minSdkVersion="8"
    android:targetSdkVersion="18" />

<application
    android:allowBackup="true"
    android:icon="@drawable/ic_launcher"
    android:label="@string/app_name"
    android:theme="@style/AppTheme" >
    <activity
        android:name="com.example.p3providerclient.MainActivity"
        android:label="@string/app_name" >
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>

</manifest>

```

### MainActivity.java

```

package com.example.p3providerclient;

import android.net.Uri;
import android.os.Bundle;
import android.app.Activity;
import android.content.ContentValues;
import android.database.Cursor;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener {

    EditText txtSearch;
    Button btnSearch;

```

**TextView lblMessage;**

**@Override**

```
protected void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_main);  
    txtSearch=(EditText)findViewById(R.id.txt_search);  
    lblMessage=(TextView)findViewById(R.id.lbl_message);  
  
    btnSearch=(Button)findViewById(R.id.btn_search);  
    btnSearch.setOnClickListener(this);  
  
}
```

**@Override**

```
public boolean onCreateOptionsMenu(Menu menu) {  
    // Inflate the menu; this adds items to the action bar if it is present.  
    getMenuInflater().inflate(R.menu.main, menu);  
    return true;  
}
```

**@Override**

```
public void onClick(View v) {  
    // TODO Auto-generated method stub  
  
    if(v.equals(btnSearch))  
    {  
        String searchData=txtSearch.getText().toString();  
        String where="note_date=?";  
        Cursor  
cursor=getContentResolver().query(Uri.parse("content://com.example.notesprovider/notes")  
,new String[]{"note_date","content"},where, new String[]{searchDate},null);  
  
        if(cursor!=null&&cursor.moveToNext())  
        {  
  
            String ndate=cursor.getString(0);  
            String content=cursor.getString(1);  
  
            lblMessage.setText(ndate+" "+content+"\n");  
        }  
        else  
        {
```

**OUTPUT:**



4. Create a program to create an activity with two buttons start and stop. On pressing start button the program must start the counter and must keep on counting until stop button is pressed.

#### 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"
    android:gravity="center">

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="counter"
    android:layout_gravity="center"
    android:id="@+id/lbl_counter"/>

<Button android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="start"
    android:layout_gravity="center"
    android:id="@+id/btn_start"/>

<Button android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="stop"
    android:layout_gravity="center"
    android:id="@+id/btn_stop"/>

</LinearLayout>
```

#### MainActivity.java

```
package com.example.p4;

import android.os.Bundle;
import android.os.Handler;
import android.os.Message;
import android.app.Activity;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
```

```
import android.widget.Button;
import android.widget.TextView;
```

```
public class MainActivity extends Activity implements OnClickListener, Runnable{
```

```
    int i=0;
    TextView lblcounter;
    Button btnstart,btnstop;
    Thread thread;
```

```
    boolean running=false;
```

```
@Override
```

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

```
    btnstart=(Button)findViewById(R.id.btn_start);
    btnstop=(Button)findViewById(R.id.btn_stop);
    btnstart.setOnClickListener(this);
    btnstop.setOnClickListener(this);
```

```
    lblcounter=(TextView)findViewById(R.id.lbl_counter);
```

```
}
```

```
@Override
```

```
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}
```

```
@Override
```

```
public void onClick(View v) {
    // TODO Auto-generated method stub
    if(v.equals(btnstart))
    {
        running=true;
        thread=new Thread(this);
        thread.start();
    }

    else if(v.equals(btnstop))
    {
```

```

        //thread.interrupt();
        running=false;
    }

}

Handler hand=new Handler()
{
    public void handleMessage(Message m)
    {
        lblcounter.setText(""+m.what);
    }
};

@Override
public void run() {
    // TODO Auto-generated method stub
    //int i=0;

    while(i<100 && running)

    {
        try {
            Thread.sleep(1000);
        } catch (InterruptedException e) {
            // TODO Auto-generated catch block
            e.printStackTrace();
        }
        hand.sendMessage(i);
        i++;
        // lblcounter.setText(""+i);
    }

}

}

```

## Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p4"
    android:versionCode="1"
    android:versionName="1.0">

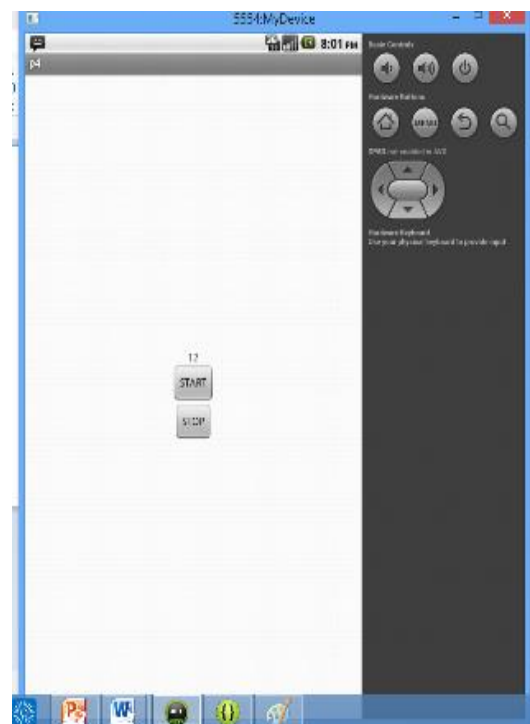
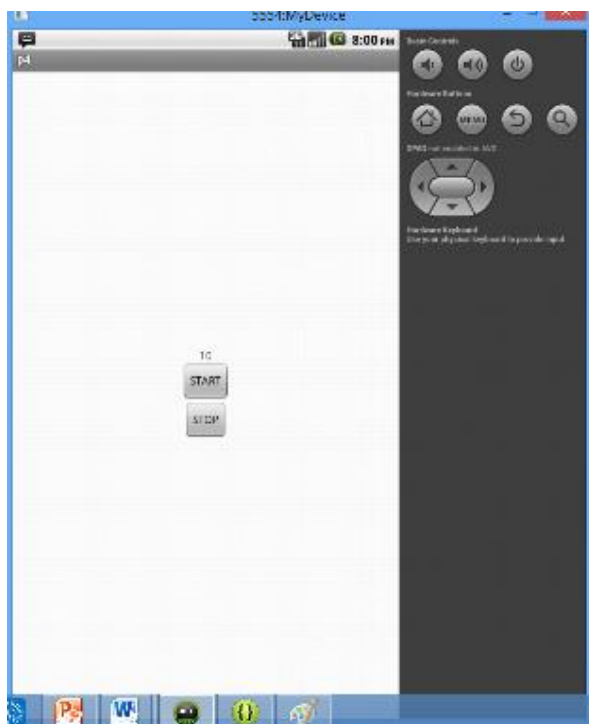
    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme">
        <activity
            android:name="com.example.p4.MainActivity"
            android:label="@string/app_name">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

**OUTPUT::**



**5. Create a program to receive the incoming SMS to the phone and put a notification on screen, on clicking the notification it must display sender number and message content on screen.**



### 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"
    android:gravity="center">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Sender Number"
        android:paddingBottom="50px"
        android:id="@+id/lbl_number"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Message content"
        android:id="@+id/lbl_message"/>

</LinearLayout>
```

### MainActivity.java

```
package com.example.p5;
import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.widget.TextView;

public class MainActivity extends Activity {
    TextView lblNumber, lblmessage;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        lblNumber=(TextView)findViewById(R.id.lbl_number);
        lblmessage=(TextView)findViewById(R.id.lbl_message);
        Bundle b= getIntent().getBundleExtra("data");
```

```

        if(b!=null)
        {
            String number=b.getString("number");
            String content=b.getString("content");

            lblnumber.setText(number);
            lblmessage.setText(content);
        }
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }
}

```

### **MySmsReceiver.java**

```

package com.example.p5;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.telephony.SmsMessage;

public class MySmsReceiver extends BroadcastReceiver{
    @Override
    public void onReceive(Context arg0, Intent arg1) {
        // TODO Auto-generated method stub
        Object[] objmessages=(Object[])arg1.getExtras().get("pdus");
        for(int i=0; i<objmessages.length;i++)
        {
            SmsMessage m=SmsMessage.createFromPdu((byte[])objmessages[i]);
            Bundle b1=new Bundle();
            b1.putString("number", m.getOriginatingAddress());
            b1.putString("content", m.getMessageBody());
            Intent it=new Intent(arg0, MainActivity.class);
            it.putExtra("data", b1);
            it.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
            arg0.startActivity(it);
            break;
        }
    }
}

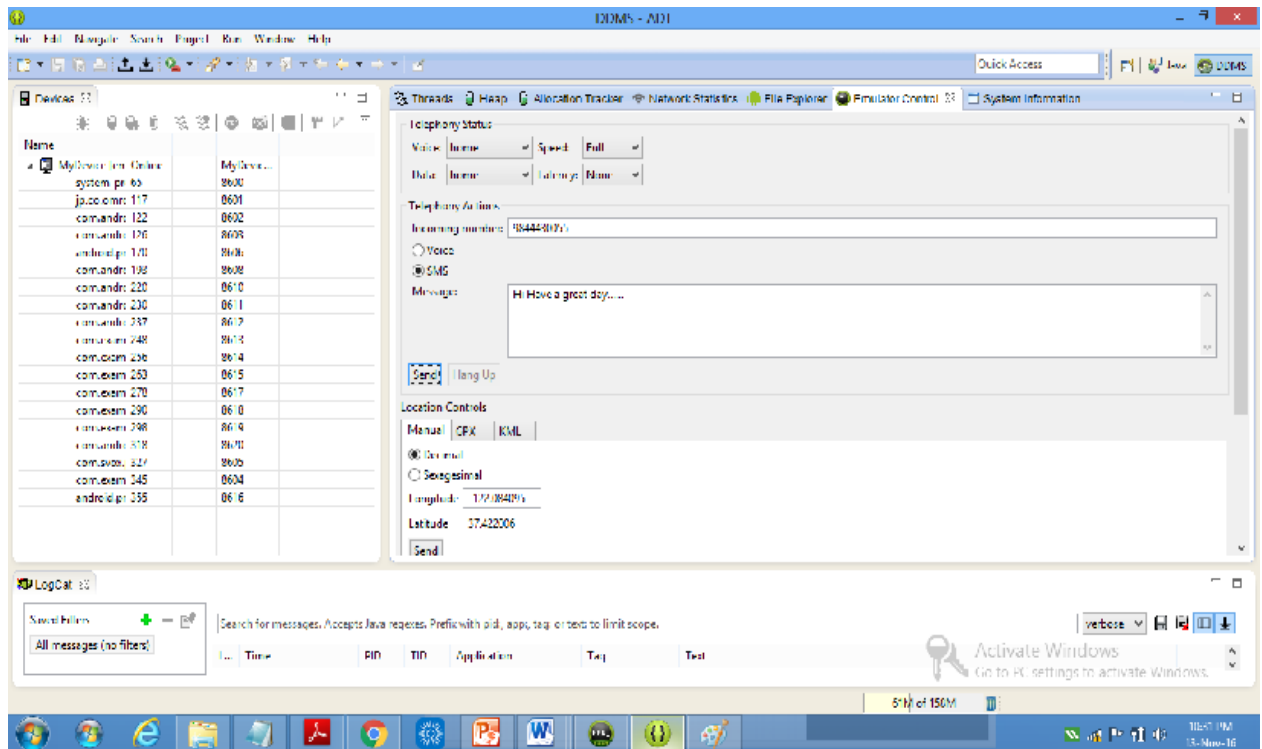
```

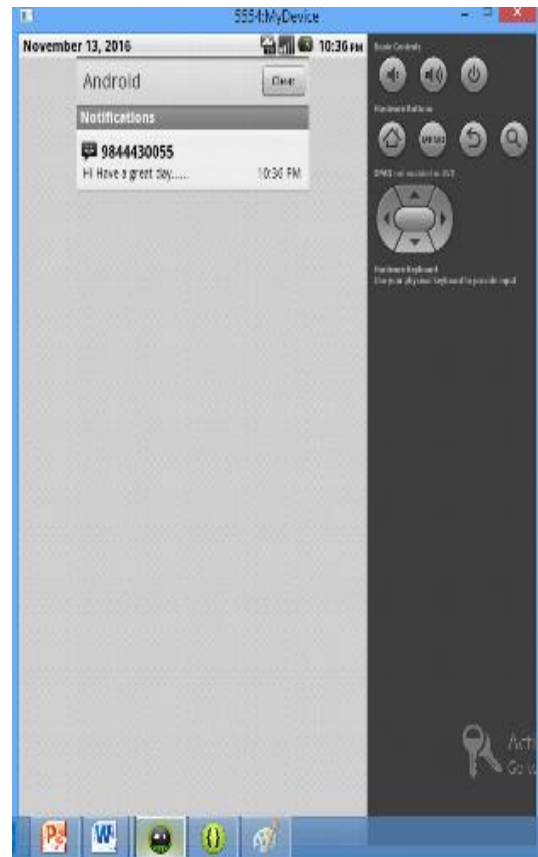
```
}  
}
```

### AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
    package="com.example.p5"  
    android:versionCode="1"  
    android:versionName="1.0" >  
  
    <uses-sdk  
        android:minSdkVersion="8"  
        android:targetSdkVersion="18" />  
    <uses-permission android:name="android.permission.RECEIVE_SMS"/>  
    <application  
        android:allowBackup="true"  
        android:icon="@drawable/ic_launcher"  
        android:label="@string/app_name"  
        android:theme="@style/AppTheme" >  
        <activity  
            android:name="com.example.p5.MainActivity"  
            android:label="@string/app_name" >  
            <intent-filter>  
                <action android:name="android.intent.action.MAIN" />  
                <category android:name="android.intent.category.LAUNCHER" />  
            </intent-filter>  
        </activity>  
        <receiver android:name="com.example.p5.MySmsReceiver">  
            <intent-filter>  
                <action android:name="android.provider.Telephony.SMS_RECEIVED"/>  
            </intent-filter>  
        </receiver>  
    </application>  
</manifest>
```

## OUTPUT::





**6. Create a program to create a service that will put a notification on the screen every 5 seconds.**

**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"
    android:gravity="center" >
```

```
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Start Notification"
    android:layout_gravity="center"
    android:id="@+id/btn_start"/>
```

```
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```

```
        android:text="Stop Notification"
        android:layout_gravity="center"
        android:id="@+id/btn_stop"/>
</LinearLayout>
```

### MainActivity.java

```
package com.example.p6;
import android.os.Bundle;
import android.app.Activity;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener{
    Button btnstart,btnstop;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        btnstart=(Button)findViewById(R.id.btn_start);
        btnstart.setOnClickListener(this);
        btnstop=(Button)findViewById(R.id.btn_stop);
        btnstop.setOnClickListener(this);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }
    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub

        if(v.equals(btnstart))
        {
            Intent it=new Intent(this,ServiceClass.class);
            Bundle b=new Bundle();
            b.putBoolean("stop", true);
            it.putExtra("data", b);
            startService(it);
        }
    }
}
```

```

        }
        else
        {
            Intent it=new Intent(this,ServiceClass.class);
            stopService(it);
        }
    }
}

```

### ServiceClass.Java

```
package com.example.p6;
```

```

import android.app.Notification;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.app.Service;
import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import android.os.IBinder;
import android.os.Message;
import android.support.v4.app.NotificationCompat;
import android.view.ViewDebug.FlagToString;
import android.widget.Toast;

```

```
public class ServiceClass extends Service{
```

```

    boolean running=false;
    MyThread thread;

```

```

    public void onCreate()
    {
        super.onCreate();
        Toast.makeText(getApplicationContext(), "Service Created",
Toast.LENGTH_LONG).show();
        running=true;
        thread=new MyThread();
        thread.start();
    }

```

```

    public int onStartCommand(Intent intent, int flags,int startId)
    {
        super.onStartCommand(intent, flags, startId);
    }

```

```

        Toast.makeText(getBaseContext(), "Service started",
Toast.LENGTH_LONG).show();
        Bundle b=intent.getBundleExtra("data");
        running=b.getBoolean("stop");

        if(!thread.isAlive())
        {
            thread=new MyThread();
            thread.start();
        }

        return Service.START_NOT_STICKY;
    }

    @Override
    public IBinder onBind(Intent arg0) {
        // TODO Auto-generated method stub
        return null;
    }

    public void onDestroy()
    {
        running=false;
        Toast.makeText(getBaseContext(), "Service stoped",
Toast.LENGTH_LONG).show();
        super.onDestroy();
    }

    Handler hand=new Handler()
    {
        public void handleMessage(Message m)
        {
            NotificationManager
manager=(NotificationManager)getSystemService(NOTIFICATION_SERVICE);
            NotificationCompat.Builder builder=new
NotificationCompat.Builder(getBaseContext());
            builder.setContentTitle("From Service");
            builder.setContentText("Hai " +m.what);
            builder.setSmallIcon(R.drawable.ic_launcher);
            builder.setContentIntent(PendingIntent.getActivity(getBaseContext(), 1,
new Intent(getBaseContext(),MainActivity.class),1));
            Notification nof=builder.build();
            manager.notify(100, nof);
        }
    };

```



```

class MyThread extends Thread
{
    public void run()
    {
        int i=0;
        while(running)
        {

            try {
                Thread.sleep(5000);
            } catch (InterruptedException e) {
                // TODO Auto-generated catch block
                e.printStackTrace();
            }

            hand.sendMessage(i++);
        }
    }
}

```

### AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p6"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p6.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>

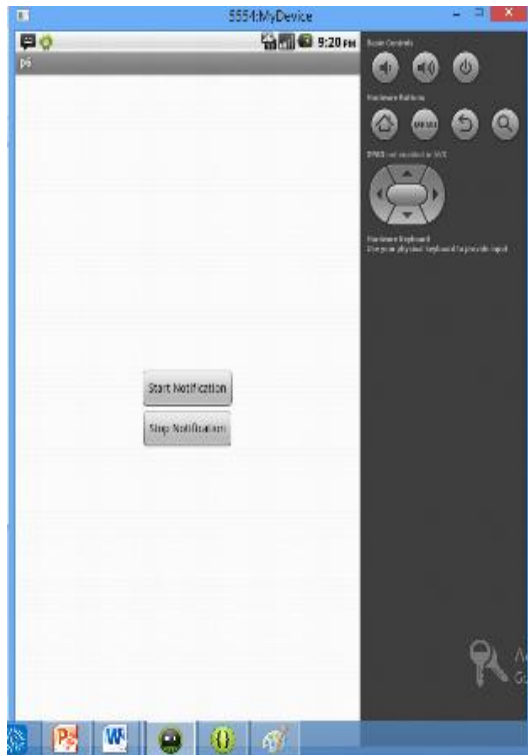
```

```
<service android:name="ServiceClass"></service>
```

```
</application>
```

```
</manifest>
```

OUTPUT::





7. Create an .aidl service to do add, subtraction and multiplication and create another application with two buttons to read the inputs and three button add,subtract and multiply to call add,subtract and multiply operation on .aidl service.

Part-1 (has an empty layout)

Activity\_main.xml

-NA-

Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p7"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />

    <application
        android:allowBackup="true"
```

```

        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p7.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <service
            android:name="MyCalService">
            <intent-filter>
                <action android:name="com.simple.cal"/>
            </intent-filter>
        </service>

    </application>

</manifest>

```

### calculator.aidl

Create a new package and under this , new ->file->save with .aidl extension

```
package com.example.cal;
```

```

interface calculator
{
    int add(int a, int b);
    int sub(int a, int b);
    int mul(int a, int b);
}

```

### MyCalService.java

```
package com.example.p7;
```

```
import com.example.cal.calculator;
```

```

import android.app.Service;
import android.content.Intent;

```

```

import android.os.IBinder;
import android.os.RemoteException;

public class MyCalService extends Service{

    @Override
    public IBinder onBind(Intent arg0) {
        // TODO Auto-generated method stub
        return stub;
    }

    calculator.Stub stub=new calculator.Stub() {

        @Override
        public int sub(int a, int b) throws RemoteException {
            // TODO Auto-generated method stub
            return a-b;
        }

        @Override
        public int mul(int a, int b) throws RemoteException {
            // TODO Auto-generated method stub
            return a*b;
        }

        @Override
        public int add(int a, int b) throws RemoteException {
            // TODO Auto-generated method stub
            return a+b;
        }

    };
}

```

## Part-2

### 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"
    android:gravity="center" >

```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter first number" />

<EditText android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_first"/>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter second number" />

<EditText android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_second"/>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="result"
    android:id="@+id/txt_result"/>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="horizontal"
    android:gravity="center">

    <Button android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="add"
        android:layout_gravity="center"
        android:id="@+id/btn_add"/>

    <Button android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="sub"
        android:layout_gravity="center"
        android:id="@+id/btn_sub"/>

    <Button android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="mul"
        android:layout_gravity="center"

```

```

        android:id="@+id/btn_mul"/>

</LinearLayout>
</LinearLayout>

```

### Manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p7_1"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p7_1.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>

    </application>

</manifest>

```

### calculator.aidl

Create a new package and under this , new ->file->save with .aidl extension

```

package com.example.cal;

interface calculator
{
    int add(int a, int b);
    int sub(int a, int b);
}

```

```
int mul(int a, int b);  
}
```

### MainActivity.java

```
package com.example.p7_1;  
  
import com.example.cal.calculator;  
  
import android.os.Bundle;  
import android.os.IBinder;  
import android.os.RemoteException;  
import android.app.Activity;  
import android.content.ComponentName;  
import android.content.Intent;  
import android.content.ServiceConnection;  
import android.view.Menu;  
import android.view.View;  
import android.view.View.OnClickListener;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
  
public class MainActivity extends Activity implements OnClickListener, ServiceConnection{  
  
    EditText txtfirst, txtsecond;  
    Button btnadd,btnsub,btnmul;  
    TextView txtresult;  
  
    calculator cal;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
  
        txtfirst=(EditText)findViewById(R.id.txt_first);  
        txtsecond=(EditText)findViewById(R.id.txt_second);  
        txtresult=(TextView)findViewById(R.id.txt_result);  
        btnadd=(Button)findViewById(R.id.btn_add);  
        btnadd.setOnClickListener(this);  
        btnsub=(Button)findViewById(R.id.btn_sub);  
        btnsub.setOnClickListener(this);  
        btnmul=(Button)findViewById(R.id.btn_mul);  
        btnmul.setOnClickListener(this);  
    }  
}
```



```

        bindService(new Intent("com.simple.cal"), this, BIND_AUTO_CREATE);

    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

```

```

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub

        String s1=txtfirst.getText().toString();
        String s2=txtsecond.getText().toString();

        int a=Integer.parseInt(s1);
        int b=Integer.parseInt(s2);

        if(v.equals(btnadd))
        {
            try {
                int result=cal.add(a,b);
                txtresult.setText(""+result);
            } catch (RemoteException e) {
                // TODO Auto-generated catch block
                e.printStackTrace();
            }
        }

        else if(v.equals(btnsub))
        {
            try {
                int result=cal.sub(a,b);
                txtresult.setText(""+result);
            } catch (RemoteException e) {
                // TODO Auto-generated catch block
                e.printStackTrace();
            }
        }

        else if(v.equals(btnmul))

```

```

    {
        try {
            int result=cal.mul(a,b);
            txtresult.setText(""+result);
        } catch (RemoteException e) {
            // TODO Auto-generated catch block
            e.printStackTrace();
        }
    }
}

@Override
public void onServiceConnected(ComponentName arg0, IBinder arg1) {
    // TODO Auto-generated method stub
    Toast.makeText(getBaseContext(), "Service Connected",
Toast.LENGTH_LONG).show();
    cal=(calculator)calculator.Stub.asInterface(arg1);

}

@Override
public void onServiceDisconnected(ComponentName arg0) {
    // TODO Auto-generated method stub

}

}

```

**OUTPUT::**

## Addition



## Subtraction



## Multiplication



8. Create an activity like a phone dialer with (1,2,3,4,5,6,7,8,9,0,\*,#) buttons and call and save button on pressing the call button, it must call the phone number and on pressing the save button it must save the number to the phone contacts.

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:gravity="center"
    android:orientation="vertical" >
```

```
    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
    >
```

```
        <Button
            android:id="@+id/btn_del"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Del"
            android:layout_alignParentRight="true" />
```

```
        <EditText
            android:id="@+id/txt_display"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_toLeftOf="@id/btn_del"
            android:layout_alignBaseline="@id/btn_del" />
```

```
    </RelativeLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:orientation="horizontal" >
```

```
<Button
    android:id="@+id/btn_one"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="1" />
```

```
<Button
    android:id="@+id/btn_two"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="2" />
```

```
<Button
    android:id="@+id/btn_three"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="3" />
```

```
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:orientation="horizontal" >
```

```
<Button
    android:id="@+id/btn_four"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="4" />
```

```
<Button
    android:id="@+id/btn_five"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="5" />
```

```
<Button
    android:id="@+id/btn_six"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
```

```
        android:text="6" />
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:orientation="horizontal" >
```

```
<Button
    android:id="@+id/btn_seven"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="7" />
```

```
<Button
    android:id="@+id/btn_eight"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="8" />
```

```
<Button
    android:id="@+id/btn_nine"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="9" />
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:orientation="horizontal" >
```

```
<Button
    android:id="@+id/btn_star"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="*" />
```

```
<Button
    android:id="@+id/btn_zero"
    android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="0" />
```

```
<Button
    android:id="@+id/btn_ash"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="#" />
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:orientation="horizontal" >
    <Button
        android:id="@+id/btn_call"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="call" />
```

```
    <Button
        android:id="@+id/btn_save"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="save" />
```

```
</LinearLayout>
```

```
</LinearLayout>
```

### MainActivity.java

```
package com.example.p8;

import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.app.Activity;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
```

```
import android.widget.Button;
import android.widget.EditText;
```

```
public class MainActivity extends Activity implements OnClickListener {
```

```
    EditText txtNumber;
```

```
    Button
```

```
    btnOne,btnTwo,btnThree,btnFour,btnFive,btnSix,btnSeven,btnEight,btnNine,btnZero,btnCall,
    btnSave,btnDel,btnStar,btnHash;
```

```
@Override
```

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

```
    txtNumber=(EditText)findViewById(R.id.txt_display);
```

```
    btnOne=(Button)findViewById(R.id.btn_one);
    btnOne.setOnClickListener(this);
```

```
    btnTwo=(Button)findViewById(R.id.btn_two);
    btnTwo.setOnClickListener(this);
```

```
    btnThree=(Button)findViewById(R.id.btn_three);
    btnThree.setOnClickListener(this);
```

```
    btnFour=(Button)findViewById(R.id.btn_four);
    btnFour.setOnClickListener(this);
```

```
    btnFive=(Button)findViewById(R.id.btn_five);
    btnFive.setOnClickListener(this);
```

```
    btnSix=(Button)findViewById(R.id.btn_six);
    btnSix.setOnClickListener(this);
```

```
    btnSeven=(Button)findViewById(R.id.btn_seven);
    btnSeven.setOnClickListener(this);
```

```
    btnEight=(Button)findViewById(R.id.btn_eight);
    btnEight.setOnClickListener(this);
```

```
    btnNine=(Button)findViewById(R.id.btn_nine);
    btnNine.setOnClickListener(this);
```



```

        btnZero=(Button)findViewById(R.id.btn_zero);
        btnZero.setOnClickListener(this);

        btnSave=(Button)findViewById(R.id.btn_save);
        btnSave.setOnClickListener(this);

        btnCall=(Button)findViewById(R.id.btn_call);
        btnCall.setOnClickListener(this);

        btnStar=(Button)findViewById(R.id.btn_star);
        btnStar.setOnClickListener(this);

        btnHash=(Button)findViewById(R.id.btn_ash);
        btnHash.setOnClickListener(this);

        btnDel=(Button)findViewById(R.id.btn_del);
        btnDel.setOnClickListener(this);

    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub

        if(v.equals(btnOne))
        {
            txtNumber.append("1");
        }
        else if(v.equals(btnTwo))
        {
            txtNumber.append("2");
        }
        else if(v.equals(btnThree))
        {
            txtNumber.append("3");
        }
    }

```

```
else if(v.equals(btnFour))
{
    txtNumber.append("4");
}
else if(v.equals(btnFive))
{
    txtNumber.append("5");
}
else if(v.equals(btnSix))
{
    txtNumber.append("6");
}
else if(v.equals(btnSeven))
{
    txtNumber.append("7");
}
else if(v.equals(btnEight))
{
    txtNumber.append("8");
}
else if(v.equals(btnNine))
{
    txtNumber.append("9");
}
else if(v.equals(btnZero))
{
    txtNumber.append("0");
}
else if(v.equals(btnStar))
{
    txtNumber.append("*");
}
else if(v.equals(btnHash))
{
    txtNumber.append("#");
}
else if(v.equals(btnDel))
{
    String num=txtNumber.getText().toString();
    if(num.length()>0)
    {
        num=num.substring(0,num.length()-1);
    }
    txtNumber.setText(num);
}
else if(v.equals(btnCall))
{

```

```

        String num=txtNumber.getText().toString();
        Intent it=new Intent(Intent.ACTION_CALL);
        it.setData(Uri.parse("tel:"+num));
        startActivity(it);
    }
    else if(v.equals(btnSave))
    {
        String num=txtNumber.getText().toString();
        Intent intent = new Intent(Intent.ACTION_INSERT,
ContactsContract.Contacts.CONTENT_URI);
        intent.putExtra(ContactsContract.Intents.Insert.PHONE,num);
        startActivity(intent);
    }
}
}
}

```

### Manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p8"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />
    <uses-permission android:name="android.permission.CALL_PHONE"/>

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p8.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

```

```
</intent-filter>
</activity>
</application>
```

```
</manifest>
```

OUTPUT:

