

MSC COMPUTER SCIENCE SEM-III PAPER-I: UBIQUITOUS COMPUTING

Practical No: - 01

Aim: Design and develop location based messaging app

UI CODE:

```
<?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:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.admin.locationmsg.MainActivity">
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceLarge"
    android:text="Large Text"
    android:id="@+id/textView"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceLarge"
    android:text="Large Text"
    android:id="@+id/textView3"
    android:layout_below="@+id/textView"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_marginTop="96dp" />
```

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```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Get Longitude and Latitude"
android:id="@+id/button"
android:layout_centerVertical="true"
android:layout_alignParentLeft="true"
android:layout_alignParentStart="true" />

<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textAppearance="?android:attr/textAppearanceLarge"
android:text="Large Text"
android:id="@+id/textView2"
android:layout_alignParentBottom="true"
android:layout_alignRight="@+id/button"
android:layout_alignEnd="@+id/button" />
</RelativeLayout>
```

SOURCE CODE:

```
package com.example.admin.locationmsg;

import android.Manifest;
import android.content.Context;
import android.content.pm.PackageManager;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.net.Uri;
import android.support.v4.app.ActivityCompat;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
```

MSC COMPUTER SCIENCE SEM-III PAPER-I: UBIQUITOUS COMPUTING

```
import com.google.android.gms.appindexing.Action;
import com.google.android.gms.appindexing.AppIndex;
import com.google.android.gms.common.api.GoogleApiClient;

public class MainActivity extends AppCompatActivity implements
LocationListener {

    TextView t1, t2, t3;
    Button b1;
    protected LocationManager locationManager;
    protected LocationListener locationListener;
    double lat, longg;

    private GoogleApiClient client;

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

        t1 = (TextView) findViewById(R.id.textView);
        t2 = (TextView) findViewById(R.id.textView3);
        t3 = (TextView) findViewById(R.id.textView2);

        b1 = (Button) findViewById(R.id.button);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                t1.setText("Latitude = " + lat);
                t2.setText("Longitude = " + longg);

                if (lat<38 &&lat>36 &&longg<122 &&longg>118) {
                    t3.setText("In-Side The Area");
                } else {
                    t3.setText("Out-Side The Area");
                }
            }
        });

        locationManager= (LocationManager)
```

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```
getSystemService(Context.LOCATION_SERVICE);  
if (ActivityCompat.checkSelfPermission(this,  
Manifest.permission.ACCESS_FINE_LOCATION) !=  
PackageManager.PERMISSION_GRANTED && ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_COARSE_LOCATION) !=  
PackageManager.PERMISSION_GRANTED) {  
return; }  
locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER,  
0, 0, this);  
client = new GoogleApiClient.Builder(this).addApi(AppIndex.API).build(); }
```

```
@Override  
public void onLocationChanged(Location location) {  
lat= location.getLatitude();  
longg= location.getLongitude();  
Log.d("'" + lat, "'" + lat);  
Log.d("'" + longg, "'" + longg);  
  
if (lat== 38 &&longg== 118) {  
t3.setText("You Are at Perfect Place !!!!");  
} else {  
t3.setText("You are not at Perfect Place !!!!"); }  
}
```

```
@Override  
public void onProviderDisabled(String provider) {  
Log.d("Latitude", "disable"); }
```

```
@Override  
public void onProviderEnabled(String provider) {  
  
Log.d("Latitude", "enable"); }
```

```
@Override  
public void onStatusChanged(String provider, intstatus, Bundle extras) {  
Log.d("Latitude", "status"); }
```

```
@Override  
public void onStart() {  
super.onStart();
```

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```
client.connect();
Action viewAction = Action.newAction(
    Action.TYPE_VIEW, // TODO: choose an action type.
    "Main Page", // TODO: Define a title for the content shown.
    Uri.parse("http://host/path"),
    Uri.parse("android-app://com.example.admin.locationmsg/http/host/path")
);
AppIndex.AppIndexApi.start(client, viewAction); }
```

```
@Override
public void onStop() {
    super.onStop();
    Action viewAction = Action.newAction(
        Action.TYPE_VIEW, // TODO: choose an action type.
        "Main Page", // TODO: Define a title for the content shown. //
        Uri.parse("http://host/path"),
        Uri.parse("android-app://com.example.admin.locationmsg/http/host/path")
    );

    AppIndex.AppIndexApi.end(client, viewAction);
    client.disconnect(); }
```

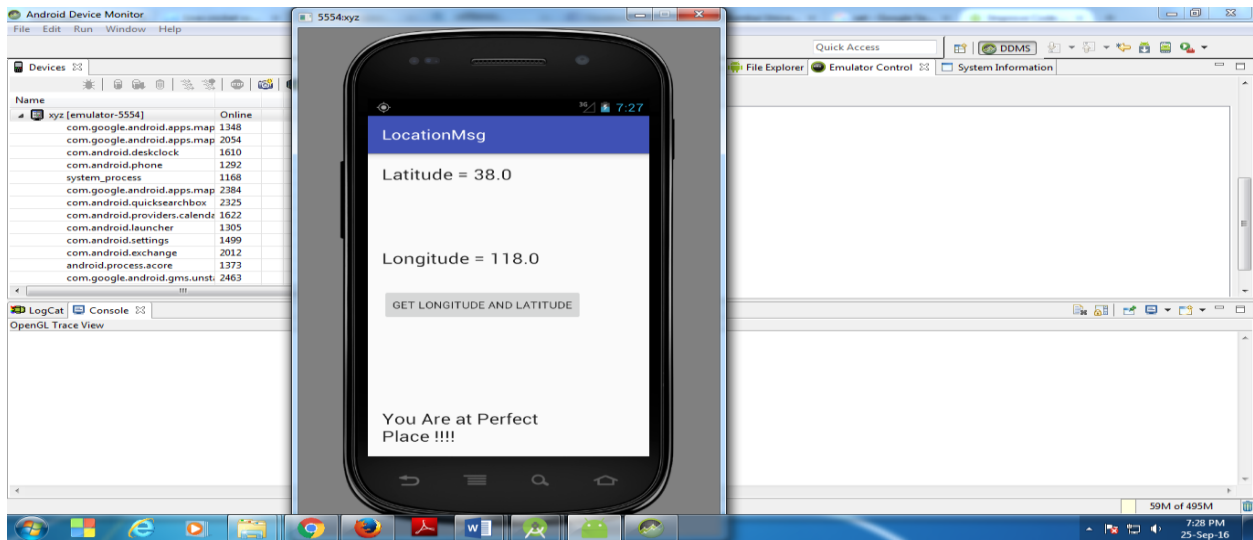
PERMISSION:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.admin.locationmsg">
    <uses-permission
        android:name="android.permission.ACCESS_FINE_LOCATION" />
    <uses-permission android:name="android.permission.INTERNET" />
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
```

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```
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
<meta-data
    android:name="com.google.android.gms.version"
    android:value="@integer/google_play_services_version" />
</application>
</manifest>
```

OUTPUT:



MSC COMPUTER SCIENCE SEM-III PAPER-I: UBIQUITOUS COMPUTING

Practical No: - 02

Aim: - Design and develop chat messaging app which is a location-based.

UI CODE:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayoutxmlns: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:paddingBottom="@dimen/activity_vertical_margin"
android:paddingLeft="@dimen/activity_horizontal_margin"
android:paddingRight="@dimen/activity_horizontal_margin"
android:paddingTop="@dimen/activity_vertical_margin"
tools:context="com.example.admin.gpstrace.MainActivity">
```

```
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textAppearance="?android:attr/textAppearanceLarge"
android:text="Large Text"
android:id="@+id/textView"
android:layout_alignParentLeft="true"
android:layout_alignParentStart="true" />
```

```
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textAppearance="?android:attr/textAppearanceLarge"
android:text="Large Text"
android:id="@+id/textView3"
android:layout_below="@+id/textView"
android:layout_alignParentLeft="true"
android:layout_alignParentStart="true"
android:layout_marginTop="96dp" />
```

MSC COMPUTER SCIENCE SEM-III PAPER-I: UBIQUITOUS COMPUTING

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Get Longitude and Latitude"
android:id="@+id/button"
android:layout_centerVertical="true"
android:layout_alignParentLeft="true"
android:layout_alignParentStart="true" />

<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:textAppearance="?android:attr/textAppearanceLarge"
android:text="Large Text"
android:id="@+id/textView2"
android:layout_alignParentBottom="true"
android:layout_alignRight="@+id/button"
android:layout_alignEnd="@+id/button" />
</RelativeLayout>
```

SOURCE CODE:

```
package com.example.admin.gpstrace;

import android.Manifest;
import android.content.Context;
import android.content.pm.PackageManager;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.support.v4.app.ActivityCompat;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements
```


MSC COMPUTER SCIENCE SEM-III PAPER-I: UBIQUITOUS COMPUTING

```
LocationListener {

    TextView t1, t2, t3;
    Button b1;
    protected LocationManager locationManager;
    protected LocationListener locationListener;
    double lat, longg;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        t1 = (TextView) findViewById(R.id.textView);
        t2 = (TextView) findViewById(R.id.textView3);
        t3 = (TextView) findViewById(R.id.textView2);

        b1 = (Button) findViewById(R.id.button);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                t1.setText("Latitude = " + lat);
                t2.setText("Longitude = " + longg);
                if(lat<38 &&lat>36 &&longg<122 &&longg>118)
                    { t3.setText("In-Side The Area"); }
                else
                { t3.setText("Out-Side The Area"); }
            });
        locationManager= (LocationManager)
        getSystemService(Context.LOCATION_SERVICE);
        if (ActivityCompat.checkSelfPermission(this,
        Manifest.permission.ACCESS_FINE_LOCATION) !=
        PackageManager.PERMISSION_GRANTED&&ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_COARSE_LOCATION) !=
        PackageManager.PERMISSION_GRANTED) {
            // TODO: Consider calling
            return; }
        locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER,
        0, 0, this); }

    @Override
```

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```
public void onLocationChanged(Location location) {  
    // txtLat = (TextView) findViewById(R.id.textview1);  
    lat=location.getLatitude();  
    longg= location.getLongitude();  
    Log.d(""+lat,""+lat);  
    Log.d(""+longg,""+longg);  
    if(lat<38 &&lat>36 &&longg<122 &&longg>118)  
        { t3.setText("In-Side The Area"); }  
    else  
    { t3.setText("Out-Side The Area"); }  
}  
  
@Override  
public void onProviderDisabled(String provider) {  
    Log.d("Latitude","disable"); }  
@Override  
public void onProviderEnabled(String provider) {  
    Log.d("Latitude","enable"); }  
@Override  
public void onStatusChanged(String provider, intstatus, Bundle extras) {  
    Log.d("Latitude","status"); }  
}
```

PERMISSION:

```
<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
package="com.example.admin.gpstrace">  
  
    <application  
        android:allowBackup="true"  
        android:icon="@mipmap/ic_launcher"  
        android:label="@string/app_name"  
        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>  
</manifest>
```

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</intent-filter>

</activity>

</application>

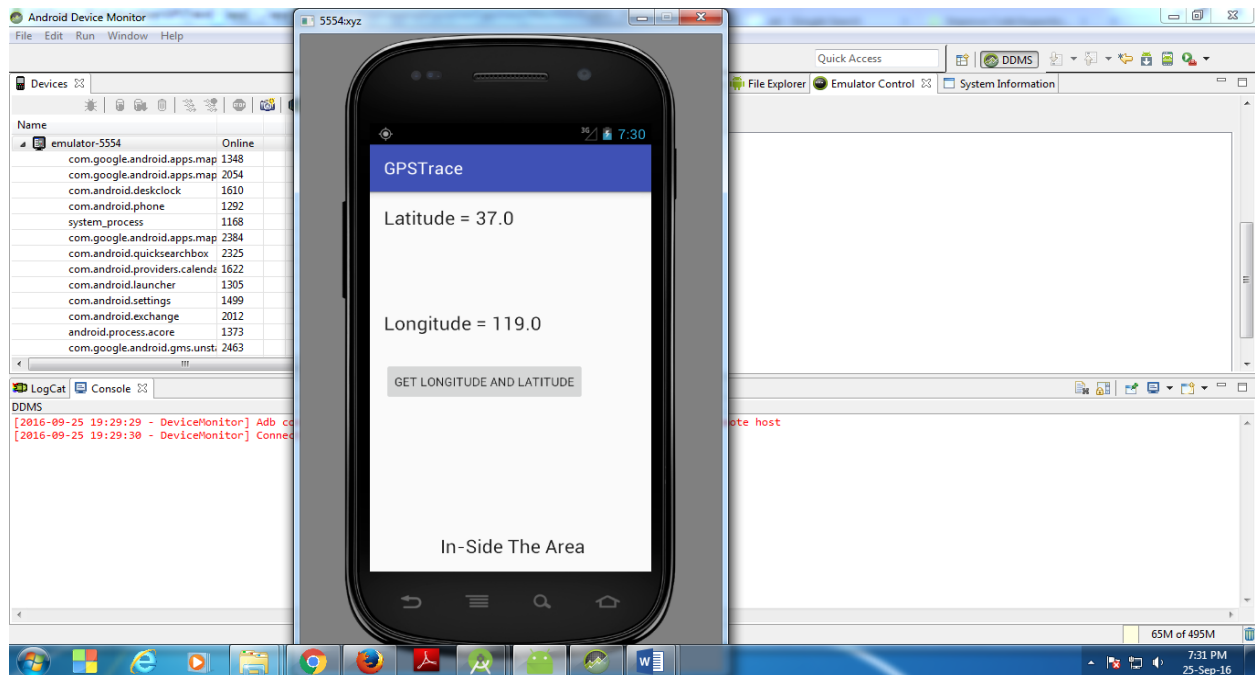
<uses-permission

android:name="android.permission.ACCESS_FINE_LOCATION" />

<uses-permission android:name="android.permission.INTERNET" />

</manifest>

OUTPUT:



MSC COMPUTER SCIENCE SEM-III PAPER-I: UBIQUITOUS COMPUTING

Practical No: - 07

Aim: - Demonstrate use of OpenGTS (Open Source GPS Tracking System).

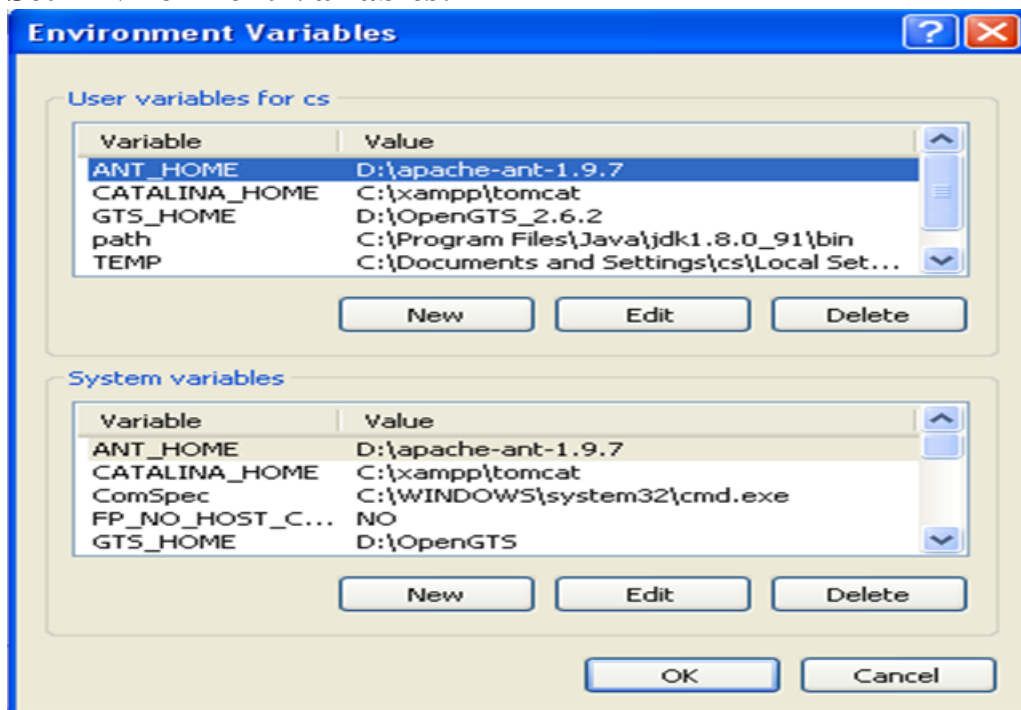
Settings:-

Required Software:-

1. JDK 1.6
2. XAMPP Server
3. Mysql-java connector
4. OpenGTS application

<http://www.opengts.org/>

Set Environment Variables:-



1. Open command Prompt and go to D:\OpenGTS_2.6.2
2. Type command ant all
3. Type command ant track
4. Type command ant track.deploy
5. Type command initdb.bat -rootUser=root -pass=123456789
6. Type Command admin.bat Account -account:admin -pass:123456 -create
7. Type url 127.0.0.0:8080/track/Track and login with admin and 123456

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OpenGPS GPS Tracking (demo)

Account: Demo Account (New User) [Logout](#)

MainMappingReportsAdministration

Main Menu


Please select an item from the following menu:

- Mapping
 - [Track Vehicle locations on a map](#)
Select and Track the location of a Vehicle on a map
 - [Track Device Group locations on a map](#)
Select and Track the location of a Device Group on a map
- Reports
 - [Vehicle Detail Reports](#)
Display various Vehicle detail reports
 - [Device Group Summary Reports](#)
Display various Device Group summary reports
 - [Driver Performance Reports](#)
Display various driver performance reports
- Administration
 - [View/Edit Account Information](#)
View and Edit the current Account information
 - [View/Edit User Information](#)
View and Edit User information
 - [View/Edit Vehicle Information](#)
View and Edit Vehicle information
 - [View/Edit Device Group Information](#)
View and Edit Device Group information
 - [View/Edit Driver Information](#)
View and Edit Driver information
 - [View/Edit Geozone Information](#)
View and Edit Geozone information

[3]

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E2.2.4-820

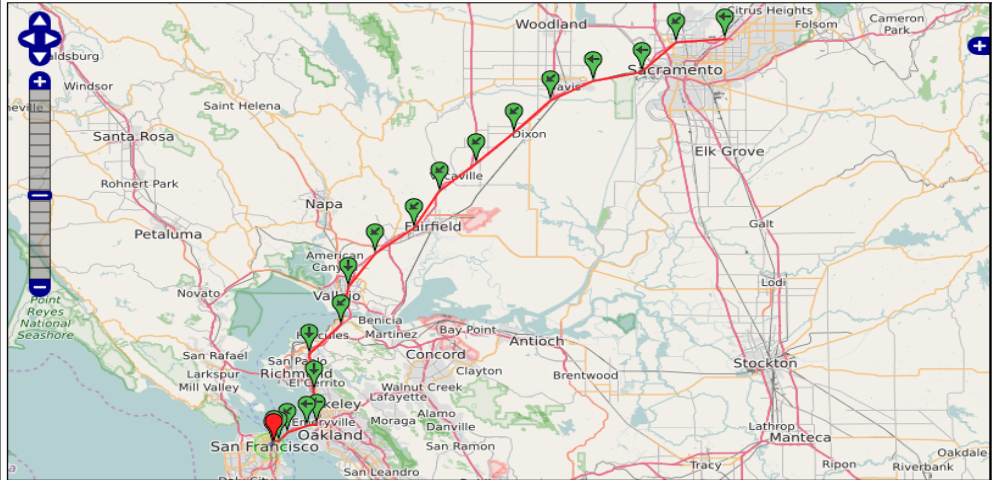


OpenGPS GPS Tracking (demo)

Account: Demo Account (New User) [Main Menu](#) | [Logout](#)

MainMappingReportsAdministration

Vehicle Map: Demo Device 1 (Last Event: 2010/03/12 13:52:46 PST)



Select Date Range:
From: 2010/03/12 00:00
To: 2010/03/12 00:00
TimeZone: US/Pacific
Replay
Cursor Location:
Distance (ctrl-drag):
Pushpin Legend:
More than 15 mph
More than 5 mph
Less than 5 mph

Show Location Details

[3]

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E2.6.3-837

start

Open GPS Trac...

Add or Remov...

2 Windows C...

XAMPP Control...

TOSHIBA (F:)

Final_Doc.docx...

1:08 PM

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Practical No: - 09

Aim: - Develop application demonstrating Human Computer Interaction

SOURCE CODE:

```
import java.awt.*;
import java.awt.event.*;
public class CloseableSimpleWarning extends Frame implements
WindowListener {
static private final int frame_height = 150;
static private final int frame_width = 250;
    public CloseableSimpleWarning() {
        //setBackground(Color.red);
        //setForeground(Color.black);
        setTitle("Warning");
        setSize(frame_width, frame_height);
        addWindowListener(this);
    }
    public void windowClosing (WindowEvent e)
    { System.exit(0); }
    public void windowClosed (WindowEvent e)
    { System.exit(0); }
    public void windowIconified (WindowEvent e)
    { System.exit(0); }
    public void windowDeiconified (WindowEvent e)
    { System.exit(0); }
    public void windowOpened (WindowEvent e)
    { System.exit(0); }
    public void windowActivated (WindowEvent e)
    { System.exit(0); }
    public void windowDeactivated (WindowEvent e)
    { System.exit(0); }
    public static void main(String [] args)
    { CloseableSimpleWarning f = new CloseableSimpleWarning();
      f.show(); } }
```

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Practical No: - 10

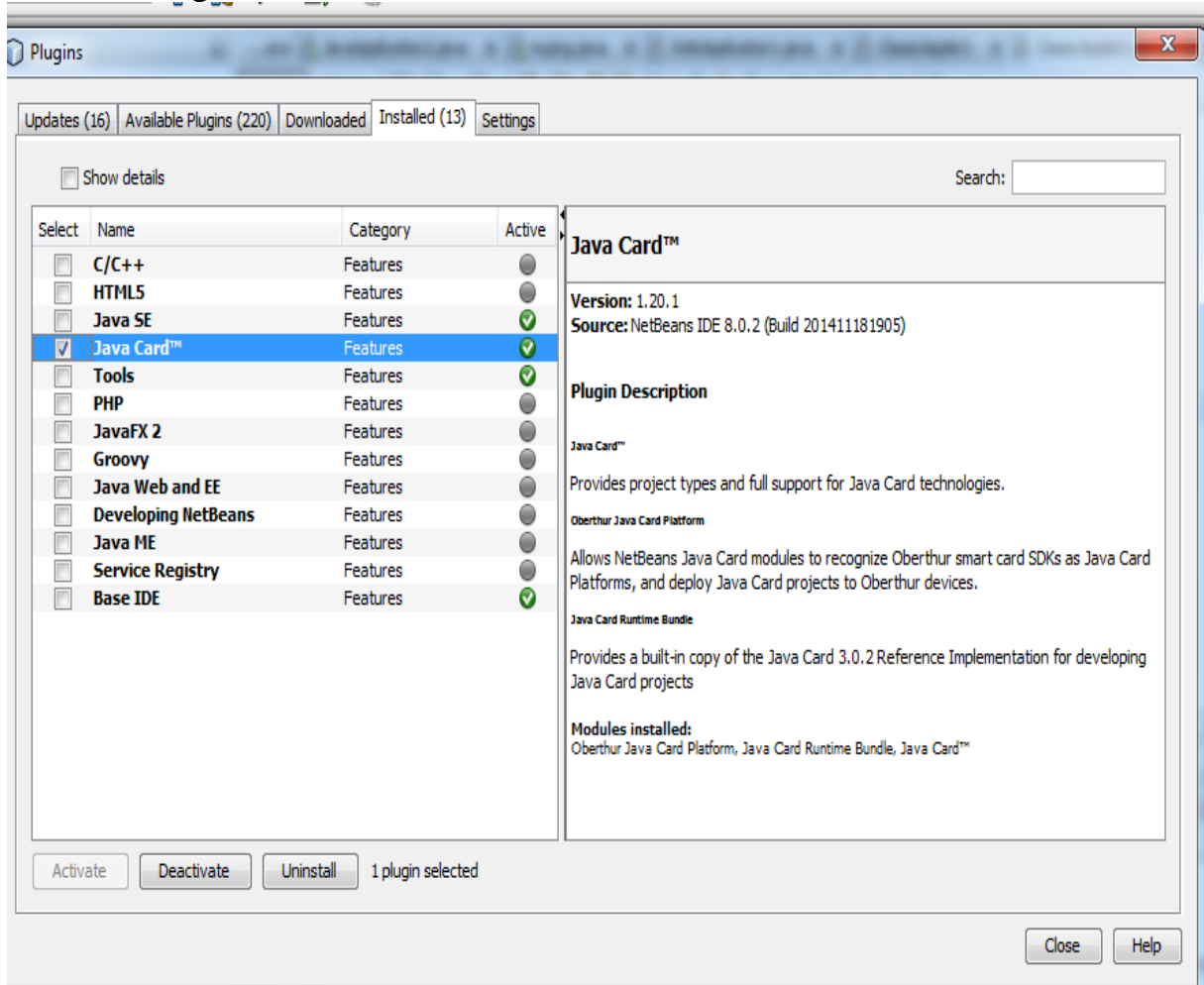
Aim: - Write a Java Card applet

Download Java Card Sdk from

<http://www.oracle.com/technetwork/java/embedded/javacard/downloads/javacard-sdk-2043229.html>

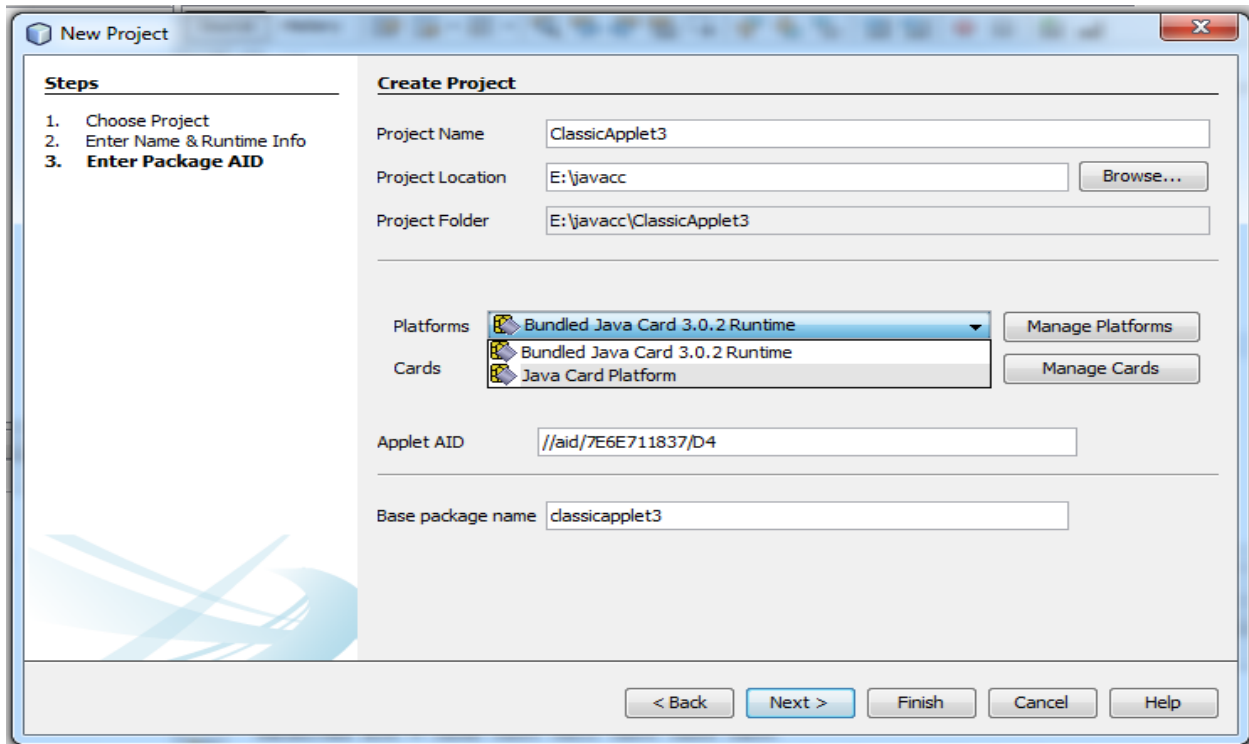
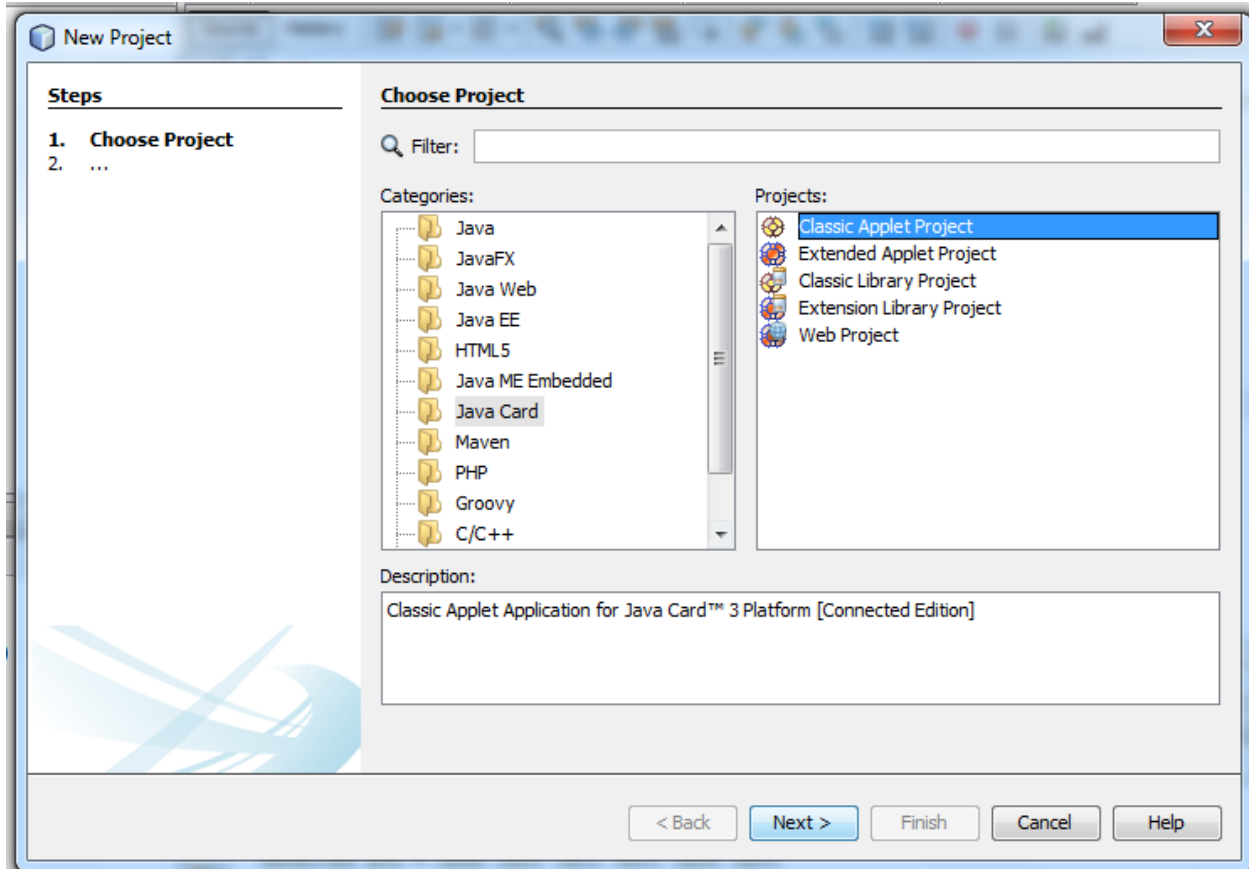
Install in Netbeans as plugin :-

Tools -> Plugin

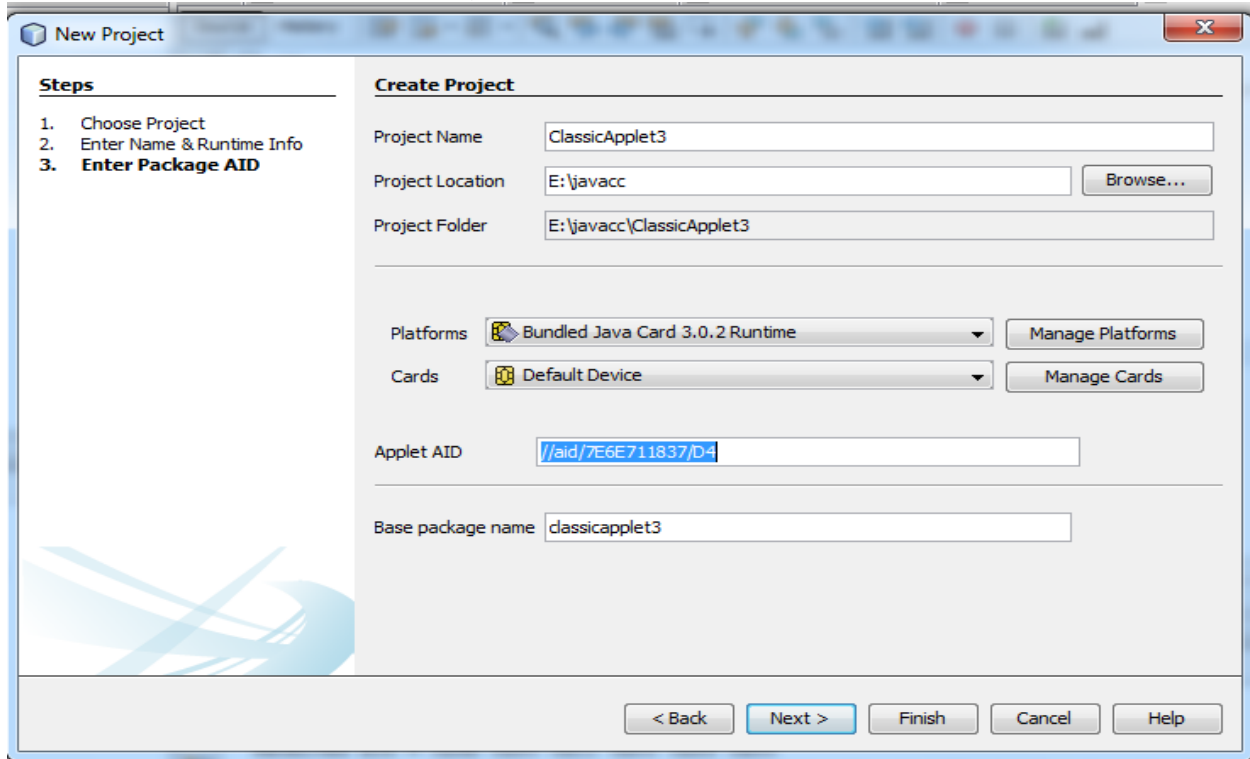


Create an application

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New Project

Steps

1. Choose Project
2. Enter Name & Runtime Info
3. **Enter Package AID**

Create Project

Project Name: ClassicApplet3

Project Location: E:\javacc

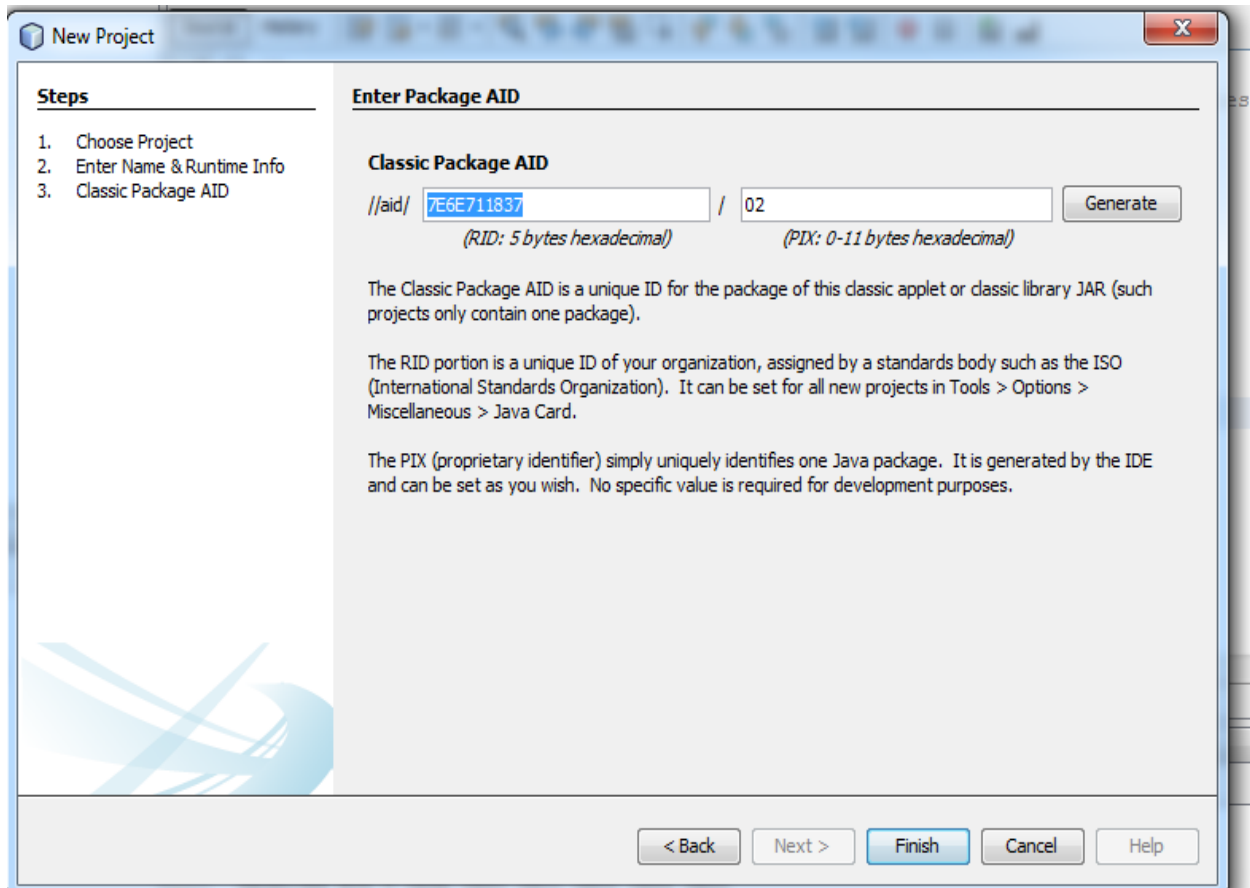
Project Folder: E:\javacc\ClassicApplet3

Platforms:

Cards:

Applet AID:

Base package name:



New Project

Steps

1. Choose Project
2. Enter Name & Runtime Info
3. **Classic Package AID**

Enter Package AID

Classic Package AID

/

(RID: 5 bytes hexadecimal) *(PIX: 0-11 bytes hexadecimal)*

The Classic Package AID is a unique ID for the package of this classic applet or classic library JAR (such projects only contain one package).

The RID portion is a unique ID of your organization, assigned by a standards body such as the ISO (International Standards Organization). It can be set for all new projects in Tools > Options > Miscellaneous > Java Card.

The PIX (proprietary identifier) simply uniquely identifies one Java package. It is generated by the IDE and can be set as you wish. No specific value is required for development purposes.

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UBIQUITOUS COMPUTING

SOURCE CODE:

```
package classicapplet2;
import javacard.framework.*;
public class ClassicApplet2 extends Applet {
    private byte[] received;
    private static final short MAX_LENGTH = 256;
    private static final byte[] helloFidesmo =
        {(byte)'H',(byte)'e',(byte)'l',(byte)'l',(byte)'o',(byte)'
        ',(byte)'F',(byte)'i',(byte)'d',(byte)'e',(byte)'s',(byte)'m',(byte)'o',(byte)'!'};
    public static void install(byte[] bArray, short bOffset, byte bLength) {
        new ClassicApplet2();
    }
    protected ClassicApplet2() {
        received = new byte[MAX_LENGTH];
        register();
    }
    public void process(APDU apdu) {
        //Insert your code here
        byte buffer[] = apdu.getBuffer();
        short length = (short) helloFidesmo.length;
        Util.arrayCopyNonAtomic(helloFidesmo, (short)0, buffer, (short)0, (short)length);
        apdu.setOutgoingAndSend((short)0, length);
    }
}
```

OUTPUT:

Invoking apduTool on C:\Users\ITCS\Documents\NetBeansProjects\ClassicApplet1\scripts/classicapplet1.scr

ApduTool [v3.0.2]

Copyright (c) 2009 Sun Microsystems, Inc.

All rights reserved.

Use is subject to license terms.

Opening connection to localhost on port 9025.

Connected.

Received ATR = 0x3b 0xf0 0x11 0x00 0xff 0x00

CLA: 00, INS: a4, P1: 04, P2: 00, Lc: 06, Id, b8, 62, 23, d2, df, Le: 0e, 48, 65, 6c, 6c, 6f, 20, 46, 69, 64, 65, 73, 6d, 6f, 21, SW1: 90, SW2: 00

run:

BUILD SUCCESSFUL (total time: 5 seconds)

MSC COMPUTER SCIENCE SEM-III PAPER-I:

UBIQUITOUS COMPUTING

Invoking apduTool on C:\Users\ITCS\Documents\NetBeansProjects\ClassicApplet1\scripts\classicapplet1.scr

ApduTool [v3.0.2]

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All rights reserved.

Use is subject to license terms.

Opening connection to localhost on port 9025.

Connected.

Received ATR = 0x3b 0xf0 0x11 0x00 0xff 0x00

CLA: 00, INS: a4, P1: 04, P2: 00, Lc: 06, Id, b8, 62, 23, d2, df, Le: 0e, 48, 65, 6c, 6c, 6f, 20, 46, 69, 64, 65, 73, 6d, 6f, 21, SW1: 90, SW2: 00

run:

BUILD SUCCESSFUL (total time: 5 seconds)

```
[debug] : SESSION HANDLER: uri: /cardmanager/
[debug] : session@null
[debug] : session#null
[debug] : org.mortbay.io.bio.StreamEndPoint.flush() -> com.sun.midp.io.BaseOutputStream@8d62747
[debug] : org.mortbay.io.bio.StreamEndPoint.flush() -> com.sun.midp.io.BaseOutputStream@8d62747
[debug] : org.mortbay.io.bio.StreamEndPoint.flush() -> com.sun.midp.io.BaseOutputStream@8d62747
[debug] : jetty.bio.SocketConnector.accept() -> Client request came.
[debug] : jetty.bio.SocketConnector.run() -> handling()
[debug] : jetty.bio.SocketConnector.accept() -> Client dispatched
[debug] : jetty.bio.SocketConnector.accept() -> Waiting for connection
[debug] : ##### handleRequest #####
[debug] : ##### handleRequest #####/cardmanager false false
[debug] : org.mortbay.jetty.handler.ContextHandler.handle() -> /cardmanager/create
[debug] : SESSION HANDLER: session id: is null
[debug] : SESSION HANDLER: uri: /cardmanager/create
[debug] : session@null
[debug] : session#null
[debug] : aid://aid/1DB86223D2/DE
[debug] : appletInfocom.sun.javacard.cm.impl.applethandler.AppletInfo@90a5bcd
[debug] : aid://aid/1DB86223D2/DE
[debug] : appletInfocom.sun.javacard.cm.impl.applethandler.AppletInfo@90a5bcd
[debug] : BufferUtil.putDecLong(org.mortbay.io.ByteArrayBuffer -> 2010)
[debug] : BufferUtil.putDecLong(2)
[debug] : BufferUtil.putDecLong(1)
[debug] : BufferUtil.putDecLong(org.mortbay.io.ByteArrayBuffer -> 40)
[debug] : BufferUtil.putDecLong(4)
[debug] : org.mortbay.io.bio.StreamEndPoint.flush() -> com.sun.midp.io.BaseOutputStream@fe55b782
[debug] : org.mortbay.io.bio.StreamEndPoint.flush() -> com.sun.midp.io.BaseOutputStream@fe55b782
[debug] : jetty.bio.SocketConnector.run() -> handling()
```