PRACTICAL 01

Aim: Design and develop location-based messaging app.

Activity_Main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayoutxmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:background="@color/blue"
android:gravity="center"
android:orientation="vertical">

<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:gravity="center"
android:text="Get Location Latitude and Longitude"
android:textColor="@color/white"
android:textSize="25dp" />

<ImageView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_gravity="center"
android:layout_marginTop="30dp"
android:src="@drawable/location" />

<TextView
android:id="@+id/textview_latitude"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_gravity="center"
android:layout_marginTop="30dp"
android:textColor="@color/white"
android:textSize="22dp" />

<TextView
android:id="@+id/textview_longitude"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_gravity="center"
android:layout_marginTop="30dp"
android:textColor="@color/white"
android:textSize="22dp" />

</LinearLayout>
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package=""> // here it will be your own package name

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

<application
android:allowBackup="true"
android:icon="@mipmap/ic_launcher"
android:label="@string/app_name"
android:theme="@style/AppTheme">
<activity
android:name=".AndroidLocationActivity"
android:label="@string/app_name"
android:screenOrientation="portrait"
android:theme="@android:style/Theme.NoTitleBar.Fullscreen">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Strings.xml (in res-values folder)

```
<resources>
<string name="app_name">AndroidLocationAPIExample</string>
<string name="latitude_string">Latitude now:</string>
<string name="longitude_string">Longitude now:</string>
</resources>
```

In gradle file add :-

```
applyplugin: 'com.android.application'

android {
compileSdkVersion23
buildToolsVersion'23.0.0'

defaultConfig {
applicationId"" // it will be your own package name
minSdkVersion14
targetSdkVersion19
versionCode1
versionName"1.0"
}
buildTypes {
release {
minifyEnabledfalse
proguardFilesgetDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
}
   }
}

dependencies {
compile fileTree(dir: 'libs', include: ['*.jar'])
compile'com.android.support:appcompat-v7:23.1.1'
compile"com.google.android.gms:play-services:8.3.0" // we added this dependency to include
the google play service
}
```

MainActivity.java

```
package // here add your own package name

importandroid.app.Activity;
importandroid.location.Location;
importandroid.os.Bundle;
importandroid.os.Handler;
importandroid.widget.TextView;
importandroid.widget.Toast;

importcom.google.android.gms.common.ConnectionResult;
importcom.google.android.gms.common.GooglePlayServicesUtil;
importcom.google.android.gms.common.api.GoogleApiClient;
importcom.google.android.gms.location.LocationListener;
importcom.google.android.gms.location.LocationRequest;
importcom.google.android.gms.location.LocationServices;

public class AndroidLocationActivity extends Activity implements LocationListener {

// Google client to interact with Google API
privateGoogleApiClientmGoogleApiClient;
privateLocationRequestmLocationRequest;
privateTextView latitude, longitude;

private double fusedLatitude = 0.0;
private  doublefusedLongitude = 0.0;

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

if(checkPlayServices()) {
```

```
startFusedLocation();
registerRequestUpdate(this);
    }

  }

private void initializeViews() {
latitude= (TextView) findViewById(R.id.textview_latitude);
longitude= (TextView) findViewById(R.id.textview_longitude);
  }

@Override
protected void onStop() {
stopFusedLocation();
super.onStop();
  }
// check if google play services is installed on the device
private booleancheckPlayServices() {
intresultCode = GooglePlayServicesUtil
        .isGooglePlayServicesAvailable(this);
if(resultCode != ConnectionResult.SUCCESS) {
if(GooglePlayServicesUtil.isUserRecoverableError(resultCode)) {
Toast.makeText(getApplicationContext(),
"This device is supported. Please download google play services", Toast.LENGTH_LONG)
            .show();
      } else {
Toast.makeText(getApplicationContext(),
"This device is not supported.", Toast.LENGTH_LONG)
            .show();
finish();
      }
return false;
    }
return true;
  }
public void startFusedLocation() {
if(mGoogleApiClient == null) {
mGoogleApiClient= new GoogleApiClient.Builder(this).addApi(LocationServices.API)
          .addConnectionCallbacks(new GoogleApiClient.ConnectionCallbacks() {
@Override
public void onConnectionSuspended(int cause) {
            }

@Override
public void onConnected(Bundle connectionHint) {

            }
          }).addOnConnectionFailedListener(new
GoogleApiClient.OnConnectionFailedListener() {
```

```
@Override
public void onConnectionFailed(ConnectionResult result) {

                        }
                    }).build();
mGoogleApiClient.connect();
        } else {
mGoogleApiClient.connect();
        }
    }

public void stopFusedLocation() {
if(mGoogleApiClient != null) {
mGoogleApiClient.disconnect();
        }
    }

public void registerRequestUpdate(final LocationListener listener) {
mLocationRequest= LocationRequest.create();
mLocationRequest.setPriority(LocationRequest.PRIORITY_HIGH_ACCURACY);
mLocationRequest.setInterval(1000); // every second

newHandler().postDelayed(new Runnable() {
@Override
public void run() {
// TODO Auto-generated method stub
try{
LocationServices.FusedLocationApi.requestLocationUpdates(mGoogleApiClient,
mLocationRequest, listener);
                } catch (SecurityException e) {
e.printStackTrace();
                } catch (Exception e) {
e.printStackTrace();
if(!isGoogleApiClientConnected()) {
mGoogleApiClient.connect();
                    }
registerRequestUpdate(listener);
                }
            }
        }, 1000);
    }

public booleanisGoogleApiClientConnected() {
returnmGoogleApiClient != null &&mGoogleApiClient.isConnected();
    }

@Override
public void onLocationChanged(Location location) {
setFusedLatitude(location.getLatitude());
setFusedLongitude(location.getLongitude());
```

```
Toast.makeText(getApplicationContext(), "NEW LOCATION RECEIVED",
Toast.LENGTH_LONG).show();

latitude.setText(getString(R.string.latitude_string) +" "+ getFusedLatitude());
longitude.setText(getString(R.string.longitude_string) +" "+ getFusedLongitude());
   }

public void setFusedLatitude(double lat) {
fusedLatitude= lat;
   }

public void setFusedLongitude(double lon) {
fusedLongitude= lon;
   }

public double getFusedLatitude() {
returnfusedLatitude;
   }

public double getFusedLongitude() {
returnfusedLongitude;
   }
}
```

PRACTICAL 02

Aim: Install a Cloud Analyst and integrate with IDE Eclipse/Netbeans. Monitor the performance of an Existing Algorithm.

Main Layout Xml File.

This layout file contains the RecyclerView and the input text and send button.

activity_chat_app.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayoutxmlns: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:orientation="vertical"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".ChatAppActivity">

<android.support.v7.widget.RecyclerView
android:id="@+id/chat_recycler_view"
android:layout_width="match_parent"
android:layout_height="wrap_content" />

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

<EditText
android:id="@+id/chat_input_msg"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:hint="Input message."
android:layout_weight="1"
android:maxLines="2"/>

<Button
android:id="@+id/chat_send_msg"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Send"
android:textAllCaps="false"/>

</LinearLayout>
</LinearLayout>
```

RecyclerView Item Layout Xml File.

This layout xml file define the RecyclerView's item view, it contains a left LinearLayout and a right LinearLayout object which contains received and sent message textview object.

activity_chat_app_item_view.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:padding="1dp">

<LinearLayout
android:id="@+id/chat_left_msg_layout"
android:layout_width="99dp"
android:layout_height="94dp"
android:layout_gravity="left"
android:background="@drawable/chat_bubble"
android:orientation="vertical">

<TextView
android:id="@+id/chat_left_msg_text_view"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:layout_gravity="center"
android:layout_margin="25dp" />

</LinearLayout>

<LinearLayout
android:id="@+id/chat_right_msg_layout"
android:layout_width="97dp"
android:layout_height="91dp"
android:layout_gravity="right"
android:background="@drawable/chat_bubble"
android:orientation="vertical">

<TextView
android:id="@+id/chat_right_msg_text_view"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:layout_gravity="center"
android:layout_margin="25dp" />

</LinearLayout>
```

```
</LinearLayout>
```

ChatAppActivity.java

```
package com.example.sahil.chatapp;

import android.app.Activity;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.support.v7.widget.LinearLayoutManager;
import android.support.v7.widget.RecyclerView;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
//import // your own package name.R;
import java.util.ArrayList;
import java.util.List;

public class ChatAppActivity extends Activity {
   @Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_chat_app);
setTitle("dev2qa.com - Android Chat App Example");

        // Get RecyclerView object.
final RecyclerViewmsgRecyclerView =
(RecyclerView)findViewById(R.id.chat_recycler_view);

        // Set RecyclerView layout manager.
LinearLayoutManagerlinearLayoutManager = new LinearLayoutManager(this);
msgRecyclerView.setLayoutManager(linearLayoutManager);

        // Create the initial data list.
final List<ChatAppMsgDTO>msgDtoList = new ArrayList<ChatAppMsgDTO>();
ChatAppMsgDTOmsgDto = new
ChatAppMsgDTO(ChatAppMsgDTO.MSG_TYPE_RECEIVED, "hello");
msgDtoList.add(msgDto);

        // Create the data adapter with above data list.
final ChatAppMsgAdapterchatAppMsgAdapter = new ChatAppMsgAdapter(msgDtoList);

        // Set data adapter to RecyclerView.
msgRecyclerView.setAdapter(chatAppMsgAdapter);
final EditTextmsgInputText = (EditText)findViewById(R.id.chat_input_msg);
        Button msgSendButton = (Button)findViewById(R.id.chat_send_msg);
msgSendButton.setOnClickListener(new View.OnClickListener() {
            @Override
public void onClick(View view) {
```

```
                String msgContent = msgInputText.getText().toString();
if(!TextUtils.isEmpty(msgContent))
                {
                    // Add a new sent message to the list.
ChatAppMsgDTOmsgDto = new ChatAppMsgDTO(ChatAppMsgDTO.MSG_TYPE_SENT,
msgContent);
msgDtoList.add(msgDto);
intnewMsgPosition = msgDtoList.size() - 1;

                    // Notify recycler view insert one new data.
chatAppMsgAdapter.notifyItemInserted(newMsgPosition);

                    // Scroll RecyclerView to the last message.
msgRecyclerView.scrollToPosition(newMsgPosition);

                    // Empty the input edit text box.
msgInputText.setText("");
                }
            }
        });

    }
}
```

ChatAppMsgAdapter.java

```
package com.example.sahil.chatapp;
import android.support.v7.widget.RecyclerView;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.LinearLayout;
import java.util.ArrayList;
import java.util.List;

public class ChatAppMsgAdapter extends
RecyclerView.Adapter<ChatAppMsgViewHolder>  {
private List<ChatAppMsgDTO>msgDtoList = null;
public ChatAppMsgAdapter(List<ChatAppMsgDTO>msgDtoList) {
this.msgDtoList = msgDtoList;
    }
    @Override
public void onBindViewHolder(ChatAppMsgViewHolder holder, int position) {
ChatAppMsgDTOmsgDto = this.msgDtoList.get(position);
        // If the message is a received message.
if(msgDto.MSG_TYPE_RECEIVED.equals(msgDto.getMsgType()))
        {
            // Show received message in left linearlayout.
holder.leftMsgLayout.setVisibility(LinearLayout.VISIBLE);
holder.leftMsgTextView.setText(msgDto.getMsgContent());
```

```
            // Remove left linearlayout.The value should be GONE, can not be INVISIBLE
            // Otherwise each iteview's distance is too big.
holder.rightMsgLayout.setVisibility(LinearLayout.GONE);
        }
        // If the message is a sent message.
else if(msgDto.MSG_TYPE_SENT.equals(msgDto.getMsgType()))
        {
            // Show sent message in right linearlayout.
holder.rightMsgLayout.setVisibility(LinearLayout.VISIBLE);
holder.rightMsgTextView.setText(msgDto.getMsgContent());
            // Remove left linearlayout.The value should be GONE, can not be INVISIBLE
            // Otherwise each iteview's distance is too big.
holder.leftMsgLayout.setVisibility(LinearLayout.GONE);
        }
    }

    @Override
public ChatAppMsgViewHolderonCreateViewHolder(ViewGroup parent, intviewType) {
LayoutInflaterlayoutInflater = LayoutInflater.from(parent.getContext());
        View view = layoutInflater.inflate(R.layout.activity_chat_app_item_view, parent, false);
return new ChatAppMsgViewHolder(view);
    }

    @Override
public intgetItemCount() {
if(msgDtoList==null)
        {
msgDtoList = new ArrayList<ChatAppMsgDTO>();
        }
return msgDtoList.size();
    }

}
```

ChatAppMsgViewHolder.java

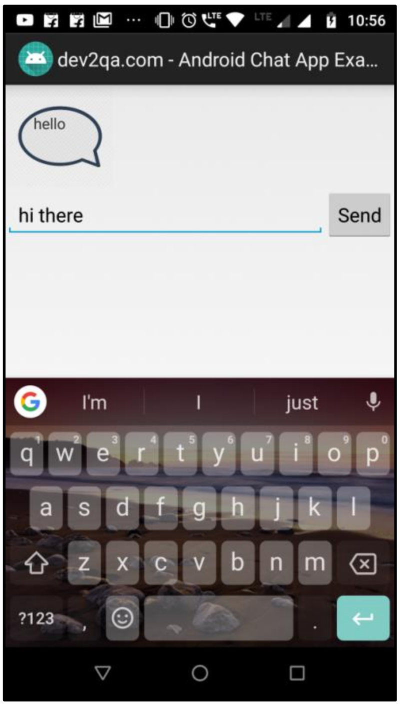
```
package com.example.sahil.chatapp;

import android.support.v7.widget.RecyclerView;
import android.view.View;
import android.widget.LinearLayout;
import android.widget.TextView;
//import com.dev2qa.example.R;
public class ChatAppMsgViewHolder extends RecyclerView.ViewHolder {
LinearLayoutleftMsgLayout;
LinearLayoutrightMsgLayout;
TextViewleftMsgTextView;
TextViewrightMsgTextView;
public ChatAppMsgViewHolder(View itemView) {
```

```
super(itemView);
if(itemView!=null) {
leftMsgLayout = (LinearLayout) itemView.findViewById(R.id.chat_left_msg_layout);
rightMsgLayout = (LinearLayout) itemView.findViewById(R.id.chat_right_msg_layout);
leftMsgTextView = (TextView) itemView.findViewById(R.id.chat_left_msg_text_view);
rightMsgTextView = (TextView) itemView.findViewById(R.id.chat_right_msg_text_view);
        }
    }
}
```

ChatAppMsgDTO.java

```
package com.example.sahil.chatapp;

public class ChatAppMsgDTO {
public final static String MSG_TYPE_SENT = "MSG_TYPE_SENT";
public final static String MSG_TYPE_RECEIVED = "MSG_TYPE_RECEIVED";

    // Message content.
private String msgContent;

    // Message type.
private String msgType;

public ChatAppMsgDTO(String msgType, String msgContent) {
this.msgType = msgType;
this.msgContent = msgContent;
    }

public String getMsgContent() {
return msgContent;
    }

public void setMsgContent(String msgContent) {
this.msgContent = msgContent;
    }

public String getMsgType() {
return msgType;
    }

public void setMsgType(String msgType) {
this.msgType = msgType;
    }

}
```

Output :-



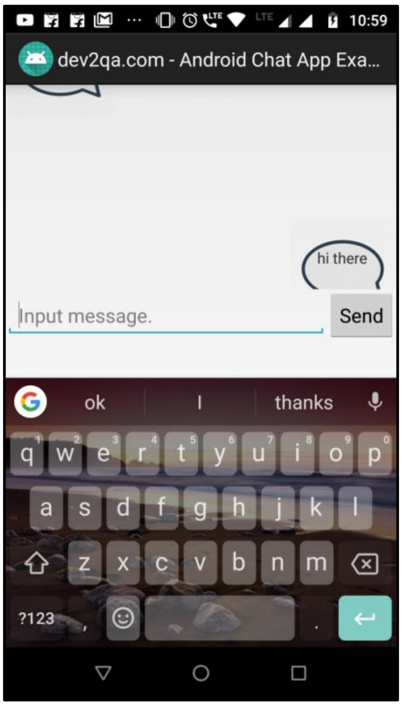
10:56

dev2qa.com - Android Chat App Exa...

hello

hi there

Send



10:59

dev2qa.com - Android Chat App Exa...

hi there

Input message.

Send

PRACTICAL 03

Aim: Build an Application on Private Cloud.

Step 1 Create new app in android studio

Step 2 Go to Tools - Firebase - Connect to firebase - (Make sure you have signed in to google account)

Step 3 Create a new java class , add the following code

```
packagecom.example.abc.fcmexample;
importandroid.util.Log;
importcom.google.firebase.iid.FirebaseInstanceId;
importcom.google.firebase.iid.FirebaseInstanceIdService;
import static android.content.ContentValues.TAG;
public class MyFirebaseInstanceIdServiceextendsFirebaseInstanceIdService {
@Override
public void onTokenRefresh() {
// Get updated InstanceID token.
String refreshedToken = FirebaseInstanceId.getInstance().getToken();
Log.d(TAG, "Refreshed token: " + refreshedToken);

// If you want to send messages to this application instance or
        // manage this apps subscriptions on the server side, send the
        // Instance ID token to your app server.
       // sendRegistrationToServer(refreshedToken);
}
}
```

Step 4 Create a new Service , add the following code

```
packagecom.example.abc.fcmexample;

importandroid.app.NotificationManager;
importandroid.app.PendingIntent;
importandroid.app.Service;
importandroid.content.Context;
importandroid.content.Intent;
importandroid.media.Ringtone;
importandroid.media.RingtoneManager;
importandroid.net.Uri;
importandroid.os.IBinder;
importandroid.support.v4.app.NotificationCompat;
importandroid.util.Log;
importcom.google.firebase.messaging.FirebaseMessagingService;
importcom.google.firebase.messaging.RemoteMessage;
import static android.content.ContentValues.TAG;
```

```
public class MyFirebaseMessagingService extends FirebaseMessagingService {
publicMyFirebaseMessagingService() {

   }
@Override
public void onMessageReceived(RemoteMessageremoteMessage) {
super.onMessageReceived(remoteMessage);
sendNotification(remoteMessage.getNotification().getBody());
        }
private void sendNotification(String messageBody)
   {

       Intent intent = new Intent(this,MainActivity.class);
intent.addFlags(Intent.FLAG_ACTIVITY_CLEAR_TOP);
PendingIntentpendingIntent =
PendingIntent.getActivity(this,0,intent,PendingIntent.FLAG_ONE_SHOT);
       Uri defaultSoundUri =
RingtoneManager.getDefaultUri(RingtoneManager.TYPE_NOTIFICATION);
NotificationCompat.BuildernotificationBuilder = new NotificationCompat.Builder(this);
notificationBuilder.setSmallIcon(R.drawable.ic_stat_name);
notificationBuilder.setContentTitle("FCM Example by Dipti");
notificationBuilder.setContentText(messageBody);
notificationBuilder.setAutoCancel(true);
notificationBuilder.setSound(defaultSoundUri);
notificationBuilder.setContentIntent(pendingIntent);
NotificationManagernotificationManager =
(NotificationManager)getSystemService(Context.NOTIFICATION_SERVICE);
notificationManager.notify(0,notificationBuilder.build());

   }
}
```

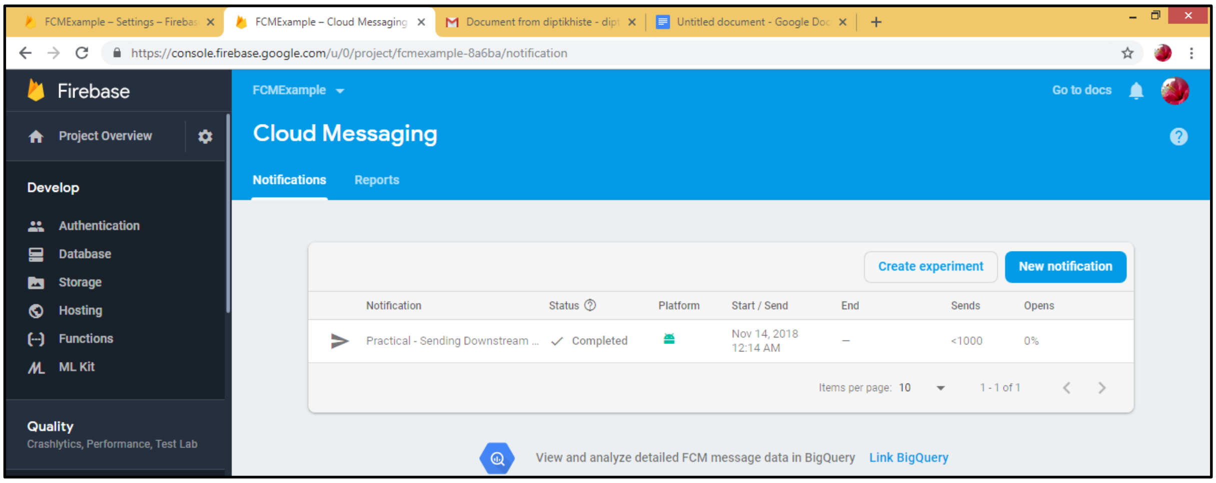
Step 5 Modify the manifest file

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.abc.fcmexample">
<uses-permissionandroid:name="android.permission.INTERNET"/>

<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=".MyFirebaseInstanceIdService">
<intent-filter>
<action android:name="com.google.firebase.INSTANCE_ID_EVENT" />
</intent-filter>
</service>
<service
android:name=".MyFirebaseMessagingService"
android:enabled="true"
android:exported="true">
<intent-filter>
<action android:name="com.google.firebase.INSTANCE_ID_EVENT" />
</intent-filter>
</service>
</application>
</manifest>
```

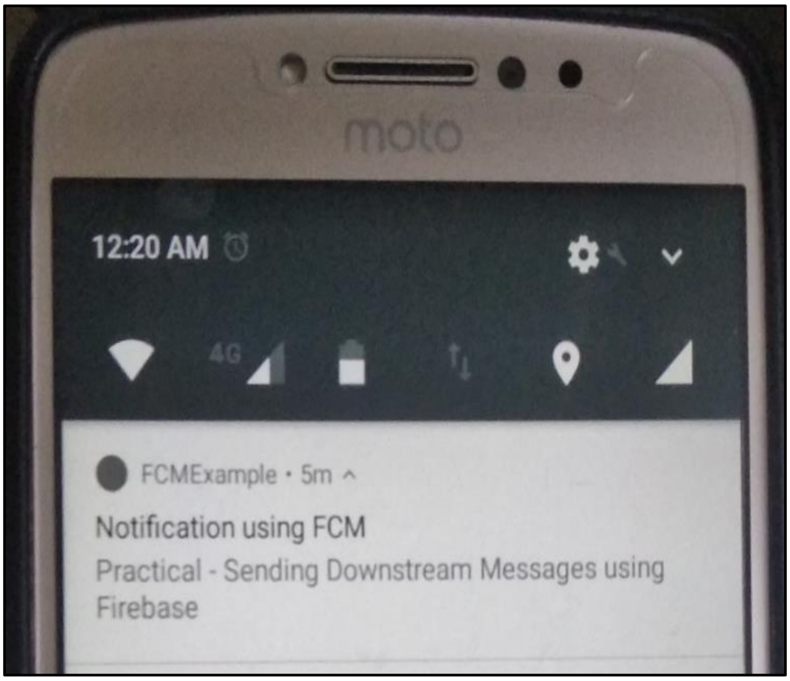
Step 6 go to Notification composer in firebase console

Add the notification , click on publish


FCMExample – Settings – Fireba
FCMExample – Cloud Messaging
Document from diptikhiste - dipt
Untitled document - Google Doc
https://console.firebase.google.com/u/0/project/fcmexample-8a6ba/notification
Firebase
FCMExample
Go to docs
Project Overview
Cloud Messaging
Notifications
Reports
Develop
Authentication
Database
Storage
Hosting
Functions
ML Kit
Quality
Crashlytics, Performance, Test Lab
Create experiment
New notification
Items per page: 10
1 - 1 of 1
View and analyze detailed FCM message data in BigQuery
Link BigQuery

Notification	Status	Platform	Start / Send	End	Sends	Opens
Practical - Sending Downstream ...	✓ Completed		Nov 14, 2018 12:14 AM	–	<1000	0%

Output:



12:20 AM

FCMExample • 5m

Notification using FCM

Practical - Sending Downstream Messages using Firebase

PRACTICAL 04

Aim: Demonstrate any Cloud Monitoring Tool.

Required Software:

JDK 1.6(Any Version)
XAMPP Server

Mysql-java connector(copy .jar file and paste it into)

----- C:\Program Files\Java\jdk1.8.0_111\jre\lib\ext
----- C:\Program Files\Java\jre1.8.0_111\lib\ext

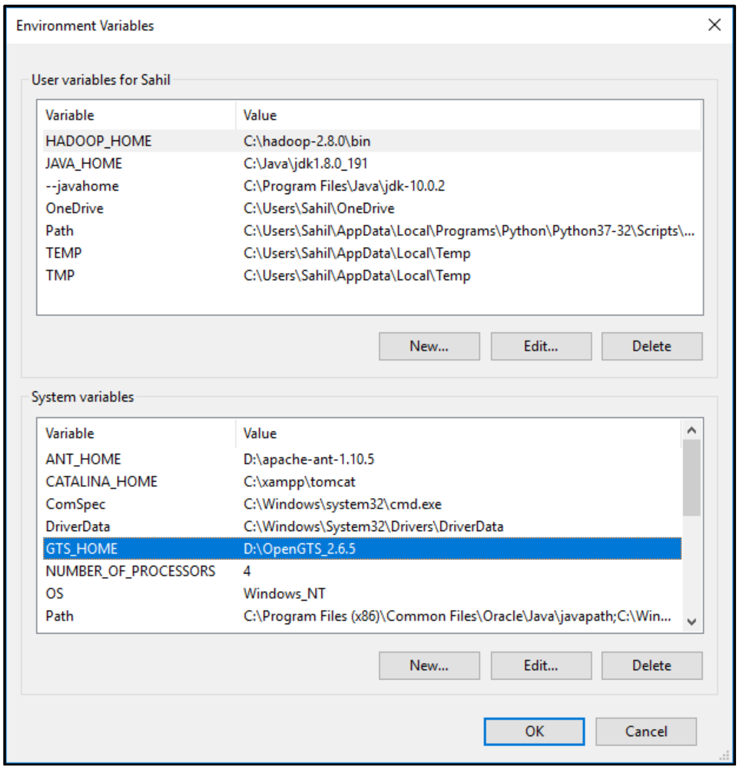
OpenGTS application :- http://www.opengts.org/

Extract File in the Drive :- OpenGTS_2.6.5.zip

Apache Ant :- Extract File in the Drive :- apache-ant-1.10.5-bin.zip

Settings :-

Add paths in Environment Variables [Apache Ant, OpenGTS, Java JDK and Tomcat]



Environment Variables

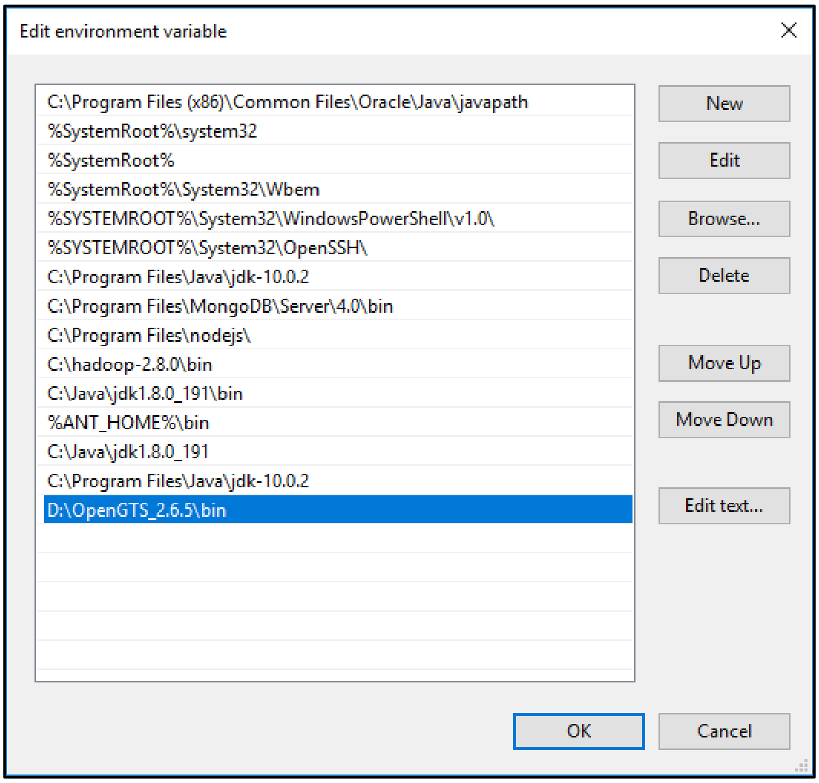
User variables for Sahil

Variable	Value
HADOOP_HOME	C:\hadoop-2.8.0\bin
JAVA_HOME	C:\Java\jdk1.8.0_191
--javahome	C:\Program Files\Java\jdk-10.0.2
OneDrive	C:\Users\Sahil\OneDrive
Path	C:\Users\Sahil\AppData\Local\Programs\Python\Python37-32\Scripts\...
TEMP	C:\Users\Sahil\AppData\Local\Temp
TMP	C:\Users\Sahil\AppData\Local\Temp

System variables

Variable	Value
ANT_HOME	D:\apache-ant-1.10.5
CATALINA_HOME	C:\xampp\tomcat
ComSpec	C:\Windows\system32\cmd.exe
DriverData	C:\Windows\System32\Drivers\DriverData
GTS_HOME	D:\OpenGTS_2.6.5
NUMBER_OF_PROCESSORS	4
OS	Windows_NT
Path	C:\Program Files (x86)\Common Files\Oracle\Java\javapath;C:\Win...

Path Variable:

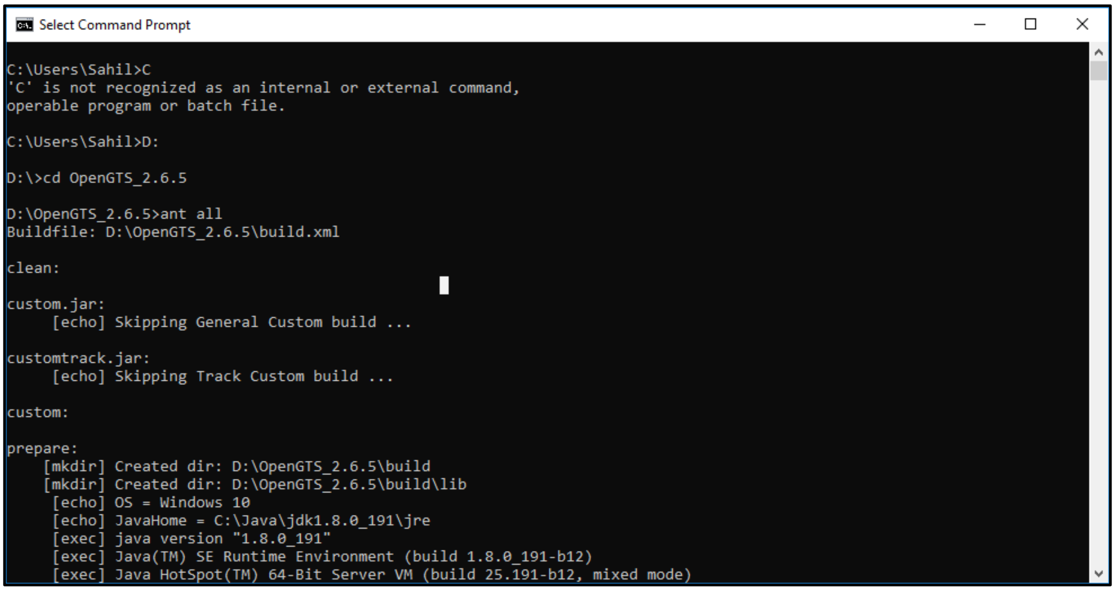


```
C:\Program Files (x86)\Common Files\Oracle\Java\javapath
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\Java\jdk-10.0.2
C:\Program Files\MongoDB\Server\4.0\bin
C:\Program Files\nodejs\
C:\hadoop-2.8.0\bin
C:\Java\jdk1.8.0_191\bin
%ANT_HOME%\bin
C:\Java\jdk1.8.0_191
C:\Program Files\Java\jdk-10.0.2
D:\OpenGTS_2.6.5\bin
```

ADMIN CMD :-

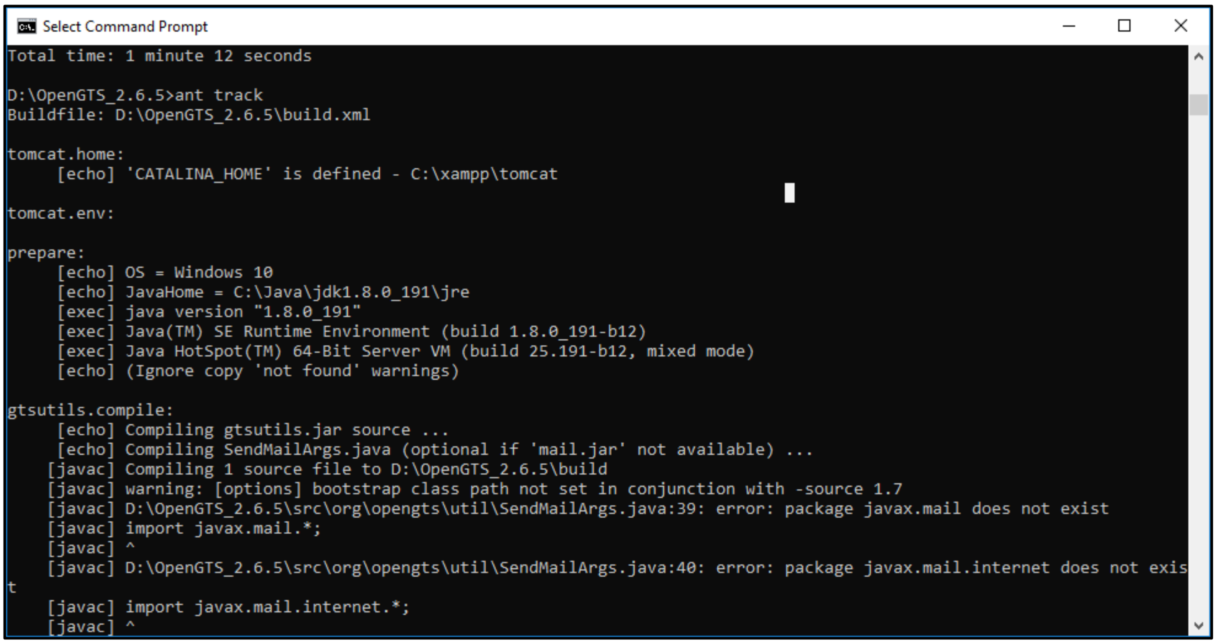
Open command Prompt and go to D:\OpenGTS_2.6.2

Type command :- ant all



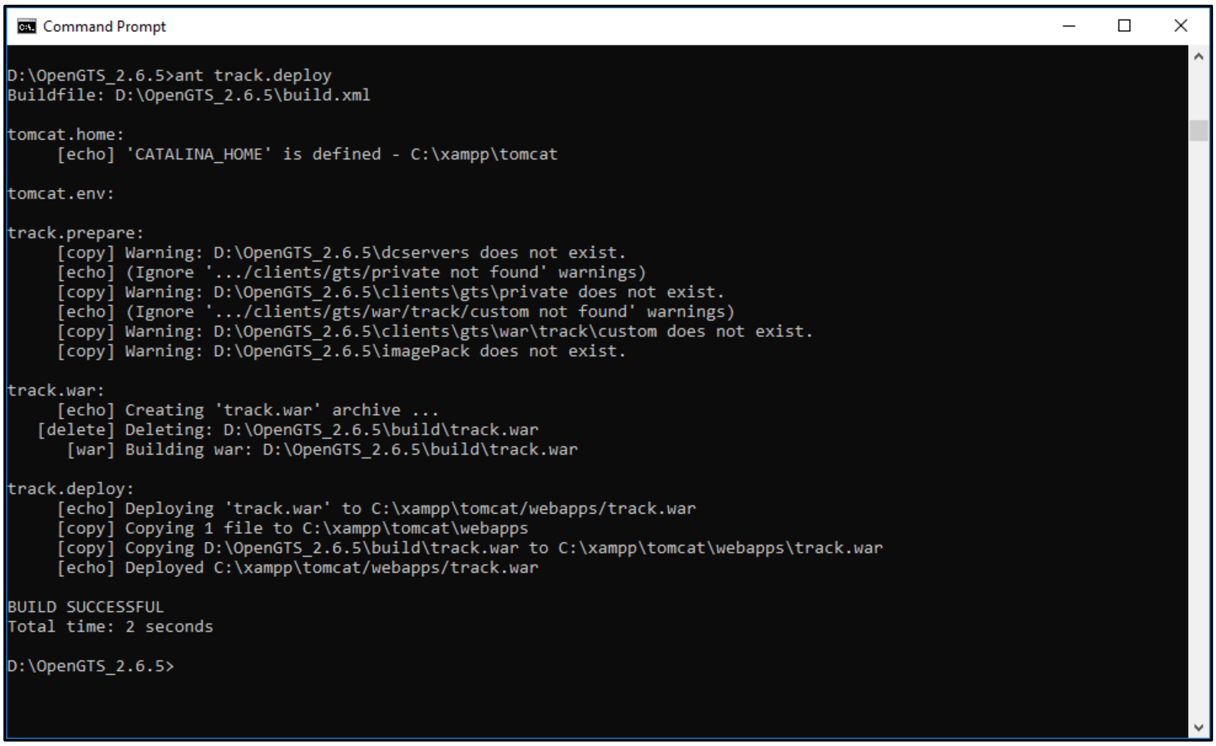
```
C:\Users\Sahil>C
'C' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Sahil>D:

D:\>cd OpenGTS_2.6.5

D:\OpenGTS_2.6.5>ant all
Buildfile: D:\OpenGTS_2.6.5\build.xml

clean:

custom.jar:
     [echo] Skipping General Custom build ...

customtrack.jar:
     [echo] Skipping Track Custom build ...

custom:

prepare:
    [mkdir] Created dir: D:\OpenGTS_2.6.5\build
    [mkdir] Created dir: D:\OpenGTS_2.6.5\build\lib
     [echo] OS = Windows 10
     [echo] JavaHome = C:\Java\jdk1.8.0_191\jre
     [exec] java version "1.8.0_191"
     [exec] Java(TM) SE Runtime Environment (build 1.8.0_191-b12)
     [exec] Java HotSpot(TM) 64-Bit Server VM (build 25.191-b12, mixed mode)
```

Type command :-ant track



```
Total time: 1 minute 12 seconds

D:\OpenGTS_2.6.5>ant track
Buildfile: D:\OpenGTS_2.6.5\build.xml

tomcat.home:
     [echo] 'CATALINA_HOME' is defined - C:\xampp\tomcat

tomcat.env:

prepare:
     [echo] OS = Windows 10
     [echo] JavaHome = C:\Java\jdk1.8.0_191\jre
     [exec] java version "1.8.0_191"
     [exec] Java(TM) SE Runtime Environment (build 1.8.0_191-b12)
     [exec] Java HotSpot(TM) 64-Bit Server VM (build 25.191-b12, mixed mode)
     [echo] (Ignore copy 'not found' warnings)

gtsutils.compile:
     [echo] Compiling gtsutils.jar source ...
     [echo] Compiling SendMailArgs.java (optional if 'mail.jar' not available) ...
    [javac] Compiling 1 source file to D:\OpenGTS_2.6.5\build
    [javac] warning: [options] bootstrap class path not set in conjunction with -source 1.7
    [javac] D:\OpenGTS_2.6.5\src\org\opengts\util\SendMailArgs.java:39: error: package javax.mail does not exist
    [javac] import javax.mail.*;
    [javac] ^
    [javac] D:\OpenGTS_2.6.5\src\org\opengts\util\SendMailArgs.java:40: error: package javax.mail.internet does not exis
t
    [javac] import javax.mail.internet.*;
    [javac] ^
```

Type command :- ant track.deploy

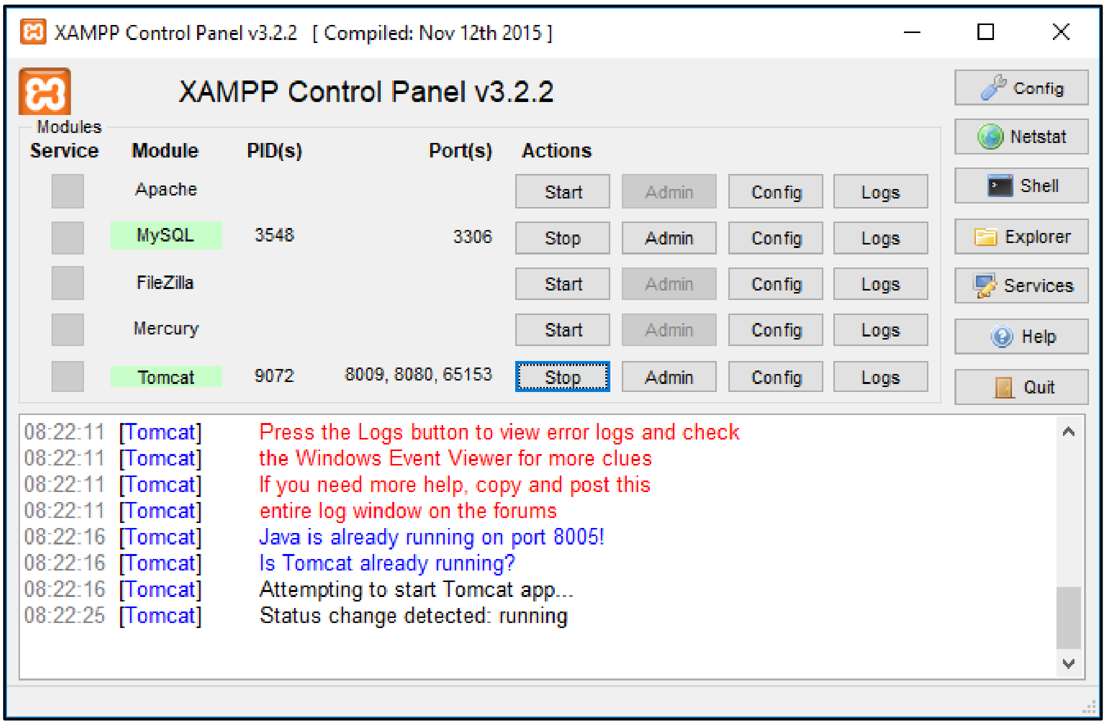


```
D:\OpenGTS_2.6.5>ant track.deploy
Buildfile: D:\OpenGTS_2.6.5\build.xml

tomcat.home:
     [echo] 'CATALINA_HOME' is defined - C:\xampp\tomcat

tomcat.env:

track.prepare:
     [copy] Warning: D:\OpenGTS_2.6.5\dcservers does not exist.
     [echo] (Ignore '.../clients/gts/private not found' warnings)
     [copy] Warning: D:\OpenGTS_2.6.5\clients\gts\private does not exist.
     [echo] (Ignore '.../clients/gts/war/track/custom not found' warnings)
     [copy] Warning: D:\OpenGTS_2.6.5\clients\gts\war\track\custom does not exist.
     [copy] Warning: D:\OpenGTS_2.6.5\imagePack does not exist.

track.war:
     [echo] Creating 'track.war' archive ...
   [delete] Deleting: D:\OpenGTS_2.6.5\build\track.war
      [war] Building war: D:\OpenGTS_2.6.5\build\track.war

track.deploy:
     [echo] Deploying 'track.war' to C:\xampp\tomcat/webapps/track.war
     [copy] Copying 1 file to C:\xampp\tomcat\webapps
     [copy] Copying D:\OpenGTS_2.6.5\build\track.war to C:\xampp\tomcat\webapps\track.war
     [echo] Deployed C:\xampp\tomcat/webapps/track.war

BUILD SUCCESSFUL
Total time: 2 seconds

D:\OpenGTS_2.6.5>
```

Type :- cd bin

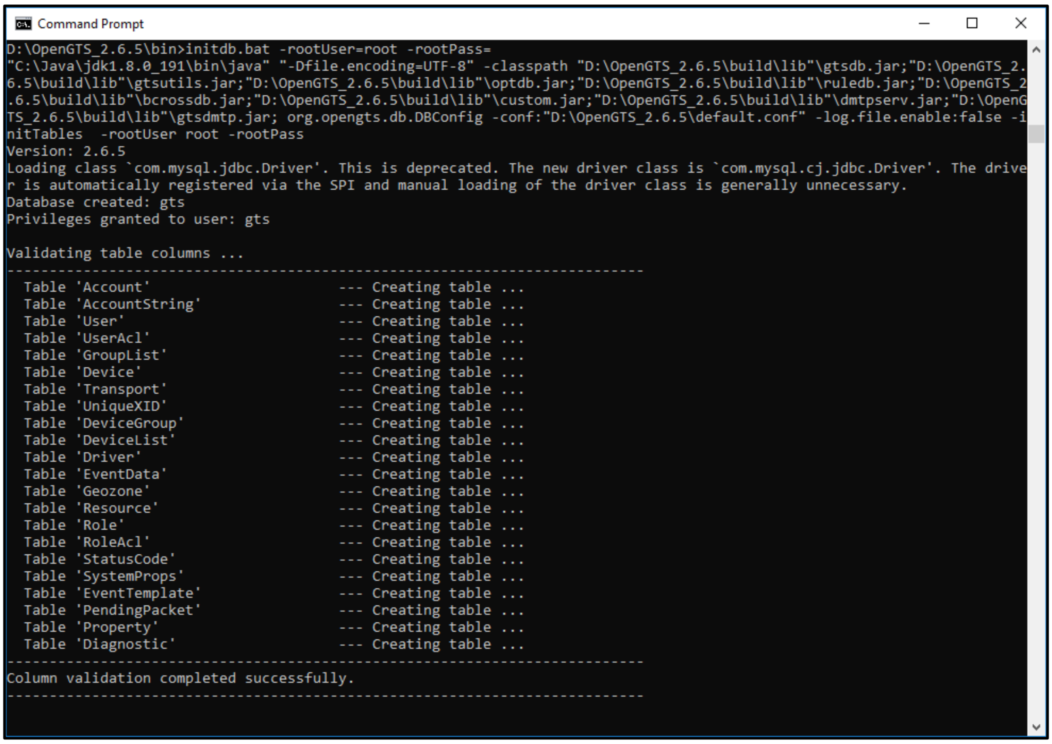
Then start Tomcat and MySQL in XAMMP Server.

Type command :- initdb.bat –rootUser=root –rootPass=


XAMPP Control Panel v3.2.2 [Compiled: Nov 12th 2015]
XAMPP Control Panel v3.2.2
Modules
Config
Netstat
Shell
Explorer
Services
Help
Quit

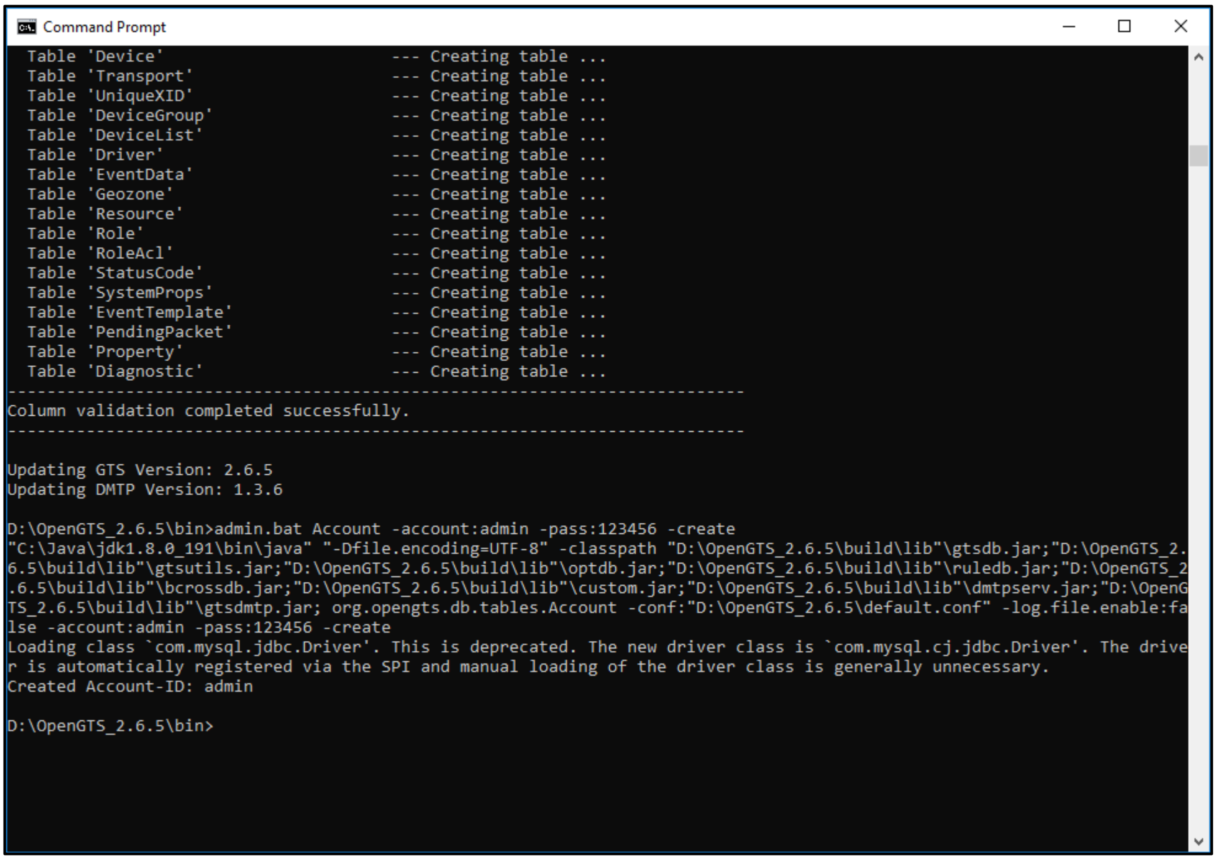
Service	Module	PID(s)	Port(s)	Actions			
□	Apache			Start	Admin	Config	Logs
□	MySQL	3548	3306	Stop	Admin	Config	Logs
□	FileZilla			Start	Admin	Config	Logs
□	Mercury			Start	Admin	Config	Logs
□	Tomcat	9072	8009, 8080, 65153	Stop	Admin	Config	Logs

```
08:22:11  [Tomcat]      Press the Logs button to view error logs and check
08:22:11  [Tomcat]      the Windows Event Viewer for more clues
08:22:11  [Tomcat]      If you need more help, copy and post this
08:22:11  [Tomcat]      entire log window on the forums
08:22:16  [Tomcat]      Java is already running on port 8005!
08:22:16  [Tomcat]      Is Tomcat already running?
08:22:16  [Tomcat]      Attempting to start Tomcat app...
08:22:25  [Tomcat]      Status change detected: running
```



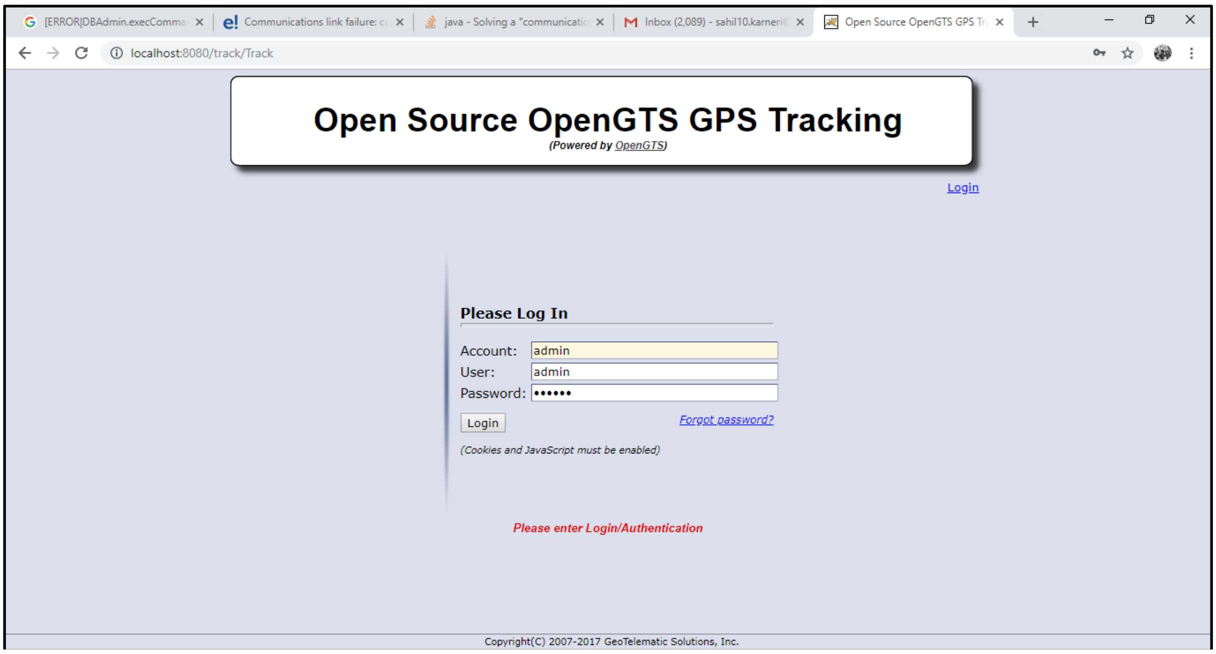
```
D:\OpenGTS_2.6.5\bin>initdb.bat -rootUser=root -rootPass=
"C:\Java\jdk1.8.0_191\bin\java" "-Dfile.encoding=UTF-8" -classpath "D:\OpenGTS_2.6.5\build\lib"\gtsdb.jar;"D:\OpenGTS_2.
6.5\build\lib"\gtsutils.jar;"D:\OpenGTS_2.6.5\build\lib"\optdb.jar;"D:\OpenGTS_2.6.5\build\lib"\ruledb.jar;"D:\OpenGTS_2
.6.5\build\lib"\bcrossdb.jar;"D:\OpenGTS_2.6.5\build\lib"\custom.jar;"D:\OpenGTS_2.6.5\build\lib"\dmtpserv.jar;"D:\OpenG
TS_2.6.5\build\lib"\gtsdmtp.jar; org.opengts.db.DBConfig -conf:"D:\OpenGTS_2.6.5\default.conf" -log.file.enable:false -i
nitTables  -rootUser root -rootPass
Version: 2.6.5
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The drive
r is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
Database created: gts
Privileges granted to user: gts

Validating table columns ...
--------------------------------------------------------------------------
  Table 'Account'                     --- Creating table ...
  Table 'AccountString'               --- Creating table ...
  Table 'User'                        --- Creating table ...
  Table 'UserAcl'                     --- Creating table ...
  Table 'GroupList'                   --- Creating table ...
  Table 'Device'                      --- Creating table ...
  Table 'Transport'                   --- Creating table ...
  Table 'UniqueXID'                   --- Creating table ...
  Table 'DeviceGroup'                 --- Creating table ...
  Table 'DeviceList'                  --- Creating table ...
  Table 'Driver'                      --- Creating table ...
  Table 'EventData'                   --- Creating table ...
  Table 'Geozone'                     --- Creating table ...
  Table 'Resource'                    --- Creating table ...
  Table 'Role'                        --- Creating table ...
  Table 'RoleAcl'                     --- Creating table ...
  Table 'StatusCode'                  --- Creating table ...
  Table 'SystemProps'                 --- Creating table ...
  Table 'EventTemplate'               --- Creating table ...
  Table 'PendingPacket'               --- Creating table ...
  Table 'Property'                    --- Creating table ...
  Table 'Diagnostic'                  --- Creating table ...
--------------------------------------------------------------------------
Column validation completed successfully.
--------------------------------------------------------------------------
```

Type Command :- admin.bat Account –account:admin –pass:123456 –create



```
  Table 'Device'                     --- Creating table ...
  Table 'Transport'                  --- Creating table ...
  Table 'UniqueXID'                  --- Creating table ...
  Table 'DeviceGroup'                --- Creating table ...
  Table 'DeviceList'                 --- Creating table ...
  Table 'Driver'                     --- Creating table ...
  Table 'EventData'                  --- Creating table ...
  Table 'Geozone'                    --- Creating table ...
  Table 'Resource'                   --- Creating table ...
  Table 'Role'                       --- Creating table ...
  Table 'RoleAcl'                    --- Creating table ...
  Table 'StatusCode'                 --- Creating table ...
  Table 'SystemProps'                --- Creating table ...
  Table 'EventTemplate'              --- Creating table ...
  Table 'PendingPacket'              --- Creating table ...
  Table 'Property'                   --- Creating table ...
  Table 'Diagnostic'                 --- Creating table ...
---------------------------------------------------------------------------
Column validation completed successfully.
---------------------------------------------------------------------------

Updating GTS Version: 2.6.5
Updating DMTP Version: 1.3.6

D:\OpenGTS_2.6.5\bin>admin.bat Account -account:admin -pass:123456 -create
"C:\Java\jdk1.8.0_191\bin\java" "-Dfile.encoding=UTF-8" -classpath "D:\OpenGTS_2.6.5\build\lib"\gtsdb.jar;"D:\OpenGTS_2.
6.5\build\lib"\gtsutils.jar;"D:\OpenGTS_2.6.5\build\lib"\optdb.jar;"D:\OpenGTS_2.6.5\build\lib"\ruledb.jar;"D:\OpenGTS_2
.6.5\build\lib"\bcrossdb.jar;"D:\OpenGTS_2.6.5\build\lib"\custom.jar;"D:\OpenGTS_2.6.5\build\lib"\dmtpserv.jar;"D:\OpenG
TS_2.6.5\build\lib"\gtsdmtp.jar; org.opengts.db.tables.Account -conf:"D:\OpenGTS_2.6.5\default.conf" -log.file.enable:fa
lse -account:admin -pass:123456 -create
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The drive
r is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
Created Account-ID: admin

D:\OpenGTS_2.6.5\bin>
```

Type url 127.0.0.1:8080/track/Track and login with admin and 123456


[ERROR]DBAdmin.execComma
Communications link failure: c
java - Solving a "communicatio
Inbox (2,089) - sahil10.karneri
Open Source OpenGTS GPS Tr
localhost:8080/track/Track

Open Source OpenGTS GPS Tracking

(Powered by OpenGTS)

Login

Please Log In

Account: admin

User: admin

Password: ••••••

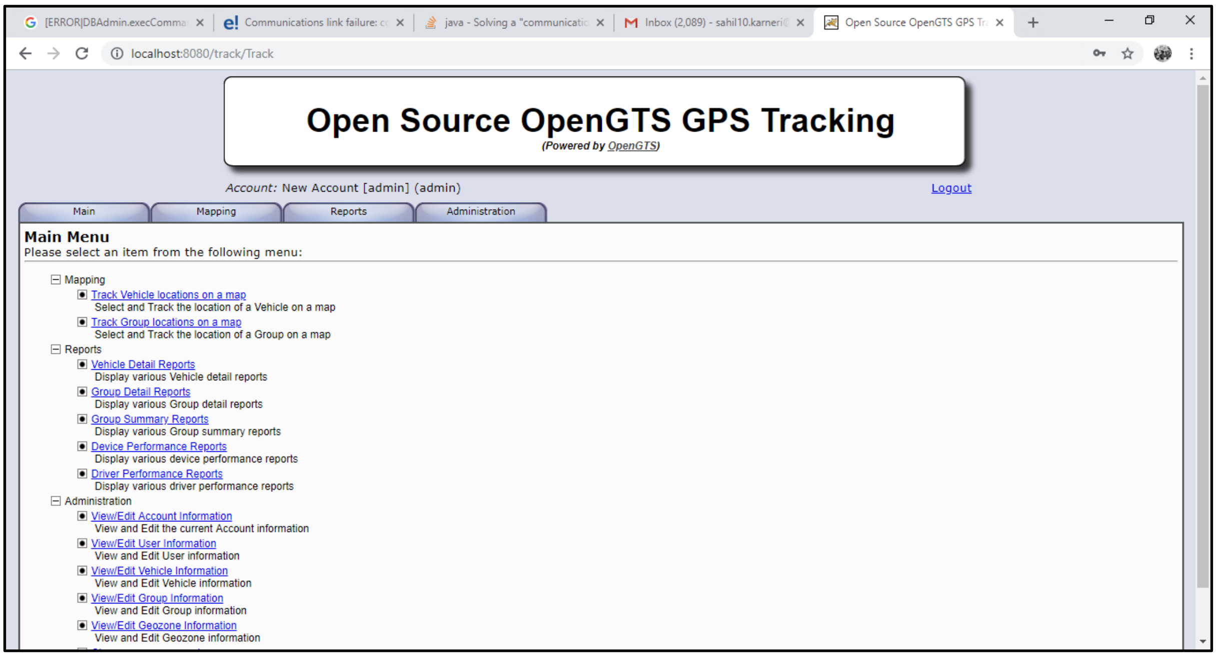
Login

Forgot password?

(Cookies and JavaScript must be enabled)

Please enter Login/Authentication

Copyright(C) 2007-2017 GeoTelematic Solutions, Inc.


[ERROR]DBAdmin.execComma
Communications link failure: c
java - Solving a "communicatio
Inbox (2,089) - sahil10.karneri
Open Source OpenGTS GPS Tr
localhost:8080/track/Track

Open Source OpenGTS GPS Tracking

(Powered by OpenGTS)

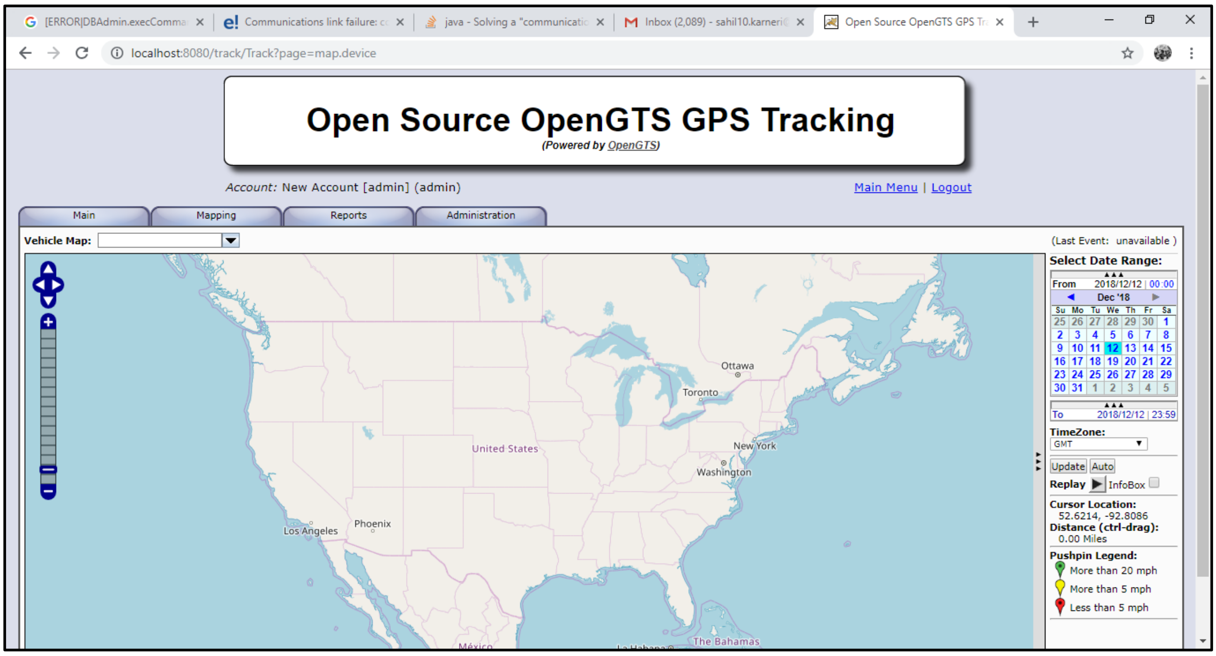
Account: New Account [admin] (admin) Logout

Main
Mapping
Reports
Administration

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 Group locations on a map
    Select and Track the location of a Group on a map
- Reports
  - Vehicle Detail Reports
    Display various Vehicle detail reports
  - Group Detail Reports
    Display various Group detail reports
  - Group Summary Reports
    Display various Group summary reports
  - Device Performance Reports
    Display various device performance 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 Group Information
    View and Edit Group information
  - View/Edit Geozone Information
    View and Edit Geozone information


[ERROR]DBAdmin.execComma
Communications link failure: c
java - Solving a "communicatio
Inbox (2,089) - sahil10.karneri
Open Source OpenGTS GPS Tr
localhost:8080/track/Track?page=map.device

Open Source OpenGTS GPS Tracking

(Powered by OpenGTS)

Account: New Account [admin] (admin) Main Menu | Logout

Main
Mapping
Reports
Administration
Vehicle Map:
Ottawa
Toronto
United States
New York
Washington
Phoenix
Los Angeles
México
La Habana
The Bahamas

(Last Event: unavailable)

Select Date Range:

From 2018/12/12 | 00:00

Dec '18

Su	Mo	Tu	We	Th	Fr	Sa
25	26	27	28	29	30	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

To 2018/12/12 | 23:59

TimeZone: GMT

Update Auto

Replay ▶ InfoBox □

Cursor Location: 52.6214, -92.8086

Distance (ctrl-drag): 0.00 Miles

Pushpin Legend:

- More than 20 mph
- More than 5 mph
- Less than 5 mph

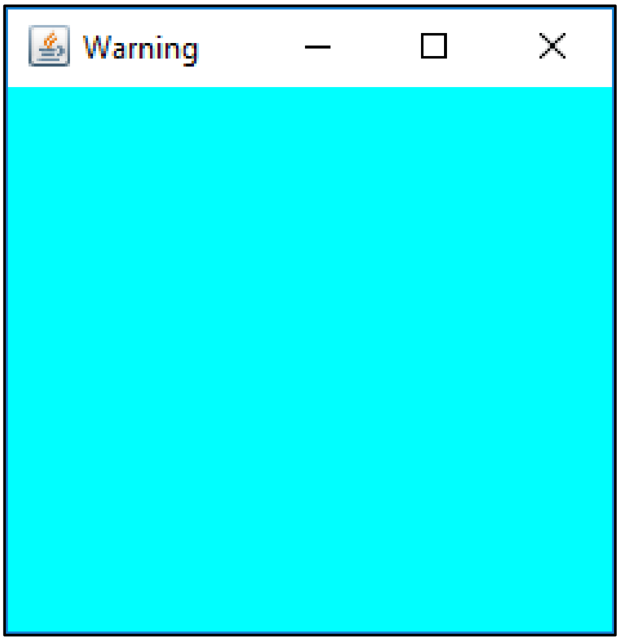
PRACTICAL 05

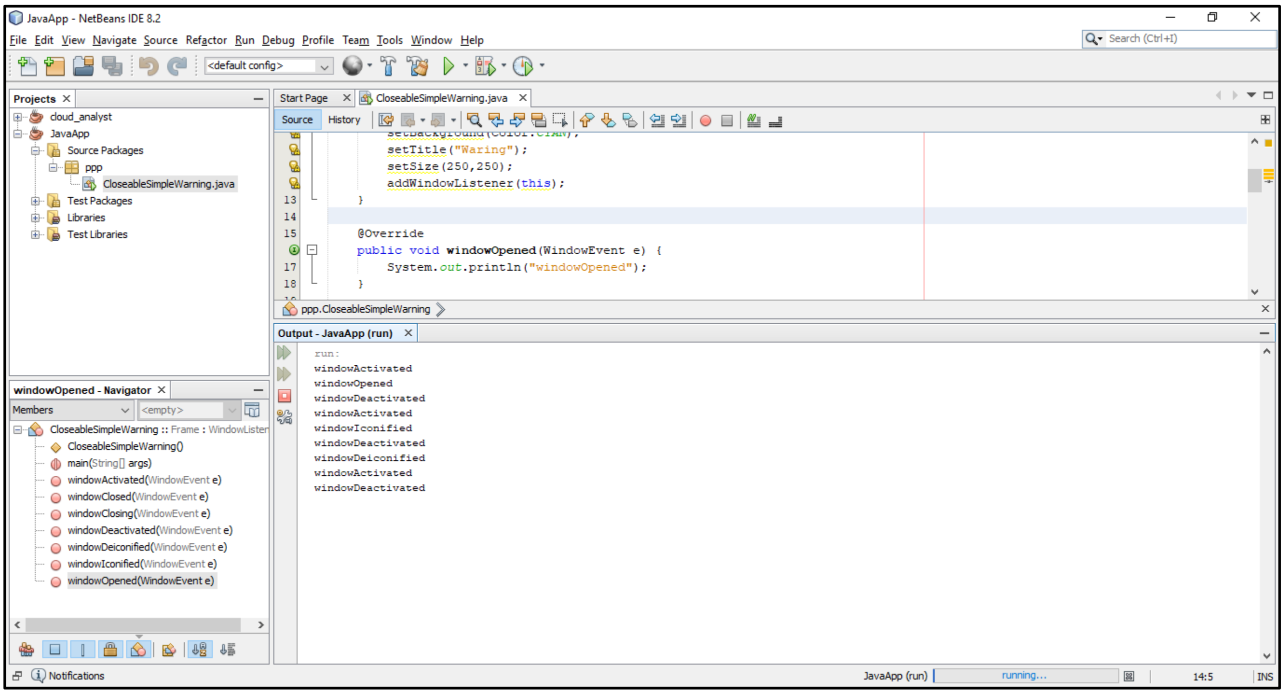
Aim: Implement FOSS-Cloud Functionality – Virtual Desktop Infrastructure (VDI).

Program :-

```
package ppp;
import java.awt.Color;
import java.awt.Frame;
import java.awt.event.WindowEvent;
import java.awt.event.WindowListener;
public class CloseableSimpleWarning extends Frame implements WindowListener{
public CloseableSimpleWarning()  {
setBackground(Color.CYAN);
setTitle("Warning");
setSize(250,250);
addWindowListener(this);
    }
    @Override
public void windowOpened(WindowEvent e) {
System.out.println("windowOpened");
    }
    @Override
public void windowClosing(WindowEvent e) {
        //System.out.println("windowClosing");
System.exit(0);
    }
    @Override
public void windowClosed(WindowEvent e) {
System.out.println("windowClosed");
    }
    @Override
public void windowIconified(WindowEvent e) {
System.out.println("windowIconified");
    }
    @Override
public void windowDeiconified(WindowEvent e) {
System.out.println("windowDeiconified");
    }
    @Override
public void windowActivated(WindowEvent e) {
System.out.println("windowActivated");
    }
    @Override
public void windowDeactivated(WindowEvent e) {
System.out.println("windowDeactivated");
    }
public static void main(String[] args){
CloseableSimpleWarning frame = new CloseableSimpleWarning();
frame.setVisible(true);
}
}
```

Output :-




JavaApp - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Search (Ctrl+I)
<default config>
Projects
cloud_analyst
JavaApp
Source Packages
ppp
CloseableSimpleWarning.java
Test Packages
Libraries
Test Libraries
Start Page
CloseableSimpleWarning.java
Source
History
ppp.CloseableSimpleWarning
Output - JavaApp (run)
windowOpened - Navigator
Members
<empty>
CloseableSimpleWarning :: Frame : WindowListen
CloseableSimpleWarning()
main(String[] args)
windowActivated(WindowEvent e)
windowClosed(WindowEvent e)
windowClosing(WindowEvent e)
windowDeactivated(WindowEvent e)
windowDeiconified(WindowEvent e)
windowIconified(WindowEvent e)
windowOpened(WindowEvent e)
Notifications
JavaApp (run)
running...
14:5
INS

```
        setBackground(Color.CYAN);
        setTitle("Waring");
        setSize(250,250);
        addWindowListener(this);
    }

    @Override
    public void windowOpened(WindowEvent e) {
        System.out.println("windowOpened");
    }
```

```
run:
windowActivated
windowOpened
windowDeactivated
windowActivated
windowIconified
windowDeactivated
windowDeiconified
windowActivated
windowDeactivated
```

PRACTICAL 06

Aim: Implement FOSS-Cloud Functionality – Virtual Server Infrastructure (VSI) – Infrastructure as a Service (IaaS).

Download Java Card Sdk from

http://www.oracle.com/technetwork/java/embedded/javacard/downloads/javacard-sdk-2043229.
Html

Install in Netbeans as plugin :-

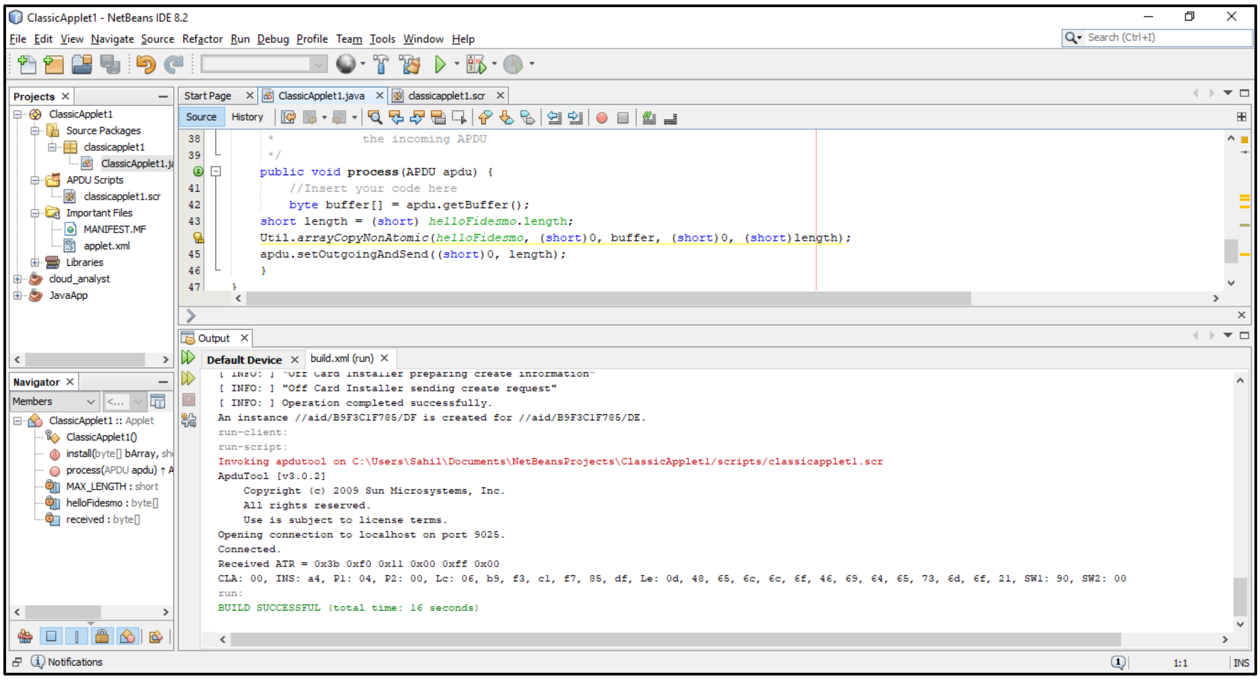
Tools -> Plugin

Create an application

Code :-

```
package classicapplet2;
importjavacard.framework.*;

public class ClassicApplet2 extends Applet {
/**
* Installs this applet.
* @parambArray
* the array containing installation parameters
* @parambOffset
* the starting offset in bArray
* @parambLength
* the length in bytes of the parameter data in bArray
*/
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();
}
/**
* Only this class's install method should create the applet object.
*/
protected ClassicApplet2() {
received = new byte[MAX_LENGTH];
register();
}
/**
* Processes an incoming APDU.
*
* @see APDU
* @paramapdu
* the incoming APDU
*/
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 :-



```
     *              the incoming APDU
     */
    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);
    }
}
```

```
[ INFO: ] "Off Card Installer preparing create information"
[ INFO: ] "Off Card Installer sending create request"
[ INFO: ] Operation completed successfully.
An instance //aid/B9F3C1F785/DF is created for //aid/B9F3C1F785/DE.
run-client:
run-script:
Invoking apdutool on C:\Users\Sahil\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, b9, f3, c1, f7, 85, df, Le: 0d, 48, 65, 6c, 6c, 6f, 46, 69, 64, 65, 73, 6d, 6f, 21, SW1: 90, SW2: 00
run:
BUILD SUCCESSFUL (total time: 16 seconds)
```