PRACTICAL – 1

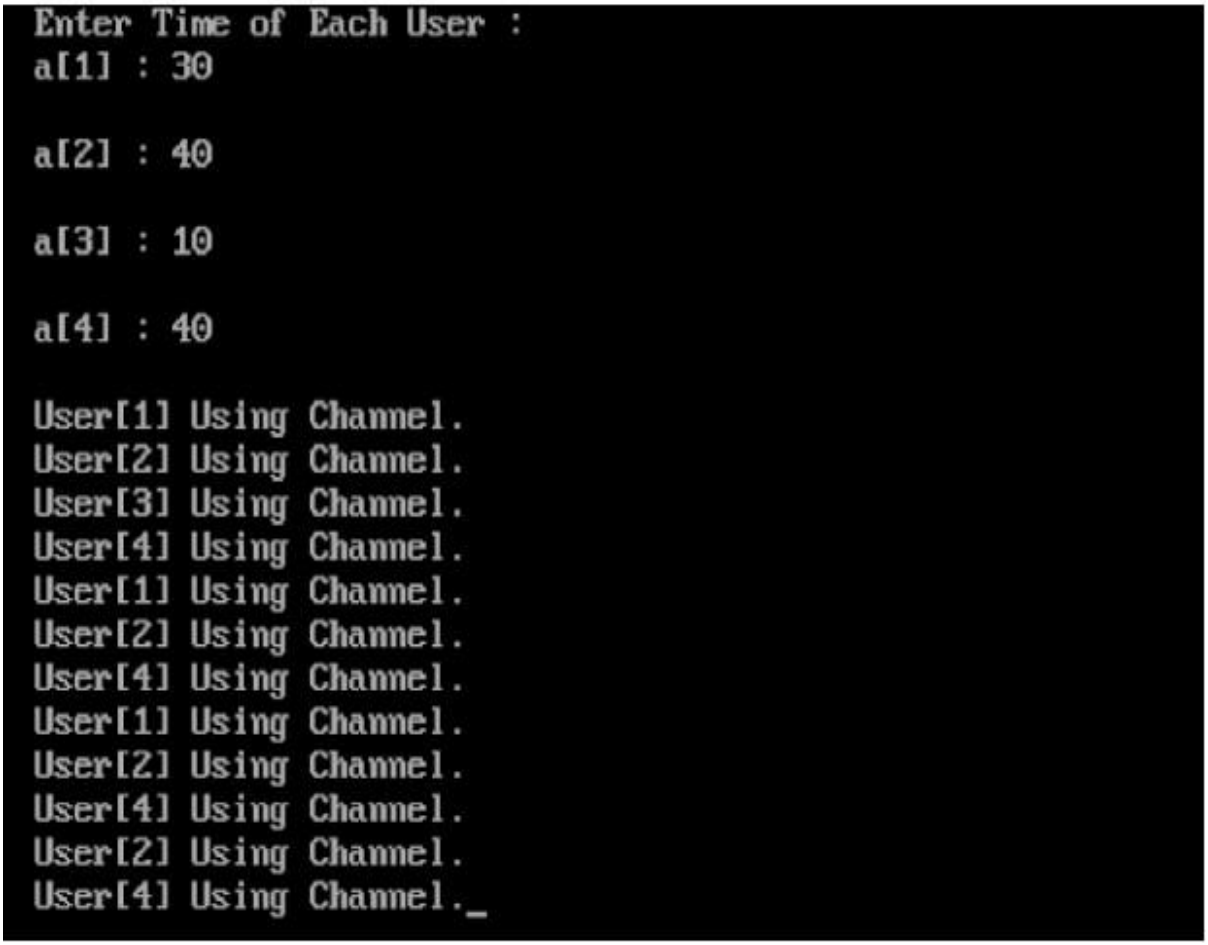
AIM: Write a program to simulate Fixed Time Division Multiplexing. Take 12 stations. Every station has time slice of 417 microseconds. Delay should be 10ms. Every time the station Gets turn, it shows message.

CODE:

```
 #include <stdio.h>
 #include <conio.h>
void main()
{
   int a[4],time=120;
   int u1,u2,u3,u4,i;
   clrscr();
   printf("Enter Time of Each User : ");
   for(i=0;i<4;i++)
    {
        printf("\na[%d] : ",i+1); scanf("%d",&a[i]);
     }
   u1=a[0]/10;
   u2=a[1]/10;
   u3=a[2]/10;
   u4=a[3]/10;
   while(time!=0)
   {
     if(u1>0)
      {
         printf("\nUser[1] Using Channel.");
         time=time-10;
         u1=u1-1;
       }

      if(u2>0)
      {
         printf("\nUser[2] Using Channel.");
         time=time-10;
         u2=u2-1;
       }

     if(u3>0)
      {
         printf("\nUser[3] Using Channel.");
         time=time-10;
         u3=u3-1;
       }

    if(u4>0)
      {
         printf("\nUser[4] Using Channel.");
```

```
            time=time-10;
            u4=u4-1;
          }
    getch();
}
```

OUTPUT:



PRACTICAL-2

AIM: Write a program that identifies the Bluetooth devices in the wireless range.

- **Main Activity file**

```
import android.app.Activity;
import android.bluetooth.BluetoothAdapter;
import android.bluetooth.BluetoothDevice;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;

import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.ListView;

import android.widget.Toast;
import java.util.ArrayList;
import java.util.Set;

public class MainActivity extends Activity  {
  Button b1,b2,b3,b4;

private BluetoothAdapter BA;
  private Set<BluetoothDevice>pairedDevices;
  ListView lv;

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

    b1 = (Button) findViewById(R.id.button);
    b2=(Button)findViewById(R.id.button2);
    b3=(Button)findViewById(R.id.button3);
    b4=(Button)findViewById(R.id.button4);

    BA = BluetoothAdapter.getDefaultAdapter();
    lv = (ListView)findViewById(R.id.listView);
  }

  public void on(View v){
    if (!BA.isEnabled()) {
      Intent turnOn = new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);
      startActivityForResult(turnOn, 0);

 Toast.makeText(getApplicationContext(), "Turned
on",Toast.LENGTH_LONG).show();
```

```
        }
    else {
           Toast.makeText(getApplicationContext(), "Already on",
    Toast.LENGTH_LONG).show();
        }
      }
     public void off(View v){
        BA.disable();
        Toast.makeText(getApplicationContext(), "Turned off"
    ,Toast.LENGTH_LONG).show();
      }
      public  void visible(View v){
        Intent getVisible = new
    Intent(BluetoothAdapter.ACTION_REQUEST_DISCOVERABLE);
        startActivityForResult(getVisible, 0);
      }
     public void list(View v){
        pairedDevices = BA.getBondedDevices();

    ArrayList list = new ArrayList();

        for(BluetoothDevice bt : pairedDevices) list.add(bt.getName());
        Toast.makeText(getApplicationContext(), "Showing Paired
    Devices",Toast.LENGTH_SHORT).show();

        final ArrayAdapter adapter = new
    ArrayAdapter(this,android.R.layout.simple_list_item_1, list);
           lv.setAdapter(adapter);
      }
    }
```

- **Layout file**

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
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:paddingLeft="@dimen/activity_horizontal_margin"
  android:paddingRight="@dimen/activity_horizontal_margin"
  android:paddingTop="@dimen/activity_vertical_margin"
  android:paddingBottom="@dimen/activity_vertical_margin"
  tools:context=".MainActivity"
  android:transitionGroup="true">

  <TextView android:text="Bluetooth Example"
    android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:id="@+id/textview"
        android:textSize="35dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Daft Creation"
        android:id="@+id/textView"
        android:layout_below="@+id/textview"
        android:layout_centerHorizontal="true"
        android:textColor="#ff7aff24"
        android:textSize="35dp" />

    <ImageView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/imageView"
        android:src="@drawable/abc"
        android:layout_below="@+id/textView"
        android:layout_centerHorizontal="true"
        android:theme="@style/Base.TextAppearance.AppCompat" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Turn On"
        android:id="@+id/button"
        android:layout_below="@+id/imageView"
        android:layout_toStartOf="@+id/imageView"
        android:layout_toLeftOf="@+id/imageView"
        android:clickable="true"
        android:onClick="on" />
<Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Get visible"
        android:onClick="visible"
        android:id="@+id/button2"
        android:layout_alignBottom="@+id/button"
        android:layout_centerHorizontal="true" />

    <Button
```

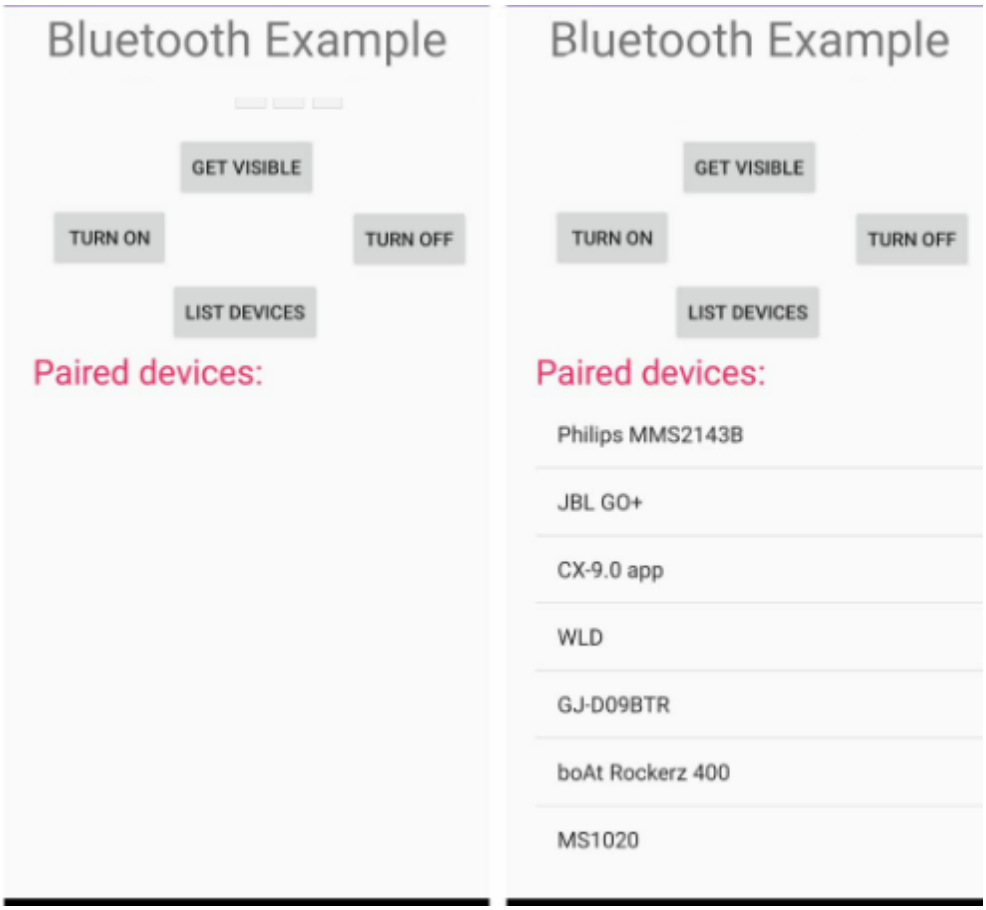
```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="List devices"
        android:onClick="list"
        android:id="@+id/button3"
        android:layout_below="@+id/imageView"
        android:layout_toRightOf="@+id/imageView"
        android:layout_toEndOf="@+id/imageView" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="turn off"
        android:onClick="off"
        android:id="@+id/button4"
        android:layout_below="@+id/button"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true" />

    <ListView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/listView"
        android:layout_alignParentBottom="true"
android:layout_alignLeft="@+id/button"
        android:layout_alignStart="@+id/button"
        android:layout_below="@+id/textView2" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Paired devices:"
        android:id="@+id/textView2"
        android:textColor="#ff34ff06"
        android:textSize="25dp"
        android:layout_below="@+id/button4"
        android:layout_alignLeft="@+id/listView"
        android:layout_alignStart="@+id/listView" />
</RelativeLayout>
```

- **Permission File**

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.codewithjava">
    <uses-permission android:name="android.permission.BLUETOOTH" />
    <uses-permission android:name="android.permission.BLUETOOTH_ADMIN" />
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
<intent-filter>
            <action android:name="android.intent.action.MAIN" />

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

OUTPUT :



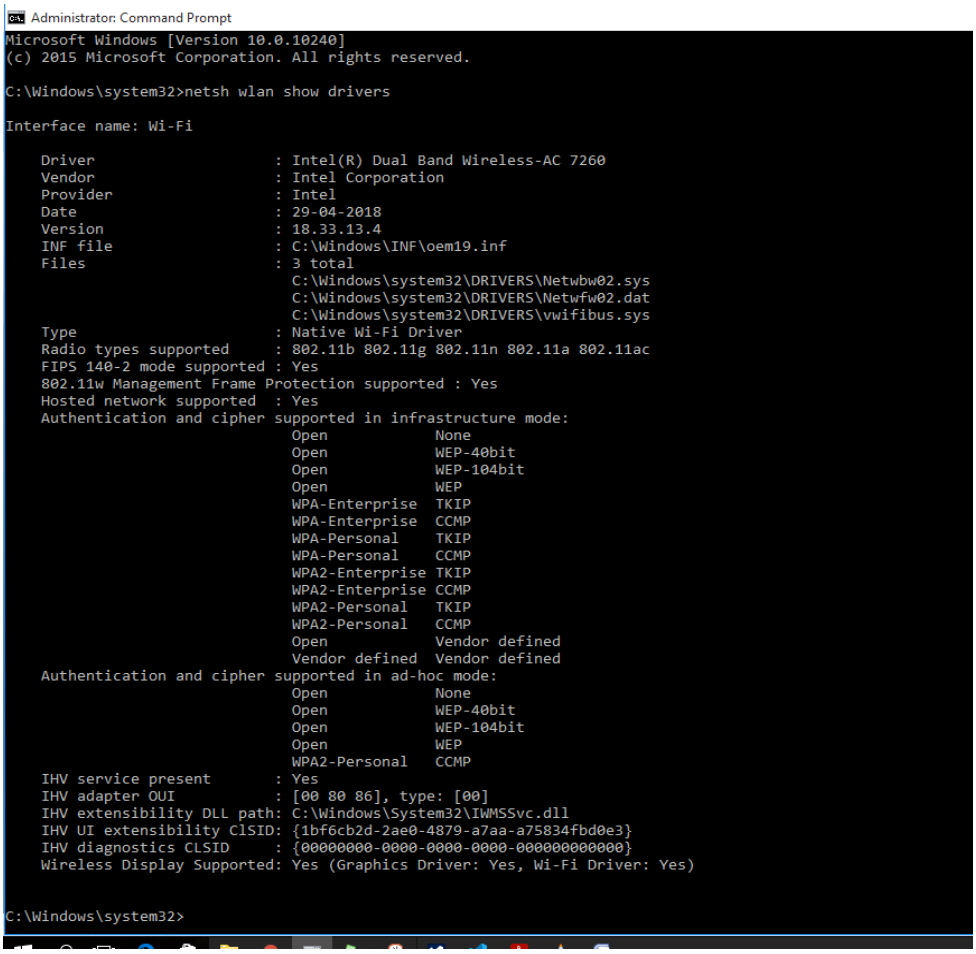
PRACTICAL-3

AIM: Write a program that prints the signal strength of Wi-Fi connection of the given Computer.

- **Displaying the Wlan/Wi-Fi drivers**

  Command: > netsh wlan show drivers

  Output :



- **Displaying the Wlan/Wi-Fi Interfaces**

  Command: >netsh wlan show interfaces

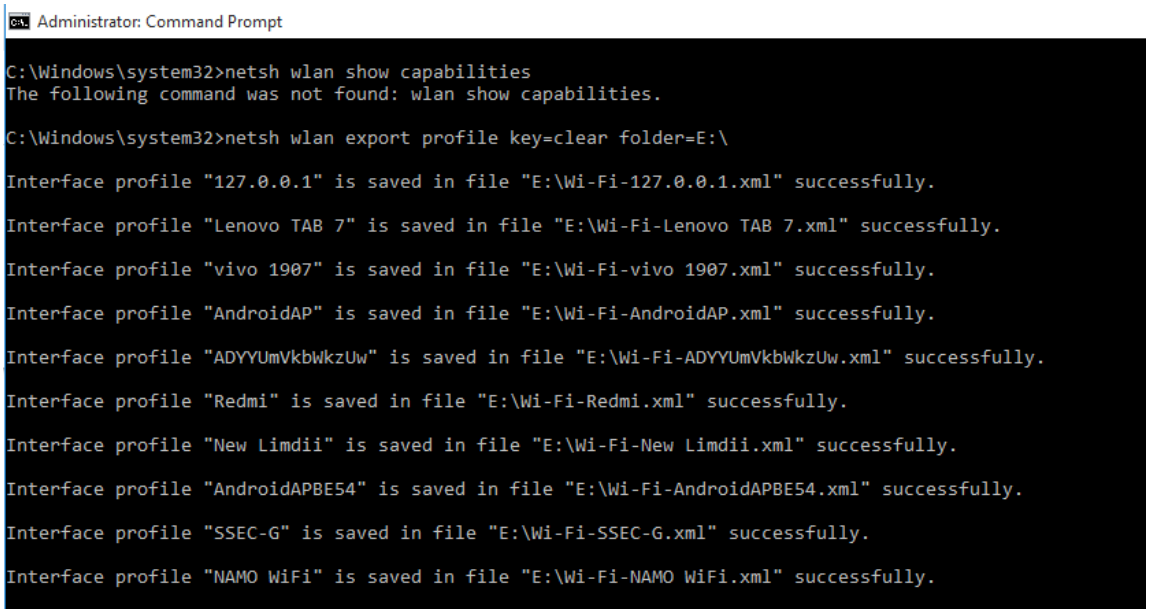
  Output:

```
Administrator: Command Prompt

C:\Windows\system32>netsh wlan show interface

There is 1 interface on the system:

    Name                   : Wi-Fi
    Description            : Intel(R) Dual Band Wireless-AC 7260
    GUID                   : ea57d88f-8620-466c-835b-bd355cacae90
    Physical address       : ac:7b:a1:75:96:03
    State                  : connected
    SSID                   : 127.0.0.1
    BSSID                  : 08:25:25:6c:4d:d6
    Network type           : Infrastructure
    Radio type             : 802.11n
    Authentication         : WPA2-Personal
    Cipher                 : CCMP
    Connection mode        : Auto Connect
    Channel                : 1
    Receive rate (Mbps)    : 72.2
    Transmit rate (Mbps)   : 72.2
    Signal                 : 99%
    Profile                : 127.0.0.1

    Hosted network status  : Not started


C:\Windows\system32>
```

- **Displaying all Wi-Fi Profiles**
  Command: > netsh wlan show profiles
  Output:

```
C:\Windows\system32>netsh wlan show profiles

Profiles on interface Wi-Fi:

Group policy profiles (read only)
---------------------------------
    <None>

User profiles
-------------
    All User Profile     : 127.0.0.1
    All User Profile     : Lenovo TAB 7
    All User Profile     : vivo 1907
    All User Profile     : AndroidAP
    All User Profile     : ADYYUmVkbWkzUw
    All User Profile     : Redmi
    All User Profile     : New Limdii
    All User Profile     : AndroidAPBE54
    All User Profile     : SSEC-G
    All User Profile     : NAMO WiFi
    All User Profile     : vivo 1609
```

- **Storing all profiles passwords and Key in to folder**
  Command**:** > netsh wlan export profile key=clear folder=”folder_Path”
  Output:

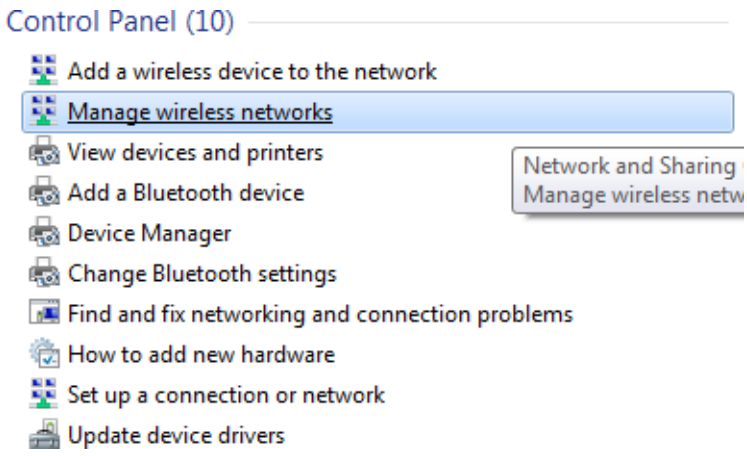

Administrator: Command Prompt
C:\Windows\system32>netsh wlan show capabilities
The following command was not found: wlan show capabilities.
C:\Windows\system32>netsh wlan export profile key=clear folder=E:\
Interface profile "127.0.0.1" is saved in file "E:\Wi-Fi-127.0.0.1.xml" successfully.
Interface profile "Lenovo TAB 7" is saved in file "E:\Wi-Fi-Lenovo TAB 7.xml" successfully.
Interface profile "vivo 1907" is saved in file "E:\Wi-Fi-vivo 1907.xml" successfully.
Interface profile "AndroidAP" is saved in file "E:\Wi-Fi-AndroidAP.xml" successfully.
Interface profile "ADYYUmVkbWkzUw" is saved in file "E:\Wi-Fi-ADYYUmVkbWkzUw.xml" successfully.
Interface profile "Redmi" is saved in file "E:\Wi-Fi-Redmi.xml" successfully.
Interface profile "New Limdii" is saved in file "E:\Wi-Fi-New Limdii.xml" successfully.
Interface profile "AndroidAPBE54" is saved in file "E:\Wi-Fi-AndroidAPBE54.xml" successfully.
Interface profile "SSEC-G" is saved in file "E:\Wi-Fi-SSEC-G.xml" successfully.
Interface profile "NAMO WiFi" is saved in file "E:\Wi-Fi-NAMO WiFi.xml" successfully.

PRACTICAL-4

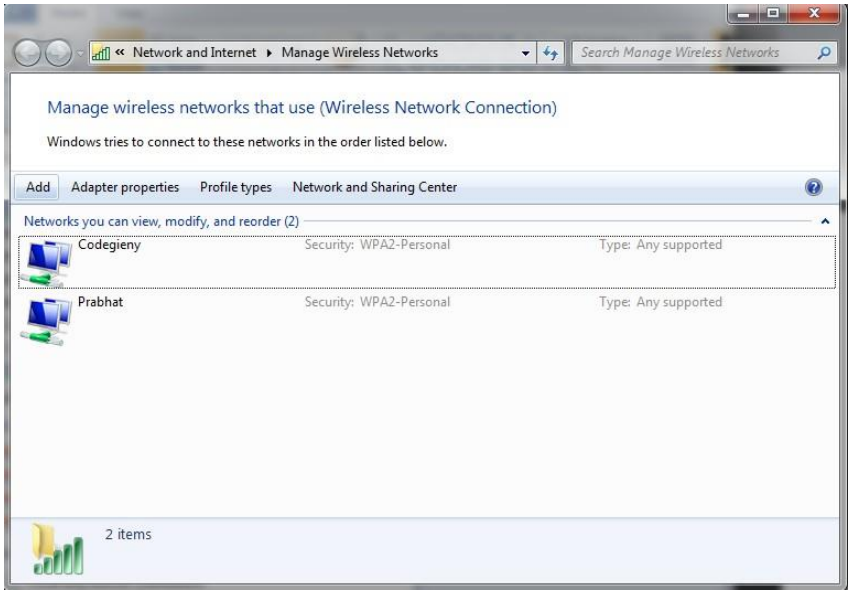
AIM: Prepare a wireless ad hoc network and show its working.

Step 1:- Create an ad hoc Network

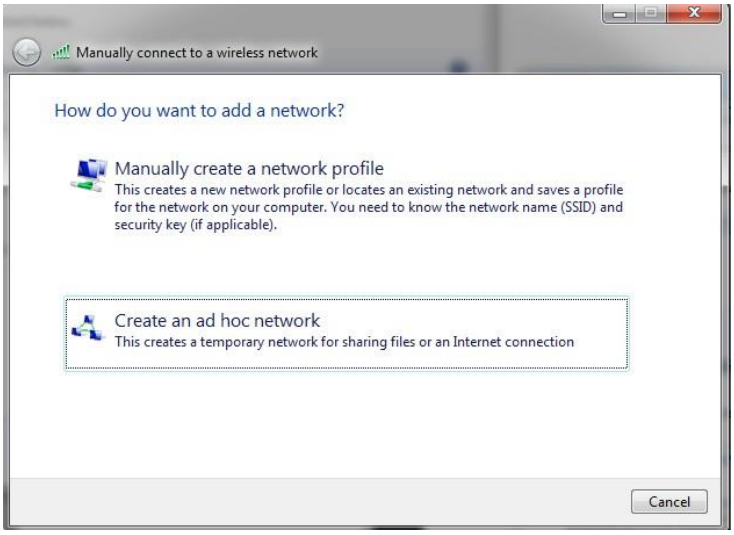
- Open the Start Menu and type wireless into the Search box and select Manage wireless networks



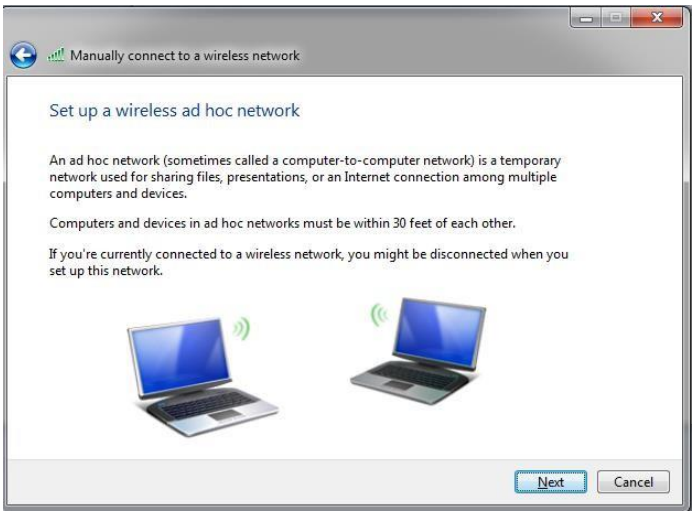
- Click the Add button to add a wireless network.



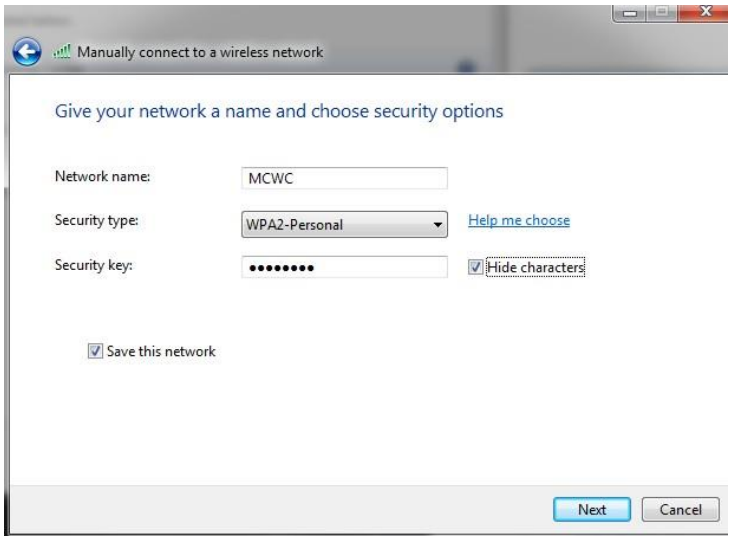
- Next click on Create an ad hoc network



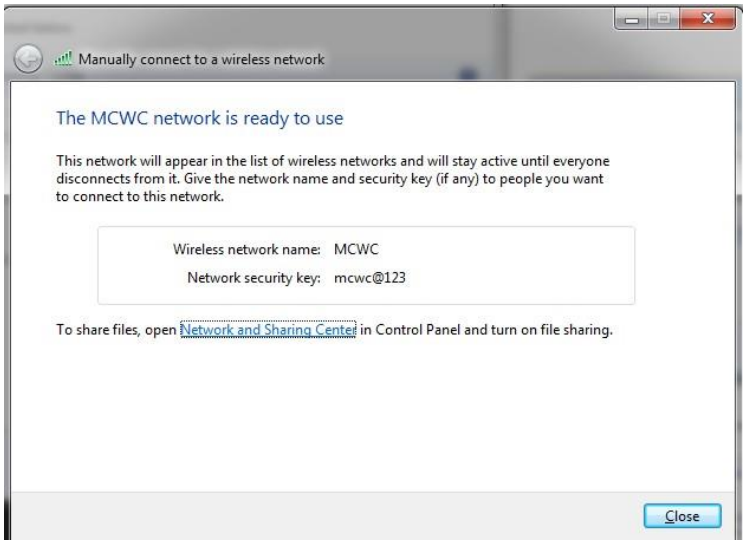
- You'll get a message instructing you of what an adhoc-network is



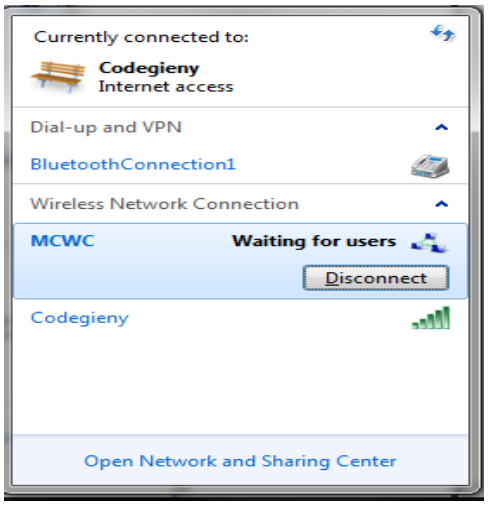
- Now give your network a name and choose security options…check Save this network if you plan to use it repeatedly so you don't have to set one up each time. The security type will depend on what the wireless adapter is capable of. We found if you're only using it quickly with different types of devices it's easier to have no security. Of course if you are keeping it on for full-time use, you'll definitely want to use security.



- The network was successfully created and is ready to use.

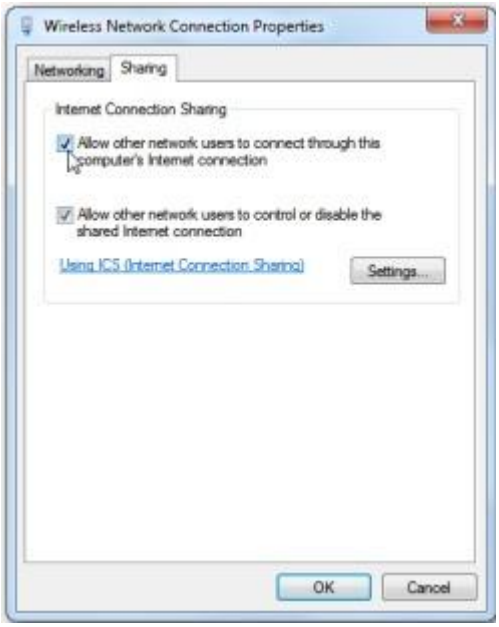


- Verify the network by clicking the wireless icon on the Taskbar…here you can see ours is waiting for users to connect.

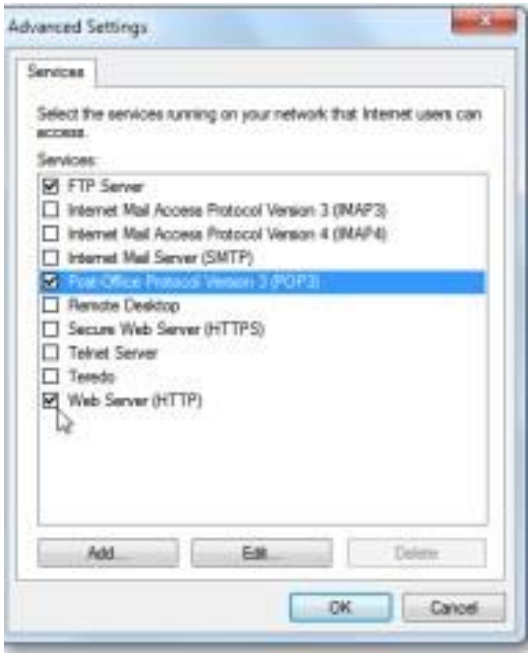


- On the Client computer, click on the wireless icon to see available networks and connect to the ad hoc network.

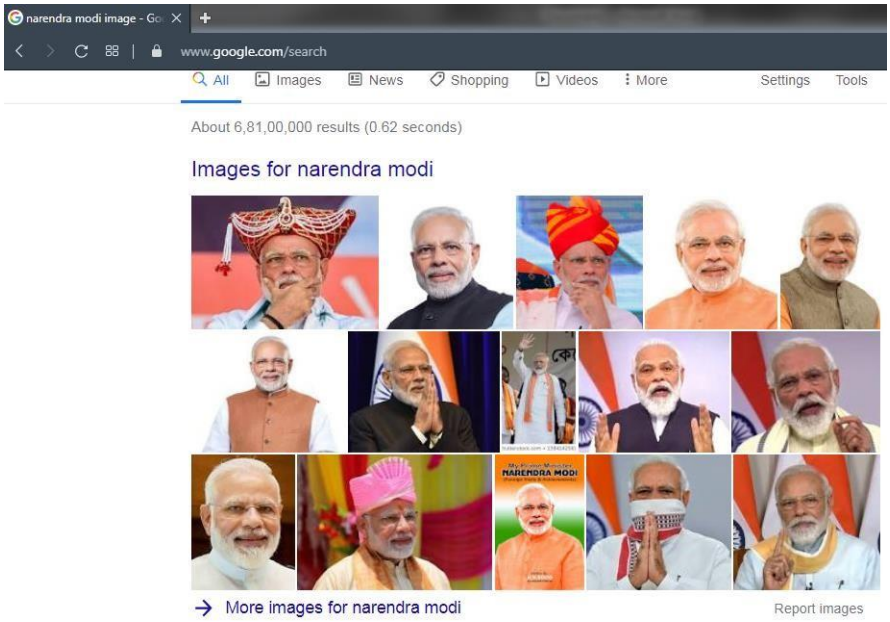
- At this point you'll be able to share files between machines. To share an Internet connection with other devices, right-click on the Host's wireless adapter icon. Go to Properties, click the Sharing tab, and select Allow other network users to connect through this computer's Internet connection.



- In Settings you can select the network services the Client machine can access.



- Now you can share documents and the Internet connection between machines and devices. In this example we're sharing between a Windows 7 desktop with a wireless card and a Netbook with Windows 7 Home Premium.



PRACTICAL:5

AIM: Write a program to find a hamming distance of two strings.

CODE:

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
      int i,len1,len2,count=0;
      char one[200],two[200];
      clrscr();
      while(1){
        printf("Enter 1st string:\n"); scanf("%s",&one);
        printf("Enter 2nd string:\n"); scanf("%s",&two);
        len1=strlen(one);
        len2=strlen(two);
        if(len1!=len2)
          {
            printf("\nLength of both strings must be same, enter again!\n");
          }

      else
         {
            for(i=0;i<len1;i++)
             {
                if(one[i]!=two[i])
                 {
                      count++;
                 }
             }
            break;
          }
      }
   printf("\nHamming distance:\t%d",count);
   getch();
}
```

OUTPUT:


Enter 1st string:
011011
Enter 2nd string:
110001
Hamming distance: 3

PRACTICAL: 6

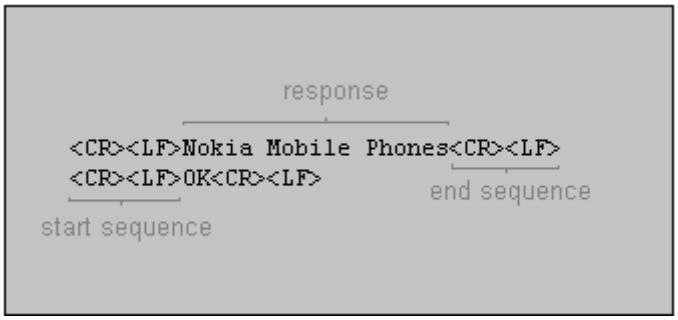
AIM: Write a program to perform infrared communication.

INTRODUCTION:

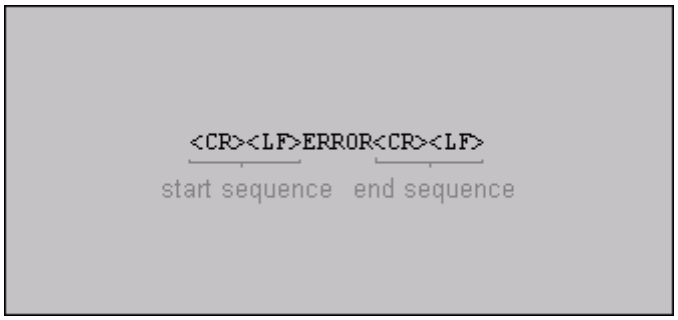
- For data exchange, most of the new mobile phones and Pocket PCs possess an infrared (IRDA) port. So, why not use this infrared connection to communicate between these two devices?
- This simple Pocket PC 2002 application shows how to communicate with your mobile phone, it will read the manufacturer, the model identification and the Phone Book of your mobile phone to your Pocket PC.
- I have tried this Pocket PC application (running on my HP jornada 565) only with a Nokia 5210, my new Siemens S55 and a very old Siemens S25 mobile phone. So, I hope the application will also work with other mobile phones.

➢ How I can Speak with Mobile Phone?

- To speak with your mobile phone, you have to use some special commands, called AT commands. You have to send these commands via the IRDA port of your Pocket PC to the mobile phone and the mobile phone will respond to you. If the mobile phone supports the received AT command, it will send you a valid response, otherwise it will send you an error response.
- This command is to request the manufacturer identification of the mobile phone. For example, a Nokia 5210 will send you the following response:



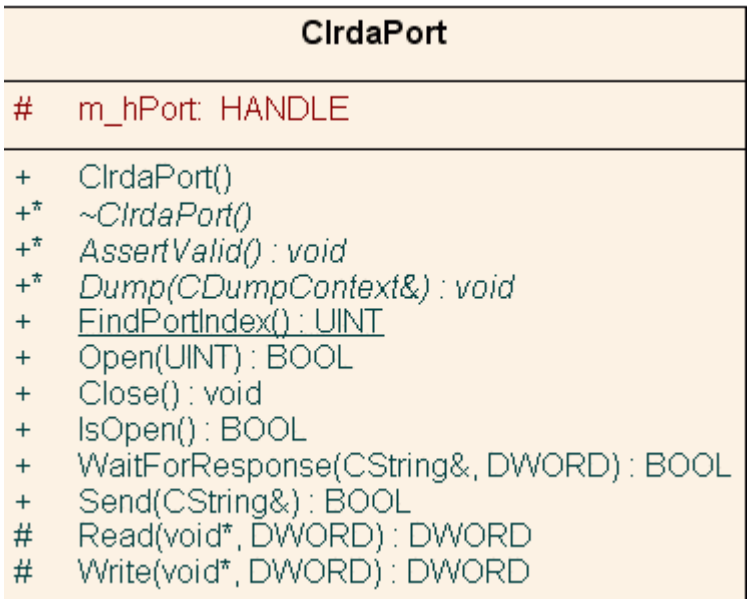
- If the mobile phone doesn't support the received AT command, it will send you an error response:



<CR> ... Carriage return

<LF> ... Line feed

- The application is a simple dialog based MFC application including some simple API calls.
- For the infrared communication, I have written a simple class called CIrdaPort. The class supports some functions to open and close the IRDA port and some functions for the read and write operations.



- To open the IRDA port use the following function:
  - BOOL CIrdaPort::Open(UINT uiPort);
  - This function will open the IRDA port, the uiPort parameter defines the index of the IRDA port (1 for COM1, 2 for COM2, 3 for COM3). The return value TRUE indicates success, the value FALSE failure.
- You can use the following function to take a look in the registry for the index of the IRDA port:
  - UINT CIrdaPort::FindPortIndex();
  - If the function finds some index of the IRDA port in the registry this index will be returned, otherwise the return value is 0.
- If you want to write some characters to the IRDA port, you can use the following function:
  - BOOL CIrdaPort::Send(const CString& strSend) const;
  - This function will send the string strSend to the mobile phone. The return value FALSE indicates failure, the value TRUE success.
- To wait for a response, you can use the following function:
  - BOOL CIrdaPort::WaitForResponse(CString& strResponse, DWORD dwTimeout) const;
  - This function waits for a response strResponse of the mobile phone or returns with FALSE if the timeout dwTimeout occurred.
- If you are finished with all read and write operations, you have to close the port with the following function:
  - void CIrdaPort::Close();

- This function will close the IRDA port.

- When you click on the "Read ..." button of the dialog, the application tries to connect to the mobile phone and read some information about the phone, like the manufacturer and the model identification (for example: Nokia Mobile Phones, Nokia 5210 or SIEMENS, S55). After that it tries to read all Phone Book entries of your mobile phone and display it in a list box on the dialog.

➢ **Don't forget to activate the infrared port of your mobile phone!**

- Before you can test the communication between your Pocket PC and your mobile phone, you have to activate the infrared (IRDA) port of your mobile phone. Most of the mobile phones have their own menu item to activate the infrared port. For example, for a Nokia mobile phone you have to choose Menu -> Infrared. After activating the infrared port, you will see the following symbol IR symbol at the top left corner on the display of your Nokia mobile phone and you will know that the infrared port is enabled.
- Some mobile phones, like the Nokia phones, disable the infrared port after some minutes if there is no data exchange on the infrared connection. So, before you start a communication take a look on your mobile phone and reactivate the infrared port if necessary. Look also that there is a straight connection between the infrared sensor of your Pocket PC and your mobile phone and that there is nothing between the two devices which can block the communication.

➢ **Bluetooth connection between Pocket PC and mobile phone**:

- Change the name of the communications port from COMx: to BTC1: and comment out the following line:
  - VERIFY(SetupComm(m_hPort, 2048, 2048));
- It's also possible to increase the port speed up to 115200.
- The registry key that he found that holds the port's name is HKEY_LOCAL_MACHINE\ExtModems\BtDialupModem.

PRACTICAL-7

AIM: Write a program for file sharing using Bluetooth.

- **MainActivity.java**

```
package com.example.hp.bluetooth_file_transfer;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import java.io.File;
import java.util.List;

import android.Manifest;
import android.app.Activity;
import android.bluetooth.BluetoothAdapter;
import android.content.ContentUris;
import android.content.Context;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.content.pm.ResolveInfo;
import android.database.Cursor;
import android.net.Uri;
import android.os.Build;
import android.os.Bundle;
import android.os.Environment;
import android.provider.DocumentsContract;
import android.provider.MediaStore;
import android.support.v4.content.ContextCompat;
//import android.support.v7.app.ActionBarActivity;
import android.support.v7.app.AppCompatActivity;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
import com.example.hp.bluetooth_file_transfer.R;
public class MainActivity extends AppCompatActivity {
   private static final int DISCOVER_DURATION = 300;
   private static final int REQUEST_BLU = 1;
   String path;
   private static final String[] INITIAL_PERMS =
{Manifest.permission.WRITE_EXTERNAL_STORAGE,
        Manifest.permission.READ_EXTERNAL_STORAGE,
        Manifest.permission.READ_CONTACTS,
        Manifest.permission.WRITE_CONTACTS,
```

```
            Manifest.permission.CAMERA,
            Manifest.permission.ACCESS_FINE_LOCATION};

    private static final int INITIAL_REQUEST = 1337;

    private static final int REQUEST_WRITE_STORAGE = INITIAL_REQUEST + 4;

    TextView textView_FileName;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textView_FileName = (TextView) findViewById(R.id.textView_FileName);

        if (!canAccessLocation() || !canAccessCamera() || !canAccessWriteStorage() ||
!canAccessReadStorage() || !canAccessReadContacts() || !canAccessWriteContacts())
{
            if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
                requestPermissions(INITIAL_PERMS, INITIAL_REQUEST);
            }
        }
    }
    @Override
public void onRequestPermissionsResult(int requestCode, String[] permissions, int[]
grantResults) {

        switch (requestCode) {

            case REQUEST_WRITE_STORAGE:
                if (canAccessWriteStorage()) {
                    //reload my activity with permission granted or use the features what
required the permission
                    System.out.println("permission granteddddd");

                } else {
                    Toast.makeText(this, "The app was not allowed to write to your storage.
Hence, it cannot function properly. Please consider granting it this permission",
Toast.LENGTH_LONG).show();
                }
                break;
        }
    }
    public void sendViaBluetooth(View v) {
```

```
        if (path == null) {
            Toast.makeText(this, "Please select file first",
Toast.LENGTH_SHORT).show();
            return;
        }

        BluetoothAdapter btAdapter = BluetoothAdapter.getDefaultAdapter();

        if (btAdapter == null) {
            Toast.makeText(this, "Bluetooth is not supported on this device",
Toast.LENGTH_LONG).show();
        } else {
            enableBluetooth();
        }
    }
    public void getFile(View v) {
        Intent mediaIntent = new Intent(Intent.ACTION_GET_CONTENT);
        mediaIntent.setType("*/*"); //set mime type as per requirement
        startActivityForResult(mediaIntent, 1001);
    }
    public void enableBluetooth() {
        Intent discoveryIntent = new
Intent(BluetoothAdapter.ACTION_REQUEST_DISCOVERABLE);

discoveryIntent.putExtra(BluetoothAdapter.EXTRA_DISCOVERABLE_DURATION
, DISCOVER_DURATION);
        startActivityForResult(discoveryIntent, REQUEST_BLU);
    }
    private boolean canAccessWriteStorage() {
        return (hasPermission(Manifest.permission.WRITE_EXTERNAL_STORAGE));
    }

    private boolean canAccessReadStorage() {
        return (hasPermission(Manifest.permission.READ_EXTERNAL_STORAGE));
    }

    private boolean canAccessReadContacts() {
        return (hasPermission(Manifest.permission.READ_CONTACTS));
    }

    private boolean canAccessWriteContacts() {
        return (hasPermission(Manifest.permission.WRITE_CONTACTS));
    }
```

```
    private boolean canAccessCamera() {
        return (hasPermission(Manifest.permission.CAMERA));
    }

    private boolean canAccessLocation() {
        return (hasPermission(Manifest.permission.ACCESS_FINE_LOCATION));
    }

    private boolean hasPermission(String perm) {
        return (PackageManager.PERMISSION_GRANTED ==
ContextCompat.checkSelfPermission(this, perm));
    }
    public static String getPath(final Context context, final Uri uri) {
        final boolean isKitKatOrAbove = Build.VERSION.SDK_INT >=
Build.VERSION_CODES.KITKAT;

        // DocumentProvider
        if (isKitKatOrAbove && DocumentsContract.isDocumentUri(context, uri)) {
            // ExternalStorageProvider
            if (isExternalStorageDocument(uri)) {
                final String docId = DocumentsContract.getDocumentId(uri);
                final String[] split = docId.split(":");
                final String type = split[0];

                if ("primary".equalsIgnoreCase(type)) {
                    return Environment.getExternalStorageDirectory() + "/" + split[1];
                }

                // TODO handle non-primary volumes
            }
            // DownloadsProvider
            else if (isDownloadsDocument(uri)) {

                final String id = DocumentsContract.getDocumentId(uri);
                final Uri contentUri = ContentUris.withAppendedId(
                        Uri.parse("content://downloads/public_downloads"),
Long.valueOf(id));

                return getDataColumn(context, contentUri, null, null);
            }
            // MediaProvider
            else if (isMediaDocument(uri)) {
                final String docId = DocumentsContract.getDocumentId(uri);
                final String[] split = docId.split(":");
```

```
                final String type = split[0];

                Uri contentUri = null;
                if ("image".equals(type)) {
                   contentUri = MediaStore.Images.Media.EXTERNAL_CONTENT_URI;
                } else if ("video".equals(type)) {
                   contentUri = MediaStore.Video.Media.EXTERNAL_CONTENT_URI;
                } else if ("audio".equals(type)) {
                   contentUri = MediaStore.Audio.Media.EXTERNAL_CONTENT_URI;
                }

                final String selection = "_id=?";
                final String[] selectionArgs = new String[]{
                      split[1]
                };

                return getDataColumn(context, contentUri, selection, selectionArgs);
             }
          }
          // MediaStore (and general)
          else if ("content".equalsIgnoreCase(uri.getScheme())) {
             return getDataColumn(context, uri, null, null);
          }
          // File
          else if ("file".equalsIgnoreCase(uri.getScheme())) {
             return uri.getPath();
          }

          return null;
       }
       public static String getDataColumn(Context context, Uri uri, String selection,
                                          String[] selectionArgs) {

          Cursor cursor = null;
          final String column = "_data";
          final String[] projection = {
                column
          };

          try {
             cursor = context.getContentResolver().query(uri, projection, selection,
selectionArgs,
                   null);
             if (cursor != null && cursor.moveToFirst()) {
```

```
                final int column_index = cursor.getColumnIndexOrThrow(column);
                return cursor.getString(column_index);
            }
        } finally {
            if (cursor != null)
                cursor.close();
        }
        return null;
    }
    public static boolean isExternalStorageDocument(Uri uri) {
        return "com.android.externalstorage.documents".equals(uri.getAuthority());
    }
    public static boolean isDownloadsDocument(Uri uri) {
        return "com.android.providers.downloads.documents".equals(uri.getAuthority());
    }
    public static boolean isMediaDocument(Uri uri) {
        return "com.android.providers.media.documents".equals(uri.getAuthority());
    }

}
```

- **Activity_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
        android:id="@+id/linearLayout"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center_horizontal"
        android:orientation="vertical"
        app:layout_constraintBottom_toTopOf="parent"
        app:layout_constraintEnd_toStartOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0">
```

```
    <TextView
        android:id="@+id/textView_FileName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:text="@string/please_select_file"
        android:textSize="18sp" />


    <Button
        android:id="@+id/button_GetFile"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="getFile"
        android:text="@string/get_file_from_device" />

    <Button
        android:id="@+id/button_SendFile"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="sendViaBluetooth"
        android:text="@string/send_via_bluetooth" />

  </LinearLayout>

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

- **AndroidManifest.xml**

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
```

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

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN" />
<uses-permission android:name="android.permission.BLUETOOTH" />
<uses-permission
android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
<uses-permission
android:name="android.permission.READ_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.INTERNET" />
</manifest>
```

OUTPUT:

PRACTICAL- 8

AIM : Develop an android app which displays “Hello, welcome to Android Lab” message.

CODE:

MainActivity.java:

```
package com.example.admin.helloworld;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity
 {    @Override
      protected void onCreate(Bundle savedInstanceState)
  {   super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
   }
}
```

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center_vertical"
   tools:context="com.example.admin.helloworld.MainActivity">
  <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Hello, welcome to Android Lab"
      android:textSize="30sp"
      android:layout_gravity="center"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintLeft_toLeftOf="parent"
      app:layout_constraintRight_toRightOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
</LinearLayout>
```

OUTPUT:


Personal hotspot : 1 connection(s),Used 92.4 MB
Hello,
welcome to Android Lab.

PRACTICAL- 9

AIM: Develop an android app which displays a form to get following information from the user.

Username Password Email Address
Phone Number Country, State
Gender Interests Birth Date
Birth Time

Form should be followed by a Button with label "Submit". When the user clicks the button, a message should be displayed to the user describing the information entered. Utilize suitable UI controls (i.e. widgets). [When user enters country in AutoCompleteTextView, list of states should be displayed in Spinner automatically.]

CODE:

MainActivity.java:

```
package com.believe.myform;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;

public class ViewData extends AppCompatActivity {

    TextView musername;
    TextView mpassword;
    TextView memail;
    TextView mphoneNumber;
    TextView mcountry;
    TextView mstate;
    TextView mgender;
    TextView minterests;
    TextView mbirthDate;
    TextView mbirthTime;

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

        musername=(TextView)findViewById(R.id.tv_username);
        mpassword=(TextView)findViewById(R.id.tv_password);
        memail=(TextView)findViewById(R.id.tv_email);
        mphoneNumber=(TextView)findViewById(R.id.tv_phone_number);
        mcountry=(TextView)findViewById(R.id.tv_country);
        mstate=(TextView)findViewById(R.id.tv_state);
```

```
        mgender=(TextView)findViewById(R.id.tv_gender);
        minterests=(TextView)findViewById(R.id.tv_interests);
        mbirthDate=(TextView)findViewById(R.id.tv_birth_date);
        mbirthTime=(TextView)findViewById(R.id.tv_birth_time);

        Intent intent=getIntent();
        Bundle data=intent.getExtras();
        musername.setText(data.getString("username").toString());
        mpassword.setText(data.getString("password").toString());
        memail.setText(data.getString("email").toString());
        mphoneNumber.setText(data.getString("phone").toString());
        mcountry.setText(data.getString("country").toString());
        mstate.setText(data.getString("state").toString());
        mgender.setText(data.getString("gender").toString());
        minterests.setText(data.getString("interests").toString());
        mbirthDate.setText(data.getString("bdate").toString());
        mbirthTime.setText(data.getString("btime").toString());
    }
}
```

Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView
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:paddingTop="16dp"
    android:paddingBottom="16dp"
    android:paddingRight="8dp"
    android:paddingLeft="8dp"
    tools:context="com.believe.myform.MainActivity">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical">
        <EditText
            android:id="@+id/et_username" android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Username"
            android:ems="10"
            android:layout_marginBottom="8dp"
            android:textSize="18dp"/>

        <EditText
            android:id="@+id/et_password"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Password"
```

```
    android:ems="10"
    android:inputType="textPassword"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<EditText
    android:id="@+id/et_email"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Email"
    android:ems="10"
    android:inputType="textEmailAddress"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<EditText
    android:id="@+id/et_phone_number"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Phone Number"
    android:ems="10"
    android:inputType="phone"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<AutoCompleteTextView
    android:id="@+id/actv_country"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Country"
    android:textSize="18dp"
    android:ems="10"
    android:inputType="textAutoComplete"/>

<Spinner
    android:id="@+id/sp_states"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:spinnerMode="dialog"
    android:textSize="18dp"></Spinner>

<Spinner
    android:id="@+id/sp_gender"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:spinnerMode="dialog"
    android:textSize="18dp"></Spinner>
```

```
<EditText
    android:id="@+id/et_interests"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Interests"
    android:ems="10"
    android:inputType="text"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<TextView
    android:id="@+id/tv_birth_date_label"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Select your Birth Date:"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<Button
    android:id="@+id/bt_birth_date"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginBottom="16dp"
    android:text="Select Date"
    android:textSize="18dp" />

<TextView
    android:id="@+id/tv_birth_time_label"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Select your Birth Time:"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<Button
    android:id="@+id/bt_birth_time"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginBottom="16dp"
    android:text="Select Date"
    android:textSize="18dp" />

<Button
    android:id="@+id/bt_submit"
    style="@style/Widget.AppCompat.Button.Colored"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginBottom="16dp"
    android:layout_marginTop="16dp"
```

```
        android:text="Submit"
        android:textSize="18dp" />

    </LinearLayout>
</ScrollView>
```

ViewData.java

```
package com.believe.myform;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;

public class ViewData extends AppCompatActivity {

    TextView musername;
    TextView mpassword;
    TextView memail;
    TextView mphoneNumber;
    TextView mcountry;
    TextView mstate;
    TextView mgender;
    TextView minterests;
    TextView mbirthDate;
    TextView mbirthTime;

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

        musername=(TextView)findViewById(R.id.tv_username);
        mpassword=(TextView)findViewById(R.id.tv_password);
        memail=(TextView)findViewById(R.id.tv_email);
        mphoneNumber=(TextView)findViewById(R.id.tv_phone_number);
        mcountry=(TextView)findViewById(R.id.tv_country);
        mstate=(TextView)findViewById(R.id.tv_state);
        mgender=(TextView)findViewById(R.id.tv_gender);
        minterests=(TextView)findViewById(R.id.tv_interests);
        mbirthDate=(TextView)findViewById(R.id.tv_birth_date);
        mbirthTime=(TextView)findViewById(R.id.tv_birth_time);

        Intent intent=getIntent();
        Bundle data=intent.getExtras();
        musername.setText(data.getString("username").toString());
        mpassword.setText(data.getString("password").toString());
        memail.setText(data.getString("email").toString());
        mphoneNumber.setText(data.getString("phone").toString());
        mcountry.setText(data.getString("country").toString());
```

```
        mstate.setText(data.getString("state").toString());
        mgender.setText(data.getString("gender").toString());
        minterests.setText(data.getString("interests").toString());
        mbirthDate.setText(data.getString("bdate").toString());
        mbirthTime.setText(data.getString("btime").toString());
    }
}
```

activity_view_data.xml

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="com.believe.myform.ViewData">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginTop="16dp"
        android:layout_marginBottom="16dp"
        android:orientation="vertical"
        android:gravity="center">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Username"
        android:layout_gravity="center"
        android:textSize="18dp"/>
    <TextView
        android:id="@+id/tv_username"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Username"
        android:textColor="@color/colorAccent"
        android:layout_gravity="center"
        android:layout_marginBottom="16dp"
        android:textSize="18dp"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Password"
        android:layout_gravity="center"
        android:textSize="18dp"/>
    <TextView
```

```
    android:id="@+id/tv_password"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Username"
    android:textColor="@color/colorAccent"
    android:layout_gravity="center"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Email"
    android:layout_gravity="center"
    android:textSize="18dp"/>
<TextView
    android:id="@+id/tv_email"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Username"
    android:textColor="@color/colorAccent"
    android:layout_gravity="center"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Phone Number"
    android:layout_gravity="center"
    android:textSize="18dp"/>
<TextView
    android:id="@+id/tv_phone_number"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Username"
    android:textColor="@color/colorAccent"
    android:layout_gravity="center"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Country"
    android:layout_gravity="center"
    android:textSize="18dp"/>
<TextView
    android:id="@+id/tv_country"
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
    android:text="Username"
    android:textColor="@color/colorAccent"
    android:layout_gravity="center"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

  <TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="State"
    android:layout_gravity="center"
    android:textSize="18dp"/>
  <TextView
    android:id="@+id/tv_state"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Username"
    android:textColor="@color/colorAccent"
    android:layout_gravity="center"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

  <TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Gender"
    android:layout_gravity="center"
    android:textSize="18dp"/>
  <TextView
    android:id="@+id/tv_gender"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Username"
    android:textColor="@color/colorAccent"
    android:layout_gravity="center"
    android:layout_marginBottom="16dp"
    android:textSize="18dp"/>

  <TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Interests"
    android:layout_gravity="center"
    android:textSize="18dp"/>
  <TextView
    android:id="@+id/tv_interests"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Username"
```

```
        android:textColor="@color/colorAccent"
        android:layout_gravity="center"
        android:layout_marginBottom="16dp"
        android:textSize="18dp"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Birth Date"
        android:layout_gravity="center"
        android:textSize="18dp"/>
    <TextView
        android:id="@+id/tv_birth_date"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Username"
        android:textColor="@color/colorAccent"
        android:layout_gravity="center"
        android:layout_marginBottom="16dp"
        android:textSize="18dp"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Birth Time"
        android:layout_gravity="center"
        android:textSize="18dp"/>
    <TextView
        android:id="@+id/tv_birth_time"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Username"
        android:textColor="@color/colorAccent"
        android:layout_gravity="center"
        android:layout_marginBottom="16dp"
        android:textSize="18dp"/>
    </LinearLayout>
</ScrollView>
```

OUTPUT:


0 B/s
1:06 AM
36%
Registration Form
Bhumit Sheth
bhumitsheth02@gmail.com
9463257810
India
Gujarat
Male
Enter your interests here
Select your Birth Date:
02-06-1999
Select your Birth time:
10:36
Submit

PRACTICAL-10

AIM: Using Android, Create a login Activity. It asks "username" and "password" from user. If username and password are valid, it displays Welcome message using new activity.

CODE:

MainActivity.java

```
package com.believe.loginmodule;

import android.content.Intent;
import android.os.Build;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText musername;
    EditText mpassword;
    Button mlogin;

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

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.KITKAT) {
            Window w = getWindow(); // in Activity's onCreate() for instance
            w.setFlags(WindowManager.LayoutParams.FLAG_LAYOUT_NO_LIMITS,
WindowManager.LayoutParams.FLAG_LAYOUT_NO_LIMITS);
        }

        musername=(EditText)findViewById(R.id.et_username);
        mpassword=(EditText)findViewById(R.id.et_password);
        mlogin=(Button)findViewById(R.id.bt_login);

        musername.setOnFocusChangeListener(new View.OnFocusChangeListener() {
            public void onFocusChange(View v, boolean hasFocus) {
                if (hasFocus)
                    musername.setHint("");
                else
                    musername.setHint("Username");
            }
```

```
        });

        mpassword.setOnFocusChangeListener(new View.OnFocusChangeListener() {
            public void onFocusChange(View v, boolean hasFocus) {
                if (hasFocus)
                    mpassword.setHint("");
                else
                    mpassword.setHint("Password");
            }
        });

        mlogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(!musername.getText().toString().equals("") &&
!mpassword.getText().toString().equals(""))
                {
                    if(musername.getText().toString().equals("birju"))
                    {
                        if(mpassword.getText().toString().equals("1234"))
                        {
                            Intent intent=new Intent(MainActivity.this,WelcomeScreen.class);
                            intent.putExtra("user",musername.getText().toString());
                            startActivity(intent);
                        }
                        else
                        {
                            Toast.makeText(MainActivity.this,"Password is
incorrect!",Toast.LENGTH_SHORT).show();
                        }
                    }
                    else
                    {
                        Toast.makeText(MainActivity.this,"Invaild
username!",Toast.LENGTH_SHORT).show();
                    }
                }
                else
                {
                    Toast.makeText(MainActivity.this,"Please fill both
fields!",Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
```

```
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:orientation="vertical"
android:gravity="center"
android:background="@drawable/bg1"
android:layout_height="match_parent"
tools:context="com.believe.loginmodule.MainActivity">

<LinearLayout
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:layout_gravity="center"
   android:layout_marginTop="65dp"
   android:background="@null"
   android:gravity="center"
   android:orientation="vertical"
   app:layout_constraintBottom_toTopOf="@+id/button2"
   app:layout_constraintLeft_toLeftOf="parent"
   app:layout_constraintRight_toRightOf="parent"
   app:layout_constraintTop_toTopOf="parent"
   app:layout_constraintVertical_bias="0.278"
   android:layout_alignParentTop="true"
   android:layout_alignParentLeft="true"
   android:layout_alignParentStart="true">

   <ImageView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginBottom="24dp"
      android:background="@drawable/ic_account" />

   <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_marginBottom="5dp"
      android:layout_marginLeft="32dp"
      android:layout_marginRight="32dp"
      android:background="@drawable/shape"
      android:orientation="vertical">

      <EditText
         android:id="@+id/et_username"
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:layout_marginLeft="32dp"
         android:layout_marginRight="32dp"
         android:background="@android:color/transparent"
         android:hint="Username"
```

```
            android:inputType="text"
            android:padding="8dp"
            android:textAlignment="center"
            android:textColor="#FFFFFF"
            android:textColorHint="#FFFFFF"
            android:textSize="18dp" />
        </LinearLayout>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginBottom="16dp"

            android:layout_marginLeft="32dp"
            android:layout_marginRight="32dp"
            android:background="@drawable/shape"
            android:orientation="vertical">

            <EditText
                android:id="@+id/et_password"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginLeft="32dp"
                android:layout_marginRight="32dp"
                android:background="@android:color/transparent"
                android:hint="Password"
                android:inputType="textPassword"
                android:padding="8dp"
                android:textAlignment="center"
                android:textColor="#FFFFFF"
                android:textColorHint="#FFFFFF"
                android:textSize="18dp" />
        </LinearLayout>

    </LinearLayout>

    <Button
        android:id="@+id/bt_login"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:background="#25FFFFFF"
        android:text="Login"
        android:textColor="#FFF"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent" />

</RelativeLayout>
```

WelcomeScreen.java

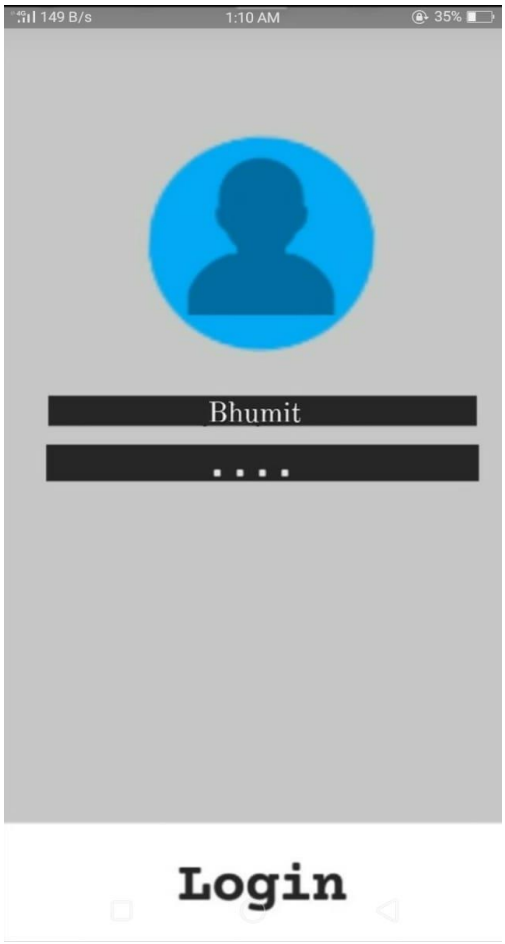
```
package com.believe.loginmodule;

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

public class WelcomeScreen extends AppCompatActivity {

    TextView musername;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_welcome_screen);

        musername=(TextView)findViewById(R.id.tv_user);
        musername.setText(getIntent().getExtras().getString("user"));
    }
}
```

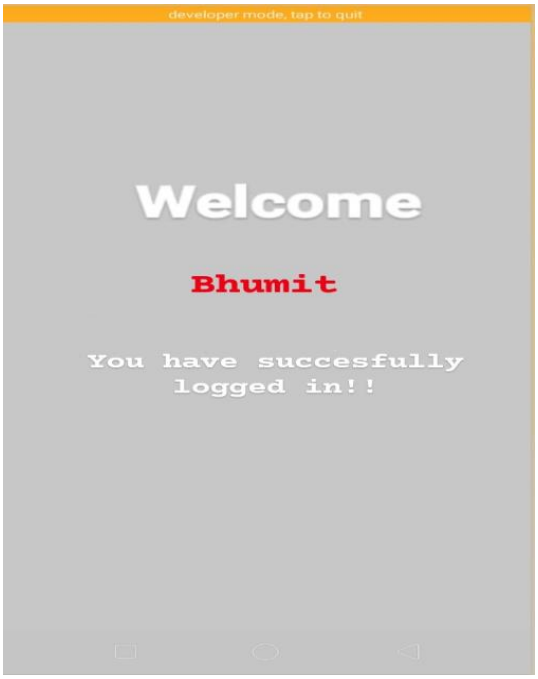
activity_welcome_screen.xml

```
<?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:layout_gravity="center"
    android:gravity="center"
    tools:context="com.believe.loginmodule.WelcomeScreen">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome"
        android:textSize="50sp"/>

    <TextView
        android:id="@+id/tv_user"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="username"
        android:layout_marginTop="16dp"
        android:textColor="@color/colorAccent"
        android:textSize="32sp"/>

    <TextView
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text="You are successfully logged in!"
    android:textSize="24sp"/>

</LinearLayout>
```

OUTPUT:




developer mode, tap to quit
Welcome
Bhumit
You have succesfully
logged in!!

PRACTICAL-11

AIM: Develop calculator Android Application.

CODE:

MainActivity.java

```
package com.believe.calculator;

import android.os.Build;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.Button;
import android.widget.TextView;

import java.text.DecimalFormat;

public class MainActivity extends AppCompatActivity {

    Button mone;
    Button mtwo;
    Button mthree;
    Button mfour;
    Button mfive;
    Button msix;
    Button mseven;
    Button meight;
    Button mnine;
    Button mzero;
    Button mdot;
    Button mplus;
    Button mminus;
    Button mmultiply;
    Button mdevide;
    Button mequal;
    Button mallClear;
    Button mclear;
    Button mpercent;
    Button msign;
    TextView mdisplay;
    TextView moperator;
    DecimalFormat decimalFormat = new DecimalFormat("#.##########");

    private double valueOne=Double.NaN;
    private double valueTwo=0;

    private static final char ADDITION = '+';
    private static final char SUBTRACTION = '-';
```

```
private static final char MULTIPLICATION = '*';
private static final char DIVISION = '/';
private static final char PERCENT = '%';

private char CURRENT_ACTION;

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

   mdisplay=(TextView)findViewById(R.id.tv_display);
   moperator=(TextView)findViewById(R.id.tv_op);
   mone=(Button)findViewById(R.id.bt_1);
   mtwo=(Button)findViewById(R.id.bt_2);
   mthree=(Button)findViewById(R.id.bt_3);
   mfour=(Button)findViewById(R.id.bt_4);
   mfive=(Button)findViewById(R.id.bt_5);
   msix=(Button)findViewById(R.id.bt_6);
   mseven=(Button)findViewById(R.id.bt_7);
   meight=(Button)findViewById(R.id.bt_8);
   mnine=(Button)findViewById(R.id.bt_9);
   mzero=(Button)findViewById(R.id.bt_0);
   mdot=(Button)findViewById(R.id.bt_dot);
   mplus=(Button)findViewById(R.id.bt_plus);
   mminus=(Button)findViewById(R.id.bt_minus);
   mmultiply=(Button)findViewById(R.id.bt_multi);
   mdevide=(Button)findViewById(R.id.bt_device);
   mequal=(Button)findViewById(R.id.bt_equal);
   mallClear=(Button)findViewById(R.id.bt_ac);
   mclear=(Button)findViewById(R.id.bt_c);
   mpercent=(Button)findViewById(R.id.bt_percent);
   msign=(Button)findViewById(R.id.bt_sign);


   mone.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
         String temp=mdisplay.getText().toString();
         if(temp.length()<9)
         mdisplay.setText(temp+"1");
      }
   });


   mtwo.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
         String temp=mdisplay.getText().toString();
         if(temp.length()<9)
```

```
        mdisplay.setText(temp+"2");
    }
});

mthree.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+"3");
    }
});
mfour.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+"4");
    }
});
mfive.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+"5");
    }
});
msix.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+"6");
    }
});
mseven.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+"7");
    }
});
meight.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+"8");
```

```
    }
});
mnine.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+"9");
    }
});
mzero.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9 && !temp.equals("0"))
        mdisplay.setText(temp+"0");
    }
});
mdot.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(temp.length()<9)
        mdisplay.setText(temp+".");
    }
});

mallClear.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        mdisplay.setText(null);
        moperator.setText(null);
    }
});

mclear.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String temp=mdisplay.getText().toString();
        if(!temp.equals(""))
        {
            temp = temp.substring(0, temp.length() - 1);
            mdisplay.setText(temp);
        }
    }
});

mplus.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
```

```
            String temp=moperator.getText().toString();
            if(!temp.equals("") && mdisplay.getText().toString().equals("")) {
                char c = temp.charAt(temp.length() - 1);
                if (isOperator(c)) {
                    String t = temp.substring(0, temp.length() - 1);
                    t = t + "+";
                    moperator.setText(t);
                }
            }
            else {
                moperator.setText(moperator.getText().toString() +
mdisplay.getText().toString() + "+");
            }
            computeCalculation();
            CURRENT_ACTION = ADDITION;
            mdisplay.setText(null);

        }
    });
    mminus.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String temp=moperator.getText().toString();
            if(!temp.equals("") && mdisplay.getText().toString().equals("")) {    char c =
temp.charAt(temp.length() - 1);
                if (isOperator(c)) {
                    String t = temp.substring(0, temp.length() - 1);
                    t = t + "-";
                    moperator.setText(t);
                }
            }
            else {
                moperator.setText(moperator.getText().toString() +
mdisplay.getText().toString() + "-");
            }computeCalculation();
            CURRENT_ACTION = SUBTRACTION;
            mdisplay.setText(null);
        }
    });
    mdevide.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String temp=moperator.getText().toString();
            if(!temp.equals("") && mdisplay.getText().toString().equals("")) {    char c =
temp.charAt(temp.length() - 1);
                if (isOperator(c)) {
                    String t = temp.substring(0, temp.length() - 1);
                    t = t + "/";
                    moperator.setText(t);
                }
```

```
            }
            else {
                moperator.setText(moperator.getText().toString() +
mdisplay.getText().toString() + "/");
            }computeCalculation();
            CURRENT_ACTION = DIVISION;
            mdisplay.setText(null);
        }
    });
    mmultiply.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String temp=moperator.getText().toString();
            if(!temp.equals("") && mdisplay.getText().toString().equals("")) {    char c =
temp.charAt(temp.length() - 1);
                if (isOperator(c)) {
                    String t = temp.substring(0, temp.length() - 1);
                    t = t + "x";
                    moperator.setText(t);
                }
            }
            else {
                moperator.setText(moperator.getText().toString() +
mdisplay.getText().toString() + "x");
            }computeCalculation();
            CURRENT_ACTION = MULTIPLICATION;
            mdisplay.setText(null);
        }
    });

    mpercent.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String temp=moperator.getText().toString();
            if(!temp.equals("") && mdisplay.getText().toString().equals("")) {    char c =
temp.charAt(temp.length() - 1);
                if (isOperator(c)) {
                    String t = temp.substring(0, temp.length() - 1);
                    t = t + "%";
                    moperator.setText(t);
                }
            }
            else {
                moperator.setText(moperator.getText().toString() +
mdisplay.getText().toString() + "%");
            }computeCalculation();
            CURRENT_ACTION = PERCENT;
            mdisplay.setText(null);
        }
    });
```

```
        mequal.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                computeCalculation();
                mdisplay.setText(decimalFormat.format(valueOne));
                moperator.setText(null);
                valueOne = Double.NaN;
                CURRENT_ACTION = '0';
            }
        });

        msign.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String temp=mdisplay.getText().toString();
                if(!temp.equals("") && !temp.equals("0") )
         {
          if(temp.charAt(0)=='-')
                {
                   temp=temp.substring(1,temp.length());
                }
                else
                {
                   temp="-"+temp;
                }
                mdisplay.setText(temp);
}
            }
        });
    }

    private void computeCalculation() {
        if(!Double.isNaN(valueOne)) {
            if(!mdisplay.getText().toString().equals(""))
            valueTwo = Double.parseDouble(mdisplay.getText().toString());
            else
                if(CURRENT_ACTION == ADDITION || CURRENT_ACTION ==
SUBTRACTION)
                    valueTwo=0;
                else if(CURRENT_ACTION == DIVISION || CURRENT_ACTION ==
MULTIPLICATION)
                    valueTwo=1;
            mdisplay.setText(null);

            if(CURRENT_ACTION == ADDITION)
                valueOne = this.valueOne + valueTwo;
            else if(CURRENT_ACTION == SUBTRACTION)
                valueOne = this.valueOne - valueTwo;
            else if(CURRENT_ACTION == MULTIPLICATION)
```

```
            valueOne = this.valueOne * valueTwo;
        else if(CURRENT_ACTION == DIVISION)
            valueOne = this.valueOne / valueTwo;
        else if(CURRENT_ACTION == PERCENT)
            valueOne = this.valueOne % valueTwo;
      }
      else {
        try {
            valueOne = Double.parseDouble(mdisplay.getText().toString());
        }
        catch (Exception e){}
      }
   }

   private boolean isOperator(char c)
   {
      if(c=='+' || c=='-' || c=='x' || c=='/' || c=='%')
         return true;
      return false;
   }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   android:layout_width="fill_parent"
   android:layout_height="fill_parent"
   android:minHeight="25px"
   android:minWidth="25px"
   android:background="#2c2c2c"
   android:orientation="vertical">


   <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:orientation="vertical">
      <TextView
         android:id="@+id/tv_op"
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:gravity="bottom"
         android:paddingRight="10dp"
         android:layout_marginTop="10dp"
         android:paddingLeft="10dp"
         android:textAlignment="textEnd"
         android:textColor="#FFF"
         android:textSize="30sp"
         android:layout_weight="0.48" />
```

```
    <TextView
        android:id="@+id/tv_display"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="bottom"
        android:paddingRight="10dp"
        android:paddingLeft="10dp"
        android:paddingBottom="20dp"
        android:textAlignment="textEnd"
        android:textColor="#FFF"
        android:layout_below="@id/tv_op"
        android:textSize="60sp"
        android:layout_weight="0.48" />

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:layout_gravity="bottom"
    android:background="#F44336"
    >
    <LinearLayout
        android:id="@+id/superviserlinearLayout1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:background="@null"
        android:minHeight="25px"
        android:minWidth="25px"
        android:orientation="horizontal"
        android:weightSum="4">

        <Button
            android:id="@+id/bt_ac"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color_highlighted"
            android:padding="25dp"
            android:text="AC"
            android:textColor="@color/button_text_highlighted"
            android:textSize="24sp" />

        <Button
            android:id="@+id/bt_c"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color_highlighted"
            android:padding="25dp"
```

```
            android:text="C"
            android:textColor="@color/button_text_highlighted"
            android:textSize="24sp" />

        <Button
            android:id="@+id/bt_device"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color_highlighted"
            android:padding="25dp"
            android:text="/"
            android:textColor="@color/button_text_highlighted"
            android:textSize="24sp" />

        <Button
            android:id="@+id/bt_multi"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color_highlighted"
            android:fontFamily="sans-serif"
            android:padding="25dp"
            android:text="x"
            android:textColor="@color/button_text_highlighted"
            android:textSize="24sp"
            android:typeface="monospace" />

    </LinearLayout>
    <LinearLayout
        android:id="@+id/superviserlinearLayout2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/superviserlinearLayout1"
        android:layout_centerHorizontal="true"
        android:minHeight="25px"
        android:minWidth="25px"
        android:orientation="horizontal"
        android:weightSum="4">

        <Button
            android:id="@+id/bt_7"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color"
            android:padding="25dp"
            android:text="7"
            android:textColor="@color/button_text"
            android:textSize="24sp" />
```

```
    <Button
        android:id="@+id/bt_8"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_color"
        android:padding="25dp"
        android:text="8"
        android:textColor="@color/button_text"
        android:textSize="24sp" />

    <Button
        android:id="@+id/bt_9"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_color"
        android:padding="25dp"
        android:text="9"
        android:textColor="@color/button_text"
        android:textSize="24sp" />

    <Button
        android:id="@+id/bt_minus"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_color_highlighted"
        android:padding="25dp"
        android:text="-"
        android:textColor="@color/button_text_highlighted"
        android:textSize="24sp" />
</LinearLayout>
<LinearLayout
    android:id="@+id/superviserlinearLayout3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/superviserlinearLayout2"
    android:layout_centerHorizontal="true"
    android:minHeight="25px"
    android:minWidth="25px"
    android:orientation="horizontal"
    android:weightSum="4">

    <Button
        android:id="@+id/bt_4"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
```

```
            android:background="@color/button_color"
            android:padding="25dp"
            android:text="4"
            android:textColor="@color/button_text"
            android:textSize="24sp" />

        <Button
            android:id="@+id/bt_5"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color"
            android:padding="25dp"
            android:text="5"
            android:textColor="@color/button_text"
            android:textSize="24sp" />

        <Button
            android:id="@+id/bt_6"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color"
            android:padding="25dp"
            android:text="6"
            android:textColor="@color/button_text"
            android:textSize="24sp" />

        <Button
            android:id="@+id/bt_plus"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="@color/button_color_highlighted"
            android:padding="25dp"
            android:text="+"
            android:textColor="@color/button_text_highlighted"
            android:textSize="24sp" />
    </LinearLayout>

    <LinearLayout
        android:id="@+id/superviserlinearLayout4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/superviserlinearLayout3"
        android:layout_centerHorizontal="true"
        android:minHeight="25px"
        android:minWidth="25px"
        android:orientation="horizontal"
```

```
    android:weightSum="4">

    <Button
        android:id="@+id/bt_1"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_color"
        android:padding="25dp"
        android:text="1"
        android:textColor="@color/button_text"
        android:textSize="24sp" />

    <Button
        android:id="@+id/bt_2"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_color"
        android:padding="25dp"
        android:text="2"
        android:textColor="@color/button_text"
        android:textSize="24sp" />

    <Button
        android:id="@+id/bt_3"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_color"
        android:padding="25dp"
        android:text="3"
        android:textColor="@color/button_text"
        android:textSize="24sp" />

    <Button
        android:id="@+id/bt_percent"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/button_color_highlighted"
        android:padding="25dp"
        android:text="%"
        android:textColor="@color/button_text_highlighted"
        android:textSize="24sp" />
</LinearLayout>
<LinearLayout
    android:id="@+id/superviserlinearLayout5"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
```

```
android:layout_below="@id/superviserlinearLayout4"
android:layout_centerHorizontal="true"
android:minHeight="25px"
android:minWidth="25px"
android:orientation="horizontal"
android:weightSum="4">

<Button
   android:id="@+id/bt_sign"
   android:layout_width="0dp"
   android:layout_height="wrap_content"
   android:layout_weight="1"
   android:background="@color/button_color"
   android:padding="25dp"
   android:text="-/+"
   android:textColor="@color/button_text_highlighted"
   android:textSize="24sp" />

<Button
   android:id="@+id/bt_0"
   android:layout_width="0dp"
   android:layout_height="wrap_content"
   android:layout_weight="1"
   android:background="@color/button_color"
   android:padding="25dp"
   android:text="0"
   android:textColor="@color/button_text"
   android:textSize="24sp" />

<Button
   android:id="@+id/bt_dot"
   android:layout_width="0dp"
   android:layout_height="wrap_content"
   android:layout_weight="1"
   android:background="@color/button_color"
   android:padding="25dp"
   android:text="."
   android:textColor="@color/button_text"
   android:textSize="24sp" />

<Button
   android:id="@+id/bt_equal"
   android:layout_width="0dp"
   android:layout_height="wrap_content"
   android:layout_weight="1"
   android:background="@color/button_color_highlighted"
   android:padding="25dp"
   android:text="="
   android:textColor="#FFF"
   android:textSize="24sp" />
```

```
        </LinearLayout>
    </LinearLayout>
    </LinearLayout>
</RelativeLayout>
```

OUTPUT: