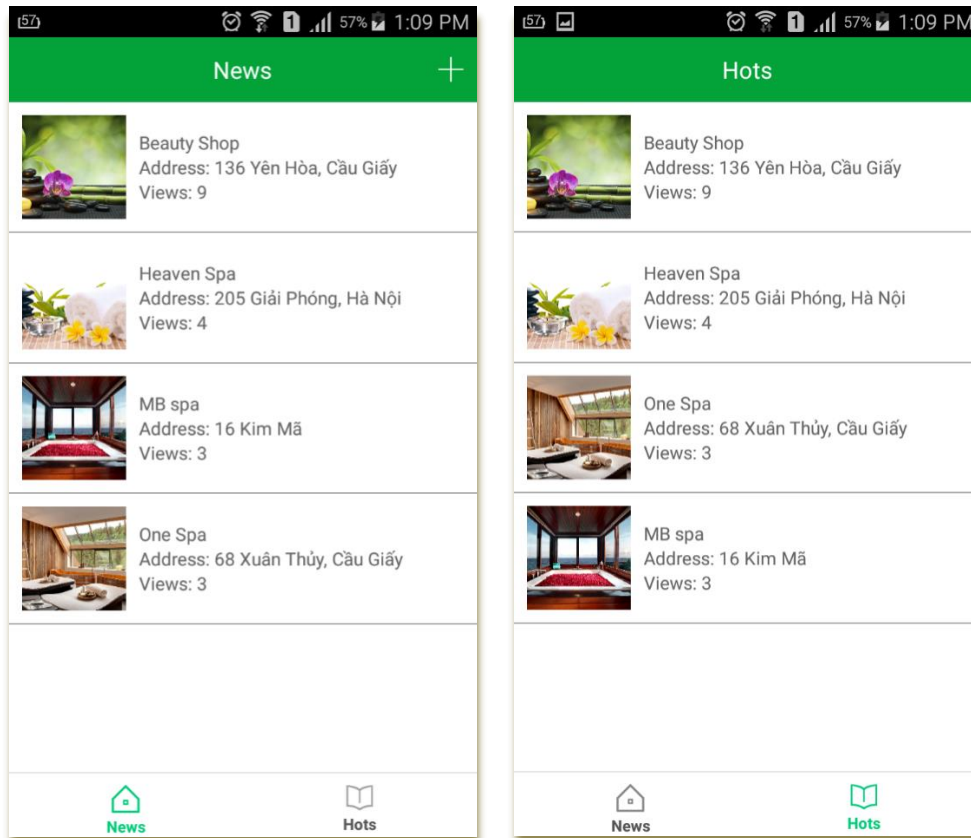# Module10 Project Go2Spa

Introduction

After 9 modules I am sure you are ready to develop a business project. This module will help you develop perfect project, it contains some theories of all modules that you have learnt.

You are exciting, right? Let's start.

Requirement of the project

Develop a project with name is "Go2Spa". This project will show all Spas around you. If you are user, you can find some Spas near you. If you are boss of Spa or you are user want share some Spas that you like, you can register spa in system to optimize your business.
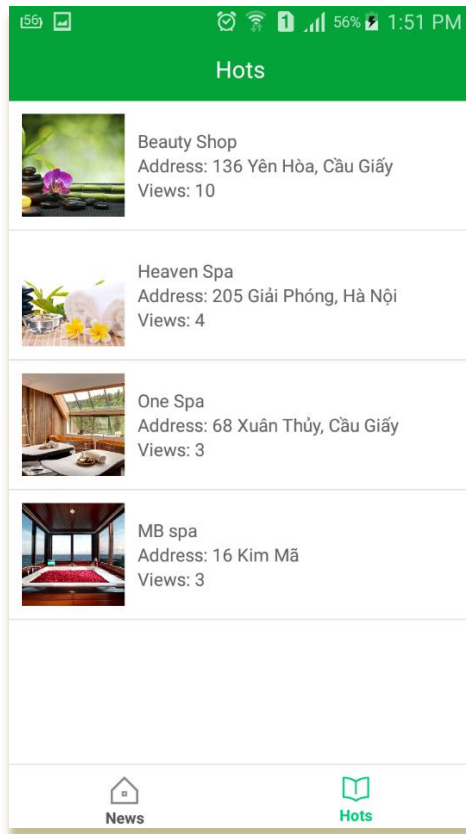
- Application Name: Go2Spa

- Application Icon:
- Main function are News (show all spas in system), Hots (Show all spas accord number of views)
- News
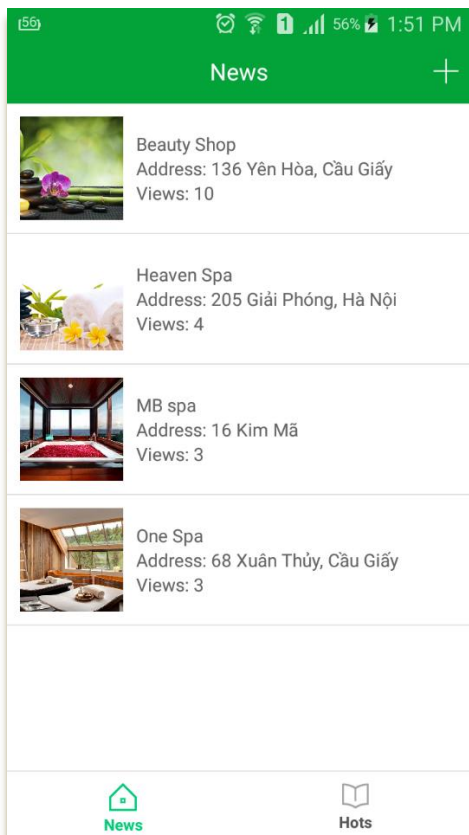
News Tab will show all Spa in system. Each Spa will contain Image of spa, Name, Address and Number of views.

- Hots

Hots Tab will show all spa and order by number of views. Each Spa will contains Image, Name, Address, Number of views.

- Spa Detail

Spa Detail will show all information of Spa such as: Title is name of spa, Image, Number of views, Open (Time to open), Close (Time to close), Address, Map of Spa (show by image), Description, Phone, Email.

- Spa Register

This function allows user can post a spa with some information such as:

- ▪ Image from camera: User can take a photo by camera.
- ▪ Name: Name of spa.
- ▪ Open: time to open.
- ▪ Close: time to close.
- ▪ Address: address of spa.
- ▪ Map: User will long click on the map to make a place of spa.
- ▪ Description: User can input some information at the description place.
- ▪ Phone: number phone to contact with Spa.
- ▪ Email: email of spa.

When user inputs all informations then click on the Register button. This spa will post on the system. If user input not enough information please toast the message "Please input data".

Please use some colors for header (#03A339) and text (#656464).
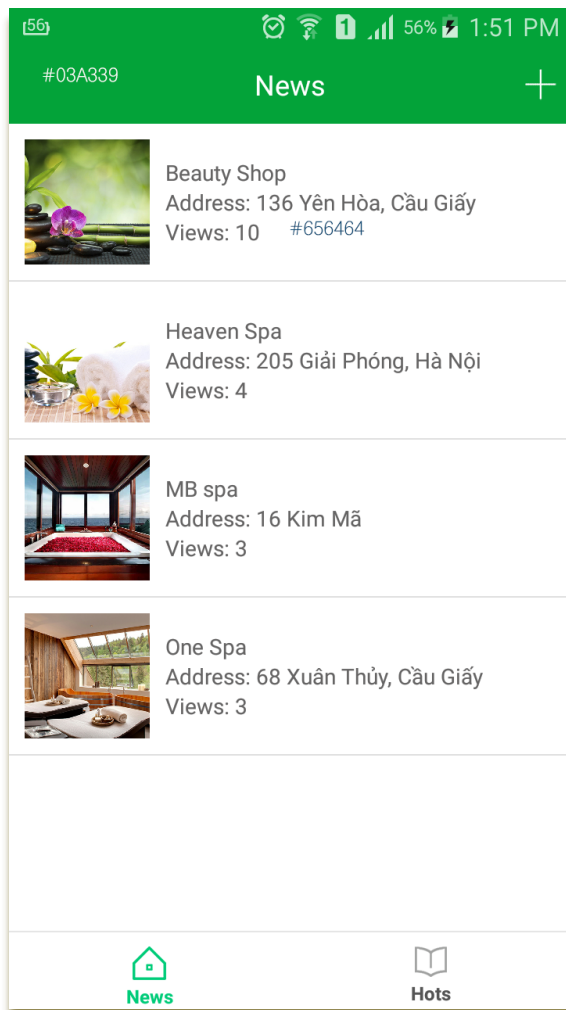
This system will choose Firebase database to save all Spa.

Development the project

- Step1: Create a new project with name is "Go2Spa".
- Step2: Prepare resource
  Copy images at the /Module10/Prepare into mipmap-xh folder.
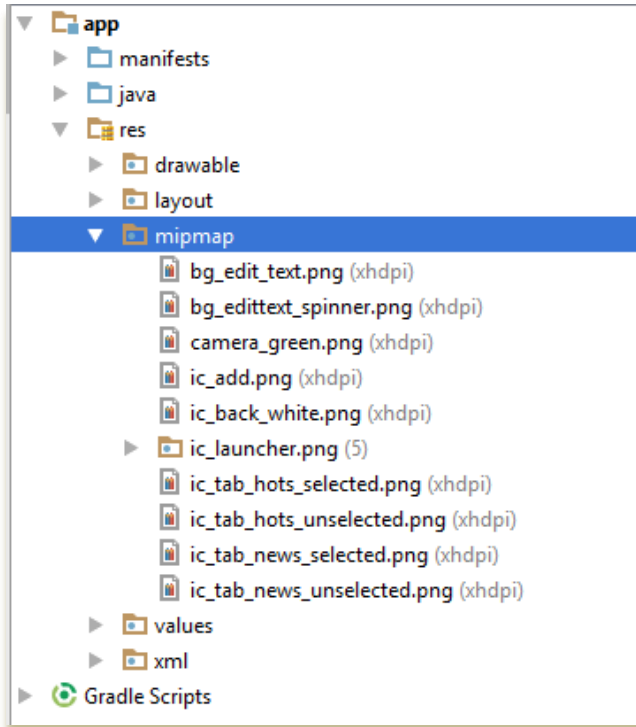
Setup application name and application icon at the AndroidManifest.xml

```xml
<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>
```

Define some string variables: Open the string.xml and add some string values.

```xml
<resources>
    <string name="app_name">Go2Spa</string>
    <string name="register">Register</string>
    <string name="news">News</string>
    <string name="hots">Hots</string>
</resources>
```

Define some color variables: Open the colors.xml file and edit it.

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="colorPrimary">#03A339</color>
    <color name="colorPrimaryDark">#03A339</color>
    <color name="colorAccent">#FF4081</color>

    <color name="colo_white">#ffffff</color>
    <color name="colo_gray">#656464</color>
</resources>
```

Define some dimension variables: Open the dimens.xml and edit it.

```xml
<resources>
    <!-- Default screen margins, per the Android Design guidelines. -->
    <dimen name="activity_horizontal_margin">16dp</dimen>
    <dimen name="activity_vertical_margin">16dp</dimen>

    <dimen name="dimen_5">5dp</dimen>
    <dimen name="dimen_10">10dp</dimen>
    <dimen name="dimen_20">20dp</dimen>
    <dimen name="dimen_30">30dp</dimen>
    <dimen name="dimen_35">35dp</dimen>
    <dimen name="dimen_40">40dp</dimen>
    <dimen name="dimen_45">45dp</dimen>
    <dimen name="dimen_50">50dp</dimen>
    <dimen name="dimen_55">55dp</dimen>

    <dimen name="text_14">14sp</dimen>
    <dimen name="text_16">16sp</dimen>
    <dimen name="text_18">18sp</dimen>

    <dimen name="height_edit_text">45dp</dimen>

</resources>
```

- Step3: Configure google map
    - Go to the google console to create new project
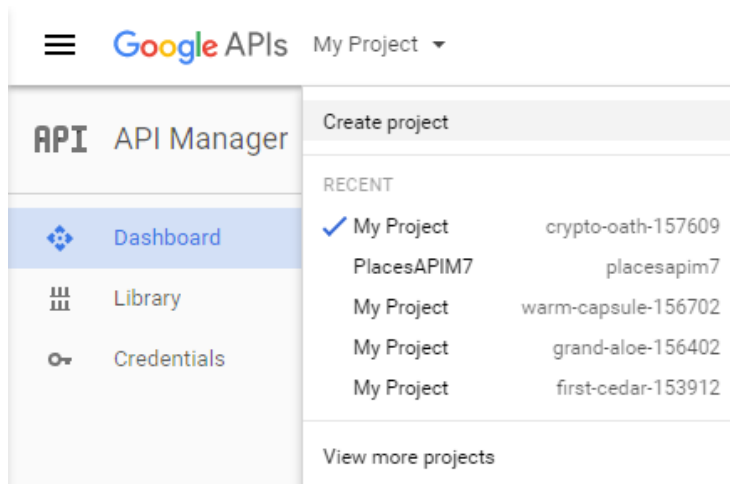
9

Naming is Go2SpaM10

Then select "Google Maps Android API"

We will has API Key
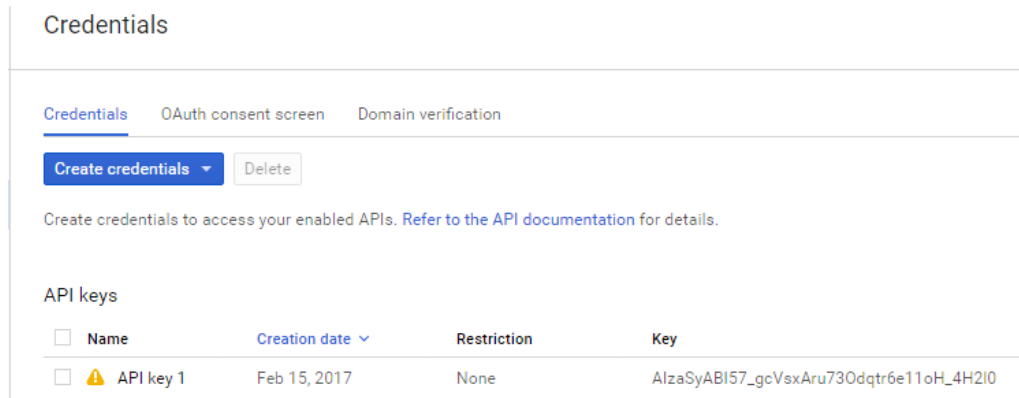
Click on the API key1 to configure for map

The first we will get SHA1 before configuration. Click on the Grade window the select Go2Spa/Tasks/android/singingReport
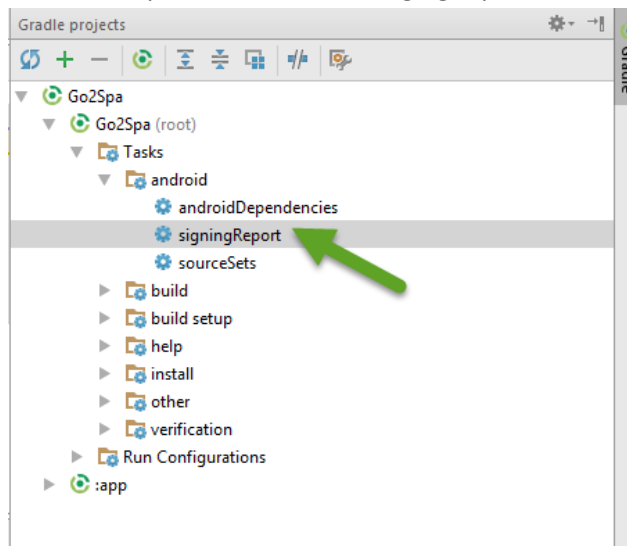
Then we will have SHA1
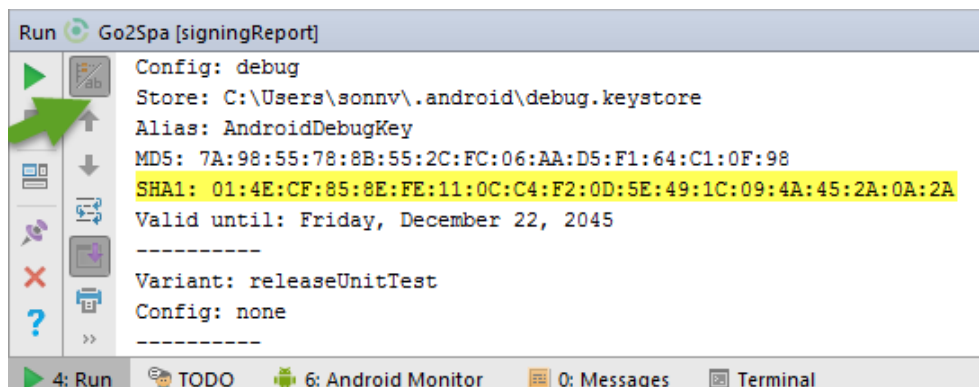
Ok, configure for API Key 1.

Package name is package of the Go2Spa project

- Add the libs to project:

  Open the gradle (module:app) then add play-service

Note: At this step, may be you will have error about multidex, you can fix same as: add support multidex

```
dependencies {
    compile fileTree(include: ['*.jar'], dir: 'libs')
    androidTestCompile('com.android.support.test.espresso:espresso-core:2.2.2', {
        exclude group: 'com.android.support', module: 'support-annotations'
    })
    compile 'com.android.support:appcompat-v7:25.1.1'
    testCompile 'junit:junit:4.12'

    compile 'com.google.android.gms:play-services:10.0.1'

    //multidex
    compile 'com.android.support:multidex:1.0.0'

}
```

Then enable multidex

```
android {
    compileSdkVersion 25
    buildToolsVersion "25.0.0"
    defaultConfig {
        applicationId "com.sonnv1368.go2spa"
        minSdkVersion 15
        targetSdkVersion 25
        versionCode 1
        versionName "1.0"
        multiDexEnabled true
        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
    }
```

And change gradle.properties

```
# Specifies the JVM arguments used for the daemon process.
# The setting is particularly useful for tweaking memory settings.
org.gradle.jvmargs=-Xmx2048m -XX:MaxPermSize=512m -XX:+HeapDumpOnOutOfMemoryError -Dfile.encoding=UTF-8

# When configured, Gradle will run in incubating parallel mode.
# This option should only be used with decoupled projects. More details, visit
# http://www.gradle.org/docs/current/userguide/multi_project_builds.html#sec:decoupled_projects
# org.gradle.parallel=true
```

- Configuration at the AndroidManifest.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.sonnv1368.go2spa">

    <uses-feature
        android:glEsVersion="0x00020000"
        android:required="true"></uses-feature>

    <permission android:name="com.sonnv1368.go2spa.permission.MAPS_RECEIVE" />

    <uses-permission android:name="com.sonnv1368.go2spa.permission.MAPS_RECEIVE" />
    <uses-permission android:name="android.permission.INTERNET" />
    <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
    <uses-permission android:name="com.google.android.providers.gsf.permission.READ_GSERVICES" />


    <application...>

</manifest>
```

Please note "com.sonnv1368.go2spa." is package name
Then add API key for map

Now we can use the map function of the Google.

- Step4: Configure firebase and firebase database to store data
  Firebase Realtime database is a cloud hosted database that supports multiple platforms Android, iOS and Web. All the data is stored in JSON format and any changes in data, reflects immediately by performing a sync across all the platforms & devices. This allows us to build more flexible realtime apps easily with minimal effort.
  - Go to the firebase console (https://console.firebase.google.com) to create a project or import the project
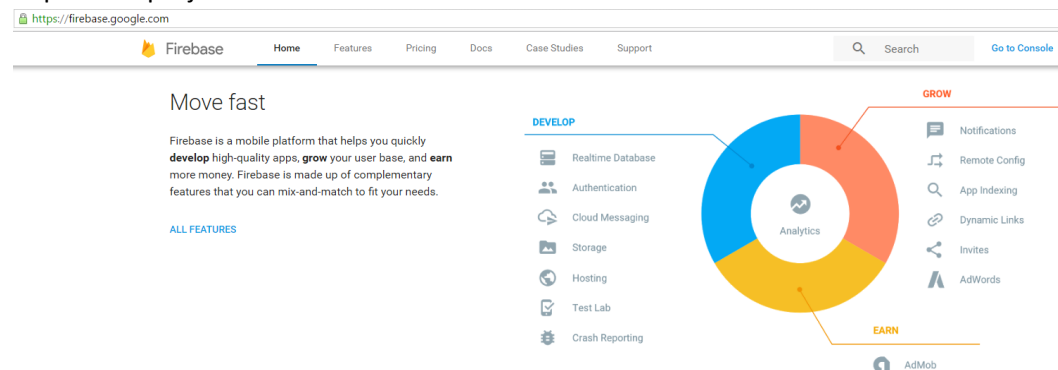
Click go to console
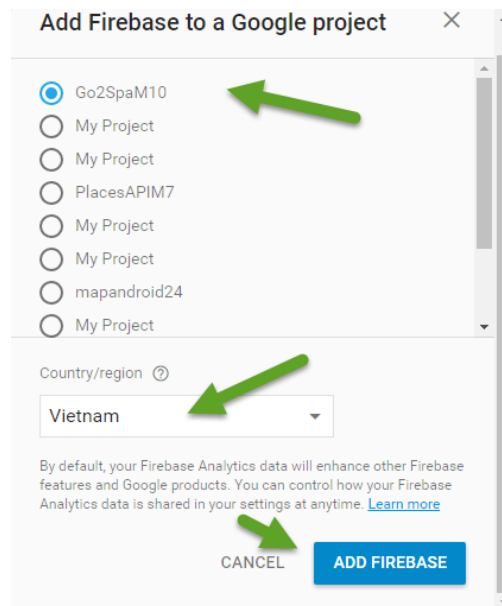
Welcome to Firebase

Tools from Google for developing great apps,
engaging with your users, and earning more through
mobile ads. Learn more

CREATE NEW PROJECT

or import a Google project

Click on the "or import a Google project". Because we have already created the Go2SpaM10 on the Google console for map.

Add Firebase to a Google project
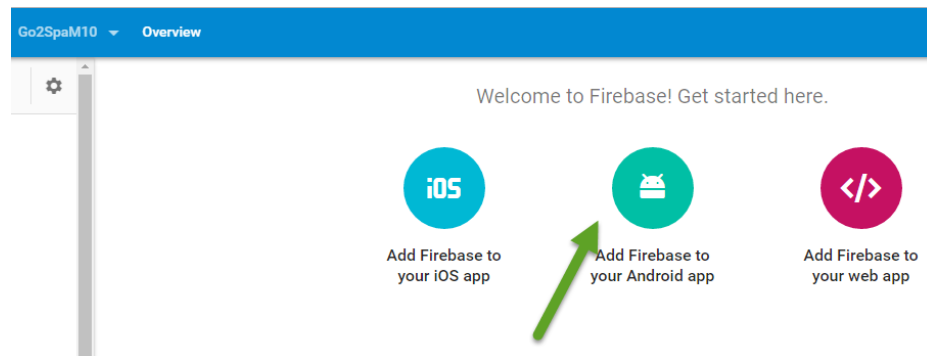
- ⦿ Go2SpaM10
- ○ My Project
- ○ My Project
- ○ PlacesAPIM7
- ○ My Project
- ○ My Project
- ○ mapandroid24
- ○ My Project

Country/region ⓘ

Vietnam

By default, your Firebase Analytics data will enhance other Firebase features and Google products. You can control how your Firebase Analytics data is shared in your settings at anytime. Learn more

CANCEL   **ADD FIREBASE**

Choose Go2SpaM10 and Vietnam then click on the "ADD FIREBASE"

Go2SpaM10 ▼   Overview

Welcome to Firebase! Get started here.

iOS
Add Firebase to
your iOS app

Add Firebase to
your Android app

</>
Add Firebase to
your web app

15

Choose "Add Firebase to your Android app"

At here we have to input some information about project: Package name, SHA1 that we have had at above part.

Then click on the "ADD APP".

We will have a google-services.json file. Please copy this file and paste to Go2Spa project at Android Studio
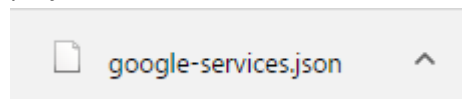
Click on the Android to switch to Project
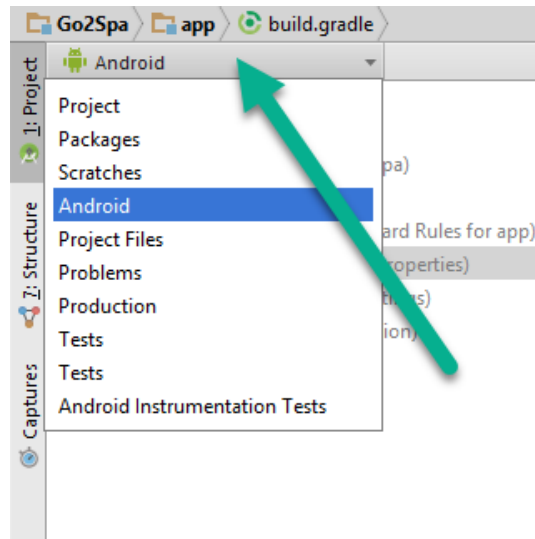
Then right-click on the "app", select Paste
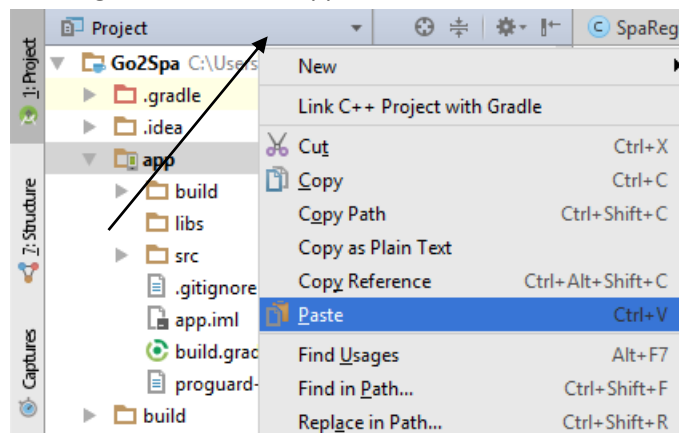
Configure at the build.gradle

Open the build.gradle (Project:Go2Spa) and configure like above image.

Open the build.gradle(module:app)

```
dependencies {
    compile fileTree(include: ['*.jar'], dir: 'libs')
    androidTestCompile('com.android.support.test.espresso:espresso-core:2.2.2', {
        exclude group: 'com.android.support', module: 'support-annotations'
    })
    compile 'com.android.support:appcompat-v7:25.1.1'
    testCompile 'junit:junit:4.12'
    compile 'com.google.android.gms:play-services:10.0.1'
    compile 'com.squareup.picasso:picasso:2.5.2'
    compile 'com.android.support:multidex:1.0.0'

    //use firebase real time database
    compile 'com.google.firebase:firebase-database:10.0.1'
    // Add to the bottom of the file
    apply plugin: 'com.google.gms.google-services'
}
```

Then click on the "FINISH" button to finish addition firebase to android project

- Configure Realtime Database
  Go to the Database
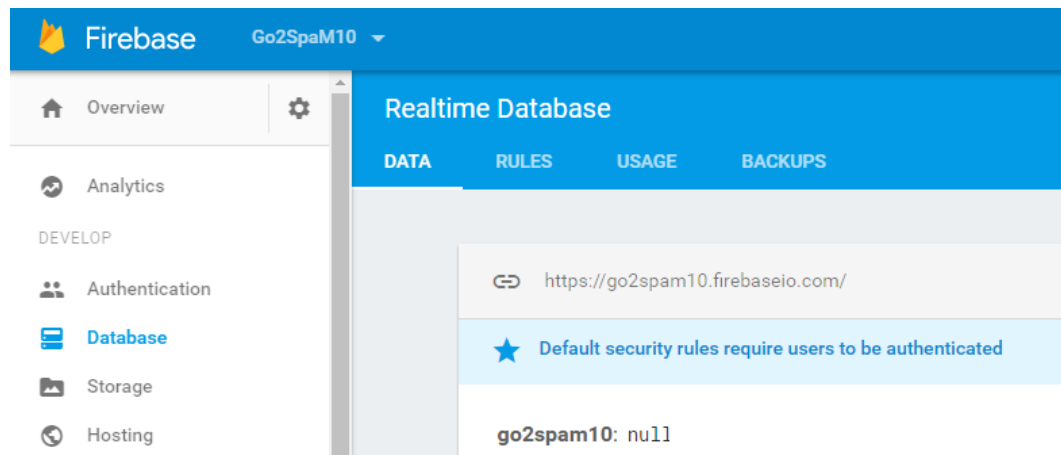
Select RULES tab
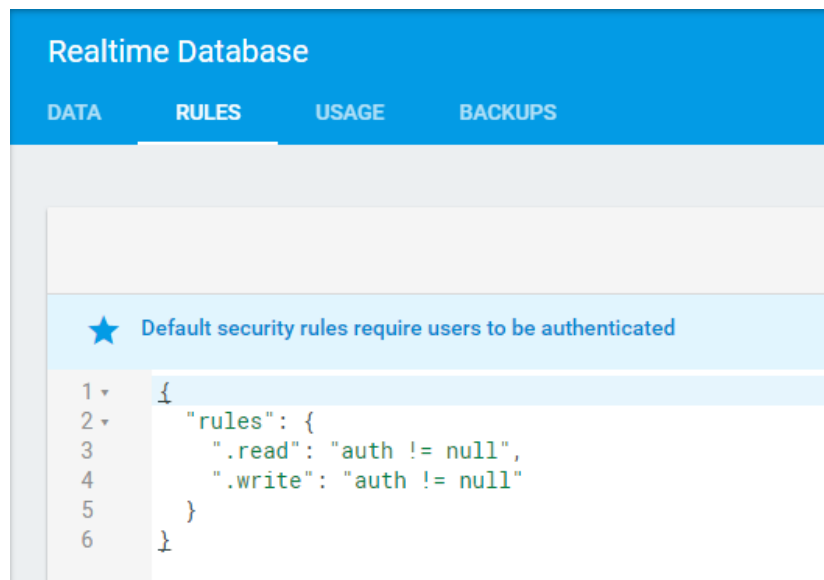
Then change .read and .write and click on the "publish" button
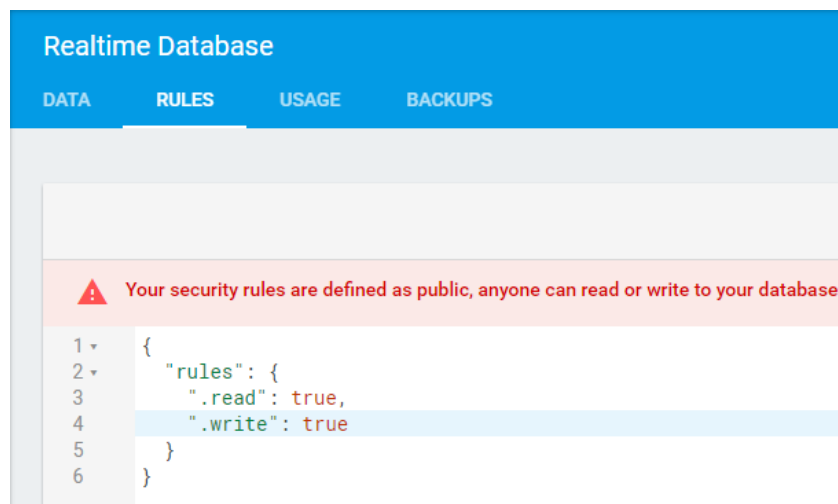
Now, We can to work with firebase and firebase database

- Step5: Build News screen
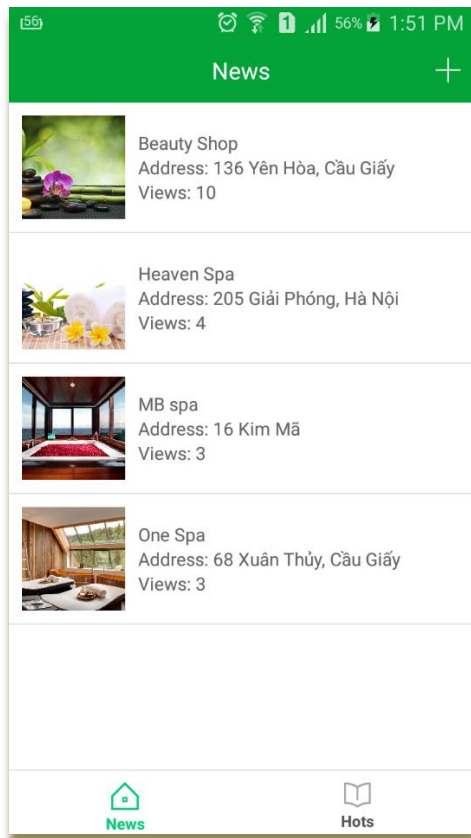
- Define fragment_news.xml: Create a fragment_news.xml file

```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:background="@color/colo_white"
    android:orientation="vertical">

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:background="@color/colorPrimary">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:text="News"
            android:textColor="@color/colo_white"
            android:textSize="18sp" />
```

```xml
        <ImageView
            android:id="@+id/imgAddSpa"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentRight="true"
            android:layout_centerVertical="true"
            android:layout_marginRight="10dp"
            android:src="@mipmap/ic_add" />
    </RelativeLayout>

    <ListView
        android:id="@+id/lvSpa"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />

</LinearLayout>
```

- Handle NewsSpaFragment class
  Create list spa
    - Create layout file for item Spa : item_spa.xml

```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="wrap_content"
    android:orientation="horizontal"
    android:padding="@dimen/dimen_10">

    <ImageView
        android:id="@+id/imgSpaImage"
        android:layout_width="80dp"
        android:layout_height="80dp"
        android:scaleType="centerCrop" />

    <LinearLayout
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginLeft="@dimen/dimen_10"
        android:layout_marginRight="@dimen/dimen_10"
        android:layout_weight="1"
        android:gravity="center_vertical"
        android:orientation="vertical">

        <TextView
            android:id="@+id/tvSpaName"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Storm Spa"
            android:textColor="@color/colo_gray" />
```

```xml
        <TextView
            android:id="@+id/tvSpaAddress"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginBottom="5dp"
            android:layout_marginTop="5dp"
            android:text="Address: 68 Yen Hoa, Cau Giay"
            android:textColor="@color/colo_gray" />

        <TextView
            android:id="@+id/tvSpaViews"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Views: 1368"
            android:textColor="@color/colo_gray" />

    </LinearLayout>
</LinearLayout>
```

- Create Spa object: Create a new package with name is model, then create a Spa class
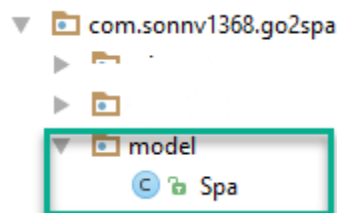

```java
public class Spa {
    private String spaID;
    private String spaImage;
    private String spaName;
    private String spaAddress;
    private int spaViews;
    private String spaLocation;
    private String spaDescription;
    private String spaOpen;
    private String spaClose;
    private String spaPhone;
    private String spaEmail;

    public Spa() {
    }

    public Spa(String spaID, String spaImage, String spaName, String spaAddress,
               int spaViews, String spaLocation, String spaDescription,
               String spaOpen, String spaClose, String spaPhone, String spaEmail) {
        this.spaID = spaID;
        this.spaImage = spaImage;
        this.spaName = spaName;
        this.spaAddress = spaAddress;
        this.spaViews = spaViews;
        this.spaLocation = spaLocation;
        this.spaDescription = spaDescription;
        this.spaOpen = spaOpen;
        this.spaClose = spaClose;
        this.spaPhone = spaPhone;
        this.spaEmail = spaEmail;
    }
}
```

```java
        public String getSpaID() { return spaID; }

        public void setSpaID(String spaID) { this.spaID = spaID; }

        public String getSpaImage() { return spaImage; }

        public void setSpaImage(String spaImage) { this.spaImage = spaImage; }

        public String getSpaName() { return spaName; }

        public void setSpaName(String spaName) { this.spaName = spaName; }

        public String getSpaAddress() { return spaAddress; }

        public void setSpaAddress(String spaAddress) { this.spaAddress = spaAddress; }

        public int getSpaViews() { return spaViews; }

        public void setSpaViews(int spaViews) { this.spaViews = spaViews; }

        public String getSpaLocation() { return spaLocation; }

        public void setSpaLocation(String spaLocation) { this.spaLocation = spaLocation; }

        public String getSpaDescription() { return spaDescription; }

        public void setSpaDescription(String spaDescription) { this.spaDescription = spaDescription; }

        public String getSpaOpen() { return spaOpen; }

        public void setSpaOpen(String spaOpen) { this.spaOpen = spaOpen; }

        public String getSpaClose() { return spaClose; }

        public void setSpaClose(String spaClose) { this.spaClose = spaClose; }

        public String getSpaPhone() { return spaPhone; }

        public void setSpaPhone(String spaPhone) { this.spaPhone = spaPhone; }

        public String getSpaEmail() { return spaEmail; }

        public void setSpaEmail(String spaEmail) { this.spaEmail = spaEmail; }
}
```

- Create Adapter for Spa: Create a new package with name is adapter and create a new class is SpaAdapter
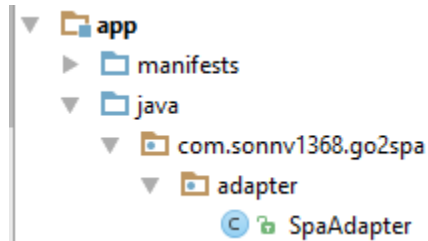
```java
public class SpaAdapter extends ArrayAdapter<Spa> {
    private List<Spa> spaList;
    private LayoutInflater inflater;

    public SpaAdapter(Context context, int resource, List<Spa> objects) {
        super(context, resource, objects);

        this.spaList = objects;
        this.inflater = (LayoutInflater) context.getSystemService(Context.LAYOUT_INFLATER_SERVICE);
    }

    @NonNull
    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        ViewHolder holder;
        if (convertView == null) {
            holder = new ViewHolder();
            convertView = inflater.inflate(R.layout.item_spa, parent, false);

            holder.imgSpaImage = (ImageView) convertView.findViewById(R.id.imgSpaImage);
            holder.tvSpaName = (TextView) convertView.findViewById(R.id.tvSpaName);
            holder.tvSpaAddress = (TextView) convertView.findViewById(R.id.tvSpaAddress);
            holder.tvSpaViews = (TextView) convertView.findViewById(R.id.tvSpaViews);

            convertView.setTag(holder);
        } else {
            holder = (ViewHolder) convertView.getTag();
        }
        Spa spa = spaList.get(position);

        holder.tvSpaName.setText(spa.getSpaName());
        holder.tvSpaAddress.setText("Address: " + spa.getSpaAddress());
        holder.tvSpaViews.setText("Views: " + spa.getSpaViews());

        try {
            Bitmap imageBitmap = decodeFromFireBaseBase64(spa.getSpaImage());
            holder.imgSpaImage.setImageBitmap(imageBitmap);
        } catch (IOException e) {
            e.printStackTrace();
        }

        return convertView;
    }

    public static class ViewHolder {
        public ImageView imgSpaImage;
        public TextView tvSpaName;
        public TextView tvSpaAddress;
        public TextView tvSpaViews;
    }


    public static Bitmap decodeFromFireBaseBase64(String image) throws IOException {
        byte[] decodedByteArray = android.util.Base64.decode(image, Base64.DEFAULT);
        return BitmapFactory.decodeByteArray(decodedByteArray, 0, decodedByteArray.length);
    }
}
```

In this class we have the decodeFromFireBase64 to convert data of image to bitmap to set up for image of Spa.

25

- Handle at NewsSpaFragment class: Create the NewsSpaFragment class

```java
public class NewsFragment extends Fragment implements
        AdapterView.OnItemClickListener, View.OnClickListener {

    private ListView lvSpa;
    private SpaAdapter spaAdapter;
    private ArrayList<Spa> spaList;

    private ImageView imgAddSpa;

    //to work with fire base real time database
    private DatabaseReference spaReference;

    @Nullable
    @Override
    public View onCreateView(LayoutInflater inflater, @Nullable ViewGroup container,
                             @Nullable Bundle savedInstanceState) {
        View root = inflater.inflate(R.layout.fragment_news, container, false);

        imgAddSpa = (ImageView) root.findViewById(R.id.imgAddSpa);
        imgAddSpa.setOnClickListener(this);

        lvSpa = (ListView) root.findViewById(R.id.lvSpa);
        spaList = new ArrayList<>();
        spaAdapter = new SpaAdapter(getContext(), R.layout.item_spa, spaList);

        lvSpa.setAdapter(spaAdapter);
        lvSpa.setOnItemClickListener(this);

        //initial fire base real time database
        FirebaseDatabase firebaseDatabase = FirebaseDatabase.getInstance();
        spaReference = firebaseDatabase.getReference("go2spam10");

        getListNewsSpa();

        return root;
    }


    /**
     * Get list news spa
     */
    private void getListNewsSpa() {
        spaReference.addValueEventListener(new ValueEventListener() {
            @Override
            public void onDataChange(DataSnapshot dataSnapshot) {
                spaList.clear();
                for (DataSnapshot postSnapshot: dataSnapshot.getChildren()) {
                    Spa spa = postSnapshot.getValue(Spa.class);
                    spaList.add(spa);
                }
                spaAdapter.notifyDataSetChanged();
            }

            @Override
            public void onCancelled(DatabaseError databaseError) {

            }
        });


    }
```

```java
@Override
public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
    //TODO go to the Detail Screen

}

@Override
public void onClick(View v) {
    //TODO go to Register Screen

}
```

onItemClick method will handle to go to Detail screen (click on the spa)

onClick method will handle to add a new Spa (click on the add button)

- Step6: Build Hots screen
  - Define fragment_hots.xml: Create a fragment_hots.xml

```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:background="@color/colo_white"
    android:orientation="vertical">

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:background="@color/colorPrimary">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:text="Hots"
            android:textColor="@color/colo_white"
            android:textSize="18sp" />
    </RelativeLayout>

    <ListView
        android:id="@+id/lvSpa"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />

</LinearLayout>
```

  - Handle HotsSpaFragment class: Create a HotsSpaFragment class

```java
public class HotsFragment extends Fragment implements AdapterView.OnItemClickListener {
    private ListView lvSpa;
    private SpaAdapter spaAdapter;
    private ArrayList<Spa> spaList;
    // work with fire base real time database
    private DatabaseReference spaReference;

    @Nullable
    @Override
    public View onCreateView(LayoutInflater inflater, @Nullable ViewGroup container
            , @Nullable Bundle savedInstanceState) {
        View root = inflater.inflate(R.layout.fragment_hots, container, false);

        lvSpa = (ListView) root.findViewById(R.id.lvSpa);
        spaList = new ArrayList<>();
        spaAdapter = new SpaAdapter(getContext(), R.layout.item_spa, spaList);
        lvSpa.setAdapter(spaAdapter);
        lvSpa.setOnItemClickListener(this);

        //initial fire base real time database
        FirebaseDatabase firebaseDatabase = FirebaseDatabase.getInstance();
        spaReference = firebaseDatabase.getReference("go2spam10");

        //get list hot spas
        getHotSpas();

        return root;
    }

    /**
     * get hot spas
     */
    private void getHotSpas() {
        Query myTopPostsQuery = spaReference.orderByChild("spaViews");
        myTopPostsQuery.addValueEventListener(new ValueEventListener() {
            @Override
            public void onDataChange(DataSnapshot dataSnapshot) {
                spaList.clear();
                ArrayList<Spa> spas = new ArrayList<Spa>();
                for (DataSnapshot postSnapshot : dataSnapshot.getChildren()) {
                    Spa spa = postSnapshot.getValue(Spa.class);
                    spas.add(spa);
                }
                //reorder spa list
                for (int i = spas.size() - 1; i >= 0; i--) {
                    spaList.add(spas.get(i));
                }
                spaAdapter.notifyDataSetChanged();
            }

            @Override
            public void onCancelled(DatabaseError databaseError) {
            }
        });
    }
```

```
        @Override
]       public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
            //TODO go to detail screen
]       }
}
```

The onItemClick method handles events when user clicks on the item of hot spa list.
The getHotSpas method gets all hot spas those are order by number of views.

- Step7: Build Main screen contains two tabs (First tab is News, Second tab is Hots)
  This screen we use FragmentTabHost, it will show two tabs.
  - Define activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.v4.app.FragmentTabHost
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@android:id/tabhost"
    android:layout_width="match_parent"
    android:background="@color/colo_white"
    android:layout_height="match_parent"
    tools:context="com.sonnv1368.go2spa.MainActivity">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical">

        <FrameLayout
            android:id="@android:id/tabcontent"
            android:layout_width="match_parent"
            android:layout_height="0dp"
            android:layout_weight="1" />

        <TabWidget
            android:id="@android:id/tabs"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" />

    </LinearLayout>
</android.support.v4.app.FragmentTabHost>
```
  - Handle MainActivity class
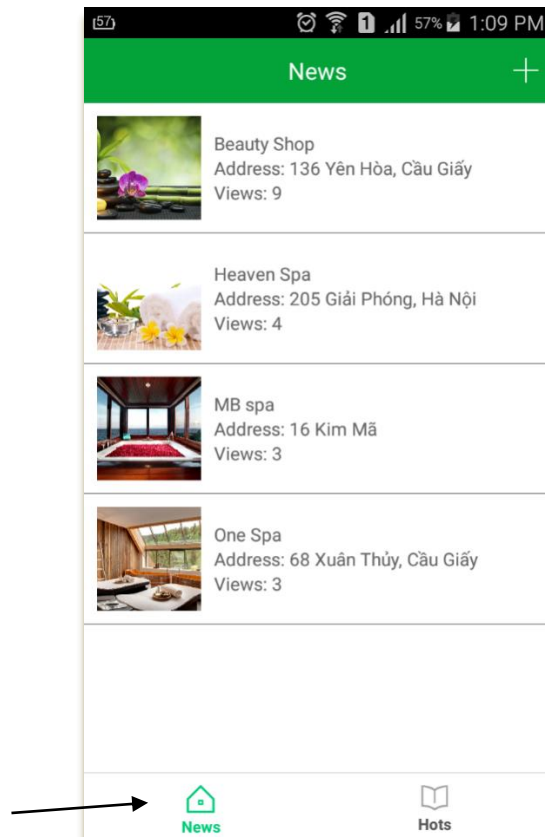
The Widget of FragmentTabHost contains an icon and a title. So we have to design layout file for widget.

```xml
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical">

    <View
        android:layout_width="match_parent"
        android:layout_height="1dp"
        android:background="#e5e5e5" />

    <TextView
        android:id="@+id/titleTab"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/imgTab"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="2dp"
        android:textColor="@color/colo_gray"
        android:textSize="12sp"
        android:textStyle="bold" />

    <ImageView
        android:id="@+id/imgTab"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="10dp" />
</RelativeLayout>
```

Process action when user selects one tab, that's tabwidget change color. Create a folder xml

- Right click on the res folder then select new/directory and make name is xml
- Create a xml file with name tabhost_change_text_color.xml
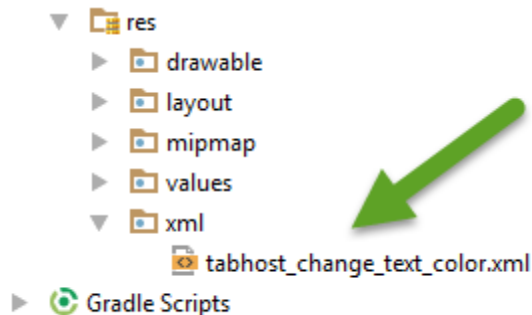

```xml
<?xml version="1.0" encoding="utf-8"?>
<selector xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:color="#03A339" android:state_selected="true" />
    <item android:color="#03A339" android:state_pressed="true" />
    <item android:color="#656464" />
</selector>
```

▪ Right click on the res folder then select new/directory and make name is drawable

Create two files with name ic_widget_news.xml and ic_widget_hots.xml


```xml
<?xml version="1.0" encoding="utf-8"?>
<selector xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:drawable="@mipmap/ic_tab_news_selected"
        android:state_selected="true" />
    <item
        android:drawable="@mipmap/ic_tab_news_selected"
        android:state_pressed="true" />
    <item
        android:drawable="@mipmap/ic_tab_news_unselected" />
</selector>
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<selector xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:drawable="@mipmap/ic_tab_hots_selected"
        android:state_selected="true"/>
    <item
        android:drawable="@mipmap/ic_tab_hots_selected"
        android:state_pressed="true"/>
    <item
        android:drawable="@mipmap/ic_tab_hots_unselected"/>
</selector>
```

Process at the MainActivity class

```java
public class MainActivity extends FragmentActivity {
    private FragmentTabHost fragmentTabHost;

    public static final String TILE_NEWS = "News";
    public static final String TILE_HOTS = "Hots";

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

        setupTab();
    }

    /**
     * Create TabHost with two tabs
     */
    private void setupTab() {
        fragmentTabHost = (FragmentTabHost) findViewById(android.R.id.tabhost);
        fragmentTabHost.setup(this, getSupportFragmentManager(), android.R.id.tabcontent);

        fragmentTabHost.addTab(
                fragmentTabHost.newTabSpec("news")
                        .setIndicator(getTabIndicator(this, TILE_NEWS, R.drawable.ic_widget_news)),
                NewsFragment.class, null);

        fragmentTabHost.addTab(
                fragmentTabHost.newTabSpec("hots")
                        .setIndicator(getTabIndicator(this, TILE_HOTS, R.drawable.ic_widget_hots)),
                HotsFragment.class, null);
    }

    /**
     * Create custome tab widget
     *
     * @param context
     * @param title
     * @param icon
     * @return View
     */
    private View getTabIndicator(Context context, String title, int icon) {
        View view = LayoutInflater.from(context).inflate(R.layout.item_widget, null);

        ImageView iv = (ImageView) view.findViewById(R.id.imgTab);
        iv.setImageResource(icon);
        TextView tvTextIndicator = (TextView) view.findViewById(R.id.titleTab);

        tvTextIndicator.setText(title);
        XmlResourceParser xrp = getResources().getXml(R.xml.tabhost_change_text_color);
        try {
            ColorStateList csl = ColorStateList.createFromXml(getResources(), xrp);
            tvTextIndicator.setTextColor(csl);
        } catch (Exception e) {
            e.printStackTrace();
        }
        return view;
    }
}
```

- Step8: Build Spa Register screen
    - Define activity_spa_register.xml

      This layout xml file contains so many views, so we will split to two parts: Header contains icon back and title, Body contains some views remain.
        - Before design this layout we will customize the SupportMapFragment class to help easy control map when the google map in ScrollView.

          Create a new package is widgets and create a class is WorkaroundMapFragment

```
▼ ☐ java
  ▼ ☐ com.sonnv1368.go2spa
    ▶ ☐ adapter
    ▶ ☐ common
    ▶ ☐ model
    ▼ ☐ widgets
         Ⓒ ⬆ WorkaroundMapFragment
```
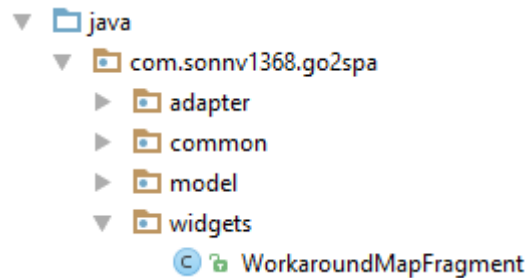
WorkaroundMapFragment class

```java
public class WorkaroundMapFragment extends SupportMapFragment {
    private OnTouchListener mListener;

    @Override
    public View onCreateView(LayoutInflater layoutInflater,
                             ViewGroup viewGroup, Bundle savedInstance) {
        View layout = super.onCreateView(layoutInflater, viewGroup, savedInstance);

        TouchableWrapper frameLayout = new TouchableWrapper(getActivity());

        frameLayout.setBackgroundColor(getResources().getColor(android.R.color.transparent));

        ((ViewGroup) layout).addView(frameLayout,
                new ViewGroup.LayoutParams(
                        ViewGroup.LayoutParams.MATCH_PARENT,
                        ViewGroup.LayoutParams.MATCH_PARENT));

        return layout;
    }
}
```

```java
    public void setListener(OnTouchListener listener) {
        mListener = listener;
    }

    public interface OnTouchListener {
        public abstract void onTouch();
    }

    public class TouchableWrapper extends FrameLayout {

        public TouchableWrapper(Context context) { super(context); }

        @Override
        public boolean dispatchTouchEvent(MotionEvent event) {
            switch (event.getAction()) {
                case MotionEvent.ACTION_DOWN:
                    mListener.onTouch();
                    break;
                case MotionEvent.ACTION_UP:
                    mListener.onTouch();
                    break;
            }
            return super.dispatchTouchEvent(event);
        }
    }
}
```

- Define body part: create a layout file with name is inc_spa_register.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<ScrollView
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/scrollView"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <LinearLayout
        android:id="@+id/lnInformation"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="@dimen/dimen_10">

        <RelativeLayout
            android:layout_width="match_parent"
            android:layout_height="200dp"
            android:background="@color/colo_gray">

            <ImageView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_centerInParent="true"
                android:scaleType="centerInside"
                android:src="@mipmap/camera_green" />

            <ImageView
                android:id="@+id/imgSpaImage"
                android:layout_width="match_parent"
```

```xml
                        android:layout_height="match_parent"
                        android:layout_centerInParent="true"
                        android:src="@android:color/transparent" />
            </RelativeLayout>

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="@dimen/dimen_10"
                android:gravity="center_vertical"
                android:orientation="horizontal">

                <TextView
                    android:layout_width="0dp"
                    android:layout_height="wrap_content"
                    android:layout_weight="0.3"
                    android:text="Name"
                    android:textColor="@color/colo_gray"
                    android:textSize="@dimen/text_16" />

                <EditText
                    android:id="@+id/edName"
                    android:layout_width="0dp"
                    android:layout_height="@dimen/height_edit_text"
                    android:layout_weight="0.7"
                    android:background="@mipmap/bg_edit_text"
                    android:maxLines="1"
                    android:paddingLeft="@dimen/dimen_10"
                    android:textColor="@color/colo_gray" />
            </LinearLayout>

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="@dimen/dimen_10"
                android:gravity="center_vertical"
                android:orientation="horizontal">

                <TextView
                    android:layout_width="0dp"
                    android:layout_height="match_parent"
                    android:layout_gravity="center_vertical"
                    android:layout_weight="0.3"
                    android:gravity="center_vertical"
                    android:text="Open"
                    android:textColor="@color/colo_gray"
                    android:textSize="@dimen/text_16" />

                <LinearLayout
                    android:layout_width="0dp"
                    android:layout_height="wrap_content"
                    android:layout_weight="0.7"
                    android:background="@mipmap/bg_edittext_spinner"
                    android:gravity="center_vertical"
```

```xml
                android:orientation="horizontal">

            <Spinner
                android:id="@+id/spinnerOpen"
                android:layout_width="match_parent"
                android:layout_height="@dimen/height_edit_text"
                android:background="@android:color/transparent" />
        </LinearLayout>
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:gravity="center_vertical"
        android:orientation="horizontal">

        <TextView
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_gravity="center_vertical"
            android:layout_weight="0.3"
            android:gravity="center_vertical"
            android:text="Close"
            android:textColor="@color/colo_gray"
            android:textSize="@dimen/text_18" />
        <LinearLayout
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="0.7"
            android:background="@mipmap/bg_edittext_spinner"
            android:gravity="center_vertical"
            android:orientation="horizontal">

            <Spinner
                android:id="@+id/spinnerClose"
                android:layout_width="match_parent"
                android:layout_height="@dimen/height_edit_text"
                android:background="@android:color/transparent" />
        </LinearLayout>
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="@dimen/dimen_10"
        android:gravity="center_vertical"
        android:orientation="horizontal">

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="0.3"
            android:text="Address"
```

```xml
                        android:textColor="@color/colo_gray"
                        android:textSize="@dimen/text_16" />

                <LinearLayout
                    android:layout_width="0dp"
                    android:layout_height="@dimen/height_edit_text"
                    android:layout_weight="0.7"
                    android:background="@mipmap/bg_edit_text"
                    android:gravity="center_vertical"
                    android:orientation="horizontal">

                    <EditText
                        android:id="@+id/edAddress"
                        android:layout_width="0dp"
                        android:layout_height="@dimen/height_edit_text"
                        android:layout_weight="1"
                        android:background="@android:color/transparent"
                        android:maxLines="1"
                        android:paddingLeft="@dimen/dimen_10"
                        android:paddingRight="@dimen/dimen_5"
                        android:textColor="@color/colo_gray" />

                    <ImageView
                        android:id="@+id/imgSearchPlace"
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:paddingRight="@dimen/dimen_10"
                        android:src="@android:drawable/ic_menu_search" />
                </LinearLayout>

            </LinearLayout>

            <fragment
                android:id="@+id/mapShop"
                class="com.sonnv1368.go2spa.widgets.WorkaroundMapFragment"
                android:layout_width="match_parent"
                android:layout_height="200dp"
                android:layout_marginTop="@dimen/dimen_10" />

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="@dimen/dimen_10"
                android:orientation="horizontal">
```

```xml
    <TextView
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="0.3"
        android:text="Description"
        android:textColor="@color/colo_gray"
        android:textSize="16sp" />

    <LinearLayout
        android:layout_width="0dp"
        android:layout_height="200dp"
        android:layout_weight="0.7"
        android:background="@android:drawable/editbox_background">

        <EditText
            android:id="@+id/edDescription"
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:background="@android:color/transparent"
            android:gravity="top|left"
            android:textColor="@color/colo_gray" />
    </LinearLayout>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="@dimen/dimen_10"
    android:gravity="center_vertical"
    android:orientation="horizontal">

    <TextView
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="0.3"
        android:text="Phone"
        android:textColor="@color/colo_gray"
        android:textSize="16sp" />

    <EditText
        android:id="@+id/edPhone"
        android:layout_width="0dp"
        android:layout_height="@dimen/height_edit_text"
        android:layout_weight="0.7"
        android:background="@mipmap/bg_edit_text"
        android:inputType="phone"
        android:maxLines="1"
        android:paddingLeft="@dimen/dimen_10"
        android:textColor="@color/colo_gray" />
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="@dimen/dimen_10"
    android:gravity="center_vertical"
    android:orientation="horizontal">
```

```xml
        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="0.3"
            android:text="Email"
            android:textColor="@color/colo_gray"
            android:textSize="16sp" />

        <EditText
            android:id="@+id/edEmail"
            android:layout_width="0dp"
            android:layout_height="@dimen/height_edit_text"
            android:layout_weight="0.7"
            android:background="@mipmap/bg_edit_text"
            android:inputType="textEmailAddress"
            android:maxLines="1"
            android:paddingLeft="@dimen/dimen_10"
            android:textColor="@color/colo_gray" />

    </LinearLayout>

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

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="0.3" />

        <Button
            android:id="@+id/btRegister"
            android:layout_width="0dp"
            android:layout_height="@dimen/dimen_40"
            android:layout_marginTop="20dp"
            android:layout_weight="0.7"
            android:background="@color/colorPrimary"
            android:paddingLeft="@dimen/dimen_10"
            android:paddingRight="@dimen/dimen_10"
            android:text="Register"
            android:textColor="@color/colo_white" />
    </LinearLayout>
    </LinearLayout>
</ScrollView>
```

- Define activity_spa_register.xml: We will include inc_spa_register.xml

40

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/colo_white">

    <RelativeLayout
        android:id="@+id/rlHeader"
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:background="@color/colorPrimary"
        android:orientation="horizontal">

        <ImageView
            android:id="@+id/imgBack"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerVertical="true"
            android:layout_marginLeft="10dp"
            android:src="@mipmap/ic_back_white" />

        <TextView
            android:id="@+id/tvTitleHeader"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:text="Register"
            android:textColor="@color/colo_white"
            android:textSize="18sp" />
    </RelativeLayout>

    <include
        layout="@layout/inc_spa_register"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/rlHeader" />
</RelativeLayout>
```

- Handle SpaRegisterActivity class
  At this screen we have to control to show map, user use long click to add theirs spa, click on the imgSpaImage will take a photo from camera. Time to open or close from 00:00 to 23:00, Default place to view map is "21.027534, 105.834215".

41

```java
public class SpaRegisterActivity extends FragmentActivity implements
        View.OnClickListener, OnMapReadyCallback, GoogleMap.OnMapLongClickListener {
    private ImageView imgBack;
    private ImageView imgSpaImage;
    private EditText edName;
    private EditText edAddress;
    private ImageView imgSearchPlace;
    private EditText edDescription;
    private EditText edPhone;
    private EditText edEmail;
    private Button btRegister;

    private Spinner spinnerOpen;
    private Spinner spinnerClose;
    private String[] times = {"00:00", "01:00", "02:00", "03:00", "04:00",
            "05:00", "06:00", "07:00", "08:00", "09:00", "10:00", "11:00",
            "12:00", "13:00", "14:00", "15:00", "16:00", "17:00", "18:00",
            "19:00", "20:00", "21:00", "22:00", "23:00"};
    private ScrollView mScrollView;
    private GoogleMap mMap;
    private Bitmap spaImageBitmap = null;
    private String spaLocation;
    private LatLng hanoiLocation = new LatLng(21.027534, 105.834215);

    private static final int REQUEST_CAPTURE = 111;
    private static final int REQUEST_GALLERY = 222;
    private DatabaseReference spaReference;

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

        setupUI();
    }

    private void setupUI() {
        imgBack = (ImageView) findViewById(R.id.imgBack);
        imgBack.setOnClickListener(this);

        imgSpaImage = (ImageView) findViewById(R.id.imgSpaImage);
        imgSpaImage.setOnClickListener(this);

        edName = (EditText) findViewById(R.id.edName);
        edAddress = (EditText) findViewById(R.id.edAddress);
        imgSearchPlace = (ImageView) findViewById(R.id.imgSearchPlace);
        edDescription = (EditText) findViewById(R.id.edDescription);
        edPhone = (EditText) findViewById(R.id.edPhone);
        edEmail = (EditText) findViewById(R.id.edEmail);
        spinnerOpen = (Spinner) findViewById(R.id.spinnerOpen);
        spinnerClose = (Spinner) findViewById(R.id.spinnerClose);
        spinnerOpen.setAdapter(new ArrayAdapter<>(this,
                android.R.layout.simple_spinner_item, times));
        spinnerClose.setAdapter(new ArrayAdapter<>(this,
                android.R.layout.simple_spinner_item, times));

        btRegister = (Button) findViewById(R.id.btRegister);
        btRegister.setOnClickListener(this);
        imgSearchPlace.setOnClickListener(this);
```

```java
        WorkaroundMapFragment mapFragment = (WorkaroundMapFragment) getSupportFragmentManager()
                .findFragmentById(R.id.mapShop);
        mapFragment.getMapAsync(this);

        //handle to allow user scroll ok with map
        mScrollView = (ScrollView) findViewById(R.id.scrollView);
        mapFragment.setListener(() -> {
                mScrollView.requestDisallowInterceptTouchEvent(true);
        });

        //initial fire base real time database
        FirebaseDatabase firebaseDatabase = FirebaseDatabase.getInstance();
        spaReference = firebaseDatabase.getReference("go2spam10");
    }

    @Override
    public void onMapReady(GoogleMap googleMap) {
        mMap = googleMap;
        mMap.animateCamera(CameraUpdateFactory.newCameraPosition(
                new CameraPosition(hanoiLocation, 15, 0, 0)));
        mMap.setOnMapLongClickListener(this);
    }

    @Override
    public void onClick(View v) {
        switch (v.getId()) {
            case R.id.imgBack:
                finish();
                break;
            case R.id.imgSpaImage:
                //TODO handle when user want to take a photo
                //showDialogChooseImage();
                break;
            case R.id.btRegister:
                //TODO handle when user click to register a spa
                //handleRegister();
                break;
            case R.id.imgSearchPlace:
                //TODO handle when user search address
                //handleSearch();
                break;
        }
    }

    @Override
    public void onMapLongClick(LatLng latLng) {
        //TODO add marker when long click on map and fill address

    }
}
```

Handle when user long click on the map to place theirs spa. Update the onMapLongClick() method.

```java
    @Override
    public void onMapLongClick(LatLng latLng) {
        //TODO add marker when long click on map and fill address
        mMap.clear();
        mMap.addMarker(new MarkerOptions().position(latLng));
        spaLocation = latLng.latitude + "," + latLng.longitude;

        edAddress.setText(getAddress(latLng, SpaRegisterActivity.this));
    }
```

43

With the getAddress method help convert LatLng to address

```java
public String getAddress(LatLng location, Context context) {
    if (context == null) return "";
    Geocoder geocoder = new Geocoder(context, Locale.getDefault());
    StringBuilder strReturnedAddress = new StringBuilder("");

    try {
        List<Address> addresses = geocoder.getFromLocation(location.latitude, location.longitude, 1);

        if (addresses != null && addresses.size() > 0) {
            Address address = addresses.get(0);


            if (address.getAddressLine(0) != null) {
                String address1 = (address.getAddressLine(0) == null) ? "" : address.getAddressLine(0);
                String address2 = (address.getAddressLine(1) == null) ? "" : address.getAddressLine(1);
                String address3 = (address.getAddressLine(2) == null) ? "" : address.getAddressLine(2);
                String address4 = (address.getAddressLine(3) == null) ? "" : address.getAddressLine(3);
                String address5 = (address.getAddressLine(4) == null) ? "" : address.getAddressLine(4);
                if (!address2.equals("")) {
                    address1 = address1 + "," + address2;
                    if (!address3.equals("")) {
                        address1 = address1 + "," + address3;
                        if (!address4.equals("")) {
                            address1 = address1 + "," + address4;
                            if (!address5.equals("")) {
                                address1 = address1 + "," + address5;
                            }
                        }
                    }
                }
                strReturnedAddress.append(address1);
            }
        }
    } catch (IOException e) {
        e.printStackTrace();
    }
    return strReturnedAddress.toString();
}
```

Handle when user input address on the edittext search then click on the search icon. Update the onClick method

```java
@Override
public void onClick(View v) {
    switch (v.getId()) {
        case R.id.imgBack:
            finish();
            break;
        case R.id.imgSpaImage:
            //TODO handle when user want to take a photo
            //showDialogChooseImage();
            break;
        case R.id.btRegister:
            //TODO handle when user click to register a spa
            //handleRegister();
            break;
        case R.id.imgSearchPlace:
            //TODO handle when user search address
            handleSearch();
            break;
    }
}
```

With handleSearch() method

44

```java
private void handleSearch() {
    String address = edAddress.getText().toString().trim();
    if (!TextUtils.isEmpty(address)) {
        searchLocation(address);
    } else {
        Toast.makeText(SpaRegisterActivity.this, "Please input your address!",
                Toast.LENGTH_SHORT).show();
    }
}
```

The searchLocation method help find a place then add a marker at there and focus that place.

```java
/**
 * search an address that user input
 *
 * @param address
 */
private void searchLocation(String address) {

    Geocoder geoCoder = new Geocoder(this, Locale.getDefault());
    try {
        List<Address> addresses = geoCoder.getFromLocationName(address, 10);
        if (addresses.size() > 0) {

            Double lat = (addresses.get(0).getLatitude());
            Double lon = (addresses.get(0).getLongitude());

            final LatLng placeSearch = new LatLng(lat, lon);

            mMap.addMarker(new MarkerOptions().position(placeSearch));

            mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(placeSearch, 15));
            mMap.animateCamera(CameraUpdateFactory.zoomTo(15));
            spaLocation = lat + "," + lon;

        } else {
            Toast.makeText(SpaRegisterActivity.this, "Not found!", Toast.LENGTH_LONG).show();
        }
    } catch (Exception e) {
        e.printStackTrace();
    }
}
```

Handle user set up a picture of spa. Show a dialog that has two options allow user take a photo from camera and pick up from gallery. Update the onClick method

```java
    @Override
    public void onClick(View v) {
        switch (v.getId()) {
            case R.id.imgBack:
                finish();
                break;
            case R.id.imgSpaImage:
                //TODO handle when user want to take a photo
                showDialogChooseImage();
                break;
            case R.id.btRegister:
                //TODO handle when user click to register a spa
                //handleRegister();
                break;
            case R.id.imgSearchPlace:
                //TODO handle when user search address
                handleSearch();
                break;
        }
    }
```

With the showDialogChooseImage method to show dialog

```java
    private void showDialogChooseImage() {
        CharSequence[] items = {"Camera", "Gallery"};
        AlertDialog.Builder builder = new AlertDialog.Builder(this);
        builder.setTitle("Choose Image");
        builder.setItems(items, new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                if (which == 0) {
                    //take a photo
                    handleGetImageFromCamera();
                } else {
                    //pick an image from Gallery
                    handleGetImageFromGallery();
                }
            }
        });

        builder.show();
    }
```

When user select to take a photo from Camera use the handleGetImageFromCamera method.

To take a photo we have to realtime request permission

- Declare permission at android manifest.xml

```xml
<!--For camera-->
<uses-feature
    android:name="android.hardware.camera"
    android:required="false" />
<uses-permission android:name="android.permission.CAMERA" />
```

- Build handleGetImageFromCamera method

```java
public void handleGetImageFromCamera() {
    if (ActivityCompat.checkSelfPermission(this, android.Manifest.permission.CAMERA)
            != PackageManager.PERMISSION_GRANTED) {
        ActivityCompat.requestPermissions(this,
                new String[]{android.Manifest.permission.CAMERA}, REQUEST_CAPTURE);
    } else {
        openCamera();
    }
}

@Override
public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions,
                                       @NonNull int[] grantResults) {
    if (requestCode == REQUEST_CAPTURE) {
        if (grantResults[0] == PackageManager.PERMISSION_GRANTED) {
            // Now user should be able to use camera
            openCamera();
        } else {
            Toast.makeText(this, "Camera isn't available!", Toast.LENGTH_SHORT).show();
        }
    }
}

private void openCamera() {
    Intent takePictureIntent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);
    if (takePictureIntent.resolveActivity(getPackageManager()) != null) {
        startActivityForResult(takePictureIntent, REQUEST_CAPTURE);
    }
}
```

onRequestPermissionsResult is method to handle when you request permission real time.

Override the onActivityResult to get image when take a photo from camera successfully.

```java
@Override
public void onActivityResult(int requestCode, int resultCode, Intent data) {
    if (requestCode == REQUEST_CAPTURE && resultCode == RESULT_OK) {
        Bundle extras = data.getExtras();
        spaImageBitmap = (Bitmap) extras.get("data");
        imgSpaImage.setImageBitmap(spaImageBitmap);
    }
}
```

When user select get image from the Gallery.

- Declare permission at the AndroidManifest.xml

```xml
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"/>
```

- Build the handleGetImageFromGallery method

```java
private void handleGetImageFromGallery() {

    if (ActivityCompat.checkSelfPermission(this, Manifest.permission.READ_EXTERNAL_STORAGE)
            != PackageManager.PERMISSION_GRANTED) {
        ActivityCompat.requestPermissions(this,
                new String[]{android.Manifest.permission.READ_EXTERNAL_STORAGE}, REQUEST_GALLERY);
    } else {
        openGallery();
    }
}

private void openGallery() {
    Intent intent = new Intent();
    // Show only images, no videos or anything else
    intent.setType("image/*");
    intent.setAction(Intent.ACTION_GET_CONTENT);
    // Always show the chooser (if there are multiple options available)
    startActivityForResult(Intent.createChooser(intent, "Pick an image."), REQUEST_GALLERY);
}
```

Update the onRequestPermissionResult method to request real time access to Gallery

```java
@Override
public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions,
                                       @NonNull int[] grantResults) {
    if (requestCode == REQUEST_CAPTURE) {
        if (grantResults[0] == PackageManager.PERMISSION_GRANTED) {
            // Now user should be able to use camera
            openCamera();
        } else {
            Toast.makeText(this, "Camera isn't available!", Toast.LENGTH_SHORT).show();
        }
    } else if (requestCode == REQUEST_GALLERY) {
        if (grantResults[0] == PackageManager.PERMISSION_GRANTED) {
            // Now user should be able to open gallery
            openGallery();
        } else {
            Toast.makeText(this, "Can't access images", Toast.LENGTH_SHORT).show();
        }
    }
}
```

Update the onActivityResult to get image when user pick up a image from gallery

```java
@Override
public void onActivityResult(int requestCode, int resultCode, Intent data) {
    if (requestCode == REQUEST_CAPTURE && resultCode == RESULT_OK) {
        Bundle extras = data.getExtras();
        spaImageBitmap = (Bitmap) extras.get("data");
        imgSpaImage.setImageBitmap(spaImageBitmap);
    }

    if (requestCode == REQUEST_GALLERY && resultCode == RESULT_OK) {
        Uri uri = data.getData();
        spaImageBitmap = getBitmapFromUri(SpaRegisterActivity.this, uri);
        imgSpaImage.setImageBitmap(spaImageBitmap);
    }
}
```

With the getBitmapFromUri method to get bitmap of that image that user selected.

```java
public Bitmap getBitmapFromUri(Context contextAdapter, Uri uriFile) {
    Bitmap bitmap = null;
    try {
        bitmap = decodeUri(contextAdapter, uriFile);

    } catch (IOException e) {
        bitmap = BitmapFactory.decodeResource(contextAdapter.getResources(),
                R.mipmap.ic_launcher);
        e.printStackTrace();
    }
    return bitmap;
}

/**
 * Avoid OutOfMemory errors.
 *
 * @param context
 * @param selectedImage
 * @return
 * @throws FileNotFoundException
 */
public static Bitmap decodeUri(Context context, Uri selectedImage)
        throws FileNotFoundException {

    // Decode image size
    BitmapFactory.Options o = new BitmapFactory.Options();
    o.inJustDecodeBounds = true;
    BitmapFactory.decodeStream(context.getContentResolver()
            .openInputStream(selectedImage), null, o);

    // The new size we want to scale to
    final int REQUIRED_SIZE = 140;

    // Find the correct scale value. It should be the power of 2.
    int width_tmp = o.outWidth, height_tmp = o.outHeight;
    int scale = 1;
    while (true) {
        if (width_tmp / 2 < REQUIRED_SIZE
                || height_tmp / 2 < REQUIRED_SIZE) {
            break;
        }
        width_tmp /= 2;
        height_tmp /= 2;
        scale *= 2;
    }

    // Decode with inSampleSize
    BitmapFactory.Options o2 = new BitmapFactory.Options();
    o2.inSampleSize = scale;
    return BitmapFactory.decodeStream(context.getContentResolver()
            .openInputStream(selectedImage), null, o2);

}
```

Handle when user clicks on the Register button: Update onClick() method

```java
@Override
public void onClick(View v) {
    switch (v.getId()) {
        case R.id.imgBack:
            finish();
            break;
        case R.id.imgSpaImage:
            //TODO handle when user want to take a photo
            showDialogChooseImage();
            break;
        case R.id.btRegister:
            //TODO handle when user click to register a spa
            handleRegister();
            break;
        case R.id.imgSearchPlace:
            //TODO handle when user search address
            handleSearch();
            break;
    }
}
```

With handleRegister() method

```java
private void handleRegister() {
    String name = edName.getText().toString();
    String address = edAddress.getText().toString();
    String description = edDescription.getText().toString();
    String email = edEmail.getText().toString();
    String phone = edPhone.getText().toString();
    String open = spinnerOpen.getSelectedItem().toString();
    String close = spinnerOpen.getSelectedItem().toString();

    if (TextUtils.isEmpty(name)||TextUtils.isEmpty(address)||TextUtils.isEmpty(description)||
            TextUtils.isEmpty(email)||TextUtils.isEmpty(phone)||spaImageBitmap == null){
        Toast.makeText(this, "Please input data!",Toast.LENGTH_LONG).show();
        return;
    }

    //image
    ByteArrayOutputStream os = new ByteArrayOutputStream();
    spaImageBitmap.compress(Bitmap.CompressFormat.PNG, 100, os);
    String imageEncoded = Base64.encodeToString(os.toByteArray(), Base64.DEFAULT);

    //upload Spa to fire base
    String key = spaReference.push().getKey();
    Spa spa = new Spa(key, imageEncoded, name, address, 0,
            spaLocation, description, open, close, phone, email);
    spaReference.child(key).setValue(spa);
}
```

Declare at the android manifest.xml

```xml
<activity
    android:name=".SpaRegisterActivity"
    android:screenOrientation="portrait" />
```

- Step9: Build Spa Detail screen
  - Define activity_spa_detail.xml
    The same activity_spa_register.xml
    - Define inc_spa_detail.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="10dp">

        <RelativeLayout
            android:layout_width="match_parent"
            android:layout_height="200dp"
            android:background="@color/colo_gray">

            <ImageView
                android:id="@+id/imgSpaImage"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_centerInParent="true"
                android:scaleType="centerCrop"
                android:src="@android:color/transparent" />
        </RelativeLayout>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:gravity="center_vertical"
            android:orientation="horizontal">
            <TextView
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="0.3"
                android:text="Views"
                android:textColor="@color/colo_gray"
                android:textSize="16sp" />
```

```xml
        <TextView
            android:id="@+id/tvViews"
            android:layout_width="0dp"
            android:layout_height="45dp"
            android:layout_weight="0.7"
            android:gravity="center_vertical"
            android:paddingLeft="10dp"
            android:textColor="@color/colo_gray"
            android:textSize="14sp" />
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:gravity="center_vertical"
        android:orientation="horizontal">

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="0.3"
            android:text="Name"
            android:textColor="@color/colo_gray"
            android:textSize="16sp" />

        <EditText
            android:id="@+id/edName"
            android:layout_width="0dp"
            android:layout_height="45dp"
            android:layout_weight="0.7"
            android:background="@android:color/transparent"
            android:enabled="false"
            android:maxLines="1"
            android:paddingLeft="10dp"
            android:textColor="@color/colo_gray"
            android:textSize="14sp" />
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:gravity="center_vertical"
        android:orientation="horizontal">

        <TextView
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_gravity="center_vertical"
            android:layout_weight="0.3"
            android:gravity="center_vertical"
            android:text="Open"
            android:textColor="@color/colo_gray"
            android:textSize="16sp" />
```

```xml
<LinearLayout
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_weight="0.7"
    android:background="@android:color/transparent"
    android:gravity="center_vertical"
    android:orientation="horizontal">

    <TextView
        android:id="@+id/tvOpenTime"
        android:layout_width="match_parent"
        android:layout_height="45dp"
        android:background="@android:color/transparent"
        android:gravity="center_vertical"
        android:paddingLeft="10dp"
        android:textSize="14sp" />
</LinearLayout>

</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:gravity="center_vertical"
    android:orientation="horizontal">

    <TextView
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_gravity="center_vertical"
        android:layout_weight="0.3"
        android:gravity="center_vertical"
        android:text="Close"
        android:textColor="@color/colo_gray"
        android:textSize="18sp" />

    <LinearLayout
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="0.7"
        android:background="@android:color/transparent"
        android:gravity="center_vertical"
        android:orientation="horizontal">

        <TextView
            android:id="@+id/tvCloseTime"
```

```xml
                    android:layout_width="match_parent"
                    android:layout_height="45dp"
                    android:background="@android:color/transparent"
                    android:gravity="center_vertical"
                    android:paddingLeft="10dp"
                    android:textSize="14sp" />
        </LinearLayout>

    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:gravity="center_vertical"
        android:orientation="horizontal">

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="0.3"
            android:text="Address"
            android:textColor="@color/colo_gray"
            android:textSize="16sp" />

        <EditText
            android:id="@+id/edAddress"
            android:layout_width="0dp"
            android:layout_height="45dp"
            android:layout_weight="0.7"
            android:background="@android:color/transparent"
            android:enabled="false"
            android:maxLines="1"
            android:paddingLeft="10dp"
            android:textColor="@color/colo_gray"
            android:textSize="14sp" />
    </LinearLayout>

    <ImageView
        android:id="@+id/imgMap"
        android:layout_width="match_parent"
        android:layout_height="200dp"
        android:layout_marginTop="10dp" />
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:orientation="horizontal">

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="0.3"
```

```xml
                android:text="Description"
                android:textColor="@color/colo_gray"
                android:textSize="16sp" />

            <EditText
                android:id="@+id/edDescription"
                android:layout_width="0dp"
                android:layout_height="200dp"
                android:layout_weight="0.7"
                android:background="@android:color/transparent"
                android:enabled="false"
                android:gravity="top|left"
                android:paddingLeft="10dp"
                android:textColor="@color/colo_gray"
                android:textSize="14sp" />
        </LinearLayout>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:gravity="center_vertical"
            android:orientation="horizontal">

            <TextView
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="0.3"
                android:text="Phone"
                android:textColor="@color/colo_gray"
                android:textSize="16sp" />

            <EditText
                android:id="@+id/edPhone"
                android:layout_width="0dp"
                android:layout_height="45dp"
                android:layout_weight="0.7"
                android:background="@android:color/transparent"
                android:enabled="false"
                android:inputType="phone"
                android:maxLines="1"
                android:paddingLeft="10dp"
                android:textColor="@color/colo_gray"
                android:textSize="14sp" />
        </LinearLayout>
```

```xml
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:gravity="center_vertical"
            android:orientation="horizontal">

            <TextView
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="0.3"
                android:text="Email"
                android:textColor="@color/colo_gray"
                android:textSize="16sp" />

            <EditText
                android:id="@+id/edEmail"
                android:layout_width="0dp"
                android:layout_height="45dp"
                android:layout_weight="0.7"
                android:background="@android:color/transparent"
                android:enabled="false"
                android:inputType="textEmailAddress"
                android:maxLines="1"
                android:paddingLeft="10dp"
                android:textColor="@color/colo_gray"
                android:textSize="14sp" />
        </LinearLayout>
    </LinearLayout>
</ScrollView>
```

- Define activity_spa_detail.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/colo_white">

    <RelativeLayout
        android:id="@+id/rlHeader"
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:background="@color/colorPrimary"
        android:orientation="horizontal">

        <ImageView
            android:id="@+id/imgBack"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerVertical="true"
            android:layout_marginLeft="10dp"
            android:src="@mipmap/ic_back_white" />

        <TextView
            android:id="@+id/tvTitleHeader"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:textColor="@color/colo_white"
            android:textSize="18sp" />
```

```xml
        </RelativeLayout>

        <include
            layout="@layout/inc_spa_detail"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_below="@+id/rlHeader" />

</RelativeLayout>
```

- Handle SpaDetailActivity class

```java
public class SpaDetailActivity extends FragmentActivity implements View.OnClickListener {
    private String spaID;
    private String spaImage;
    private String spaName;
    private String spaAddress;
    private String spaLocation;
    private String spaDescription;
    private int spaViews;
    private String spaOpen;
    private String spaClose;
    private String spaPhone;
    private String spaEmail;

    private ImageView imgBack;
    private TextView tvTitleHeader;

    private TextView tvViews;
    private ImageView imgSpaImage;
    private ImageView imgMap;
    private EditText edName;
    private EditText edAddress;
    private EditText edDescription;
    private EditText edPhone;
    private EditText edEmail;
    private TextView tvOpenTime;
    private TextView tvCloseTime;

    private String addressImagePart1 = "http://maps.google.com/maps/api/staticmap?center=";
    private String addressImagePart2 = "&zoom=13&markers=";
    private String addressImagePart3 = "&size=500x300&sensor=TRUE_OR_FALSE";

    private DatabaseReference spaReference;

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

        //initial fire base real time database
        FirebaseDatabase firebaseDatabase = FirebaseDatabase.getInstance();
        spaReference = firebaseDatabase.getReference("go2spam10");

        setupUI();
    }
```

```java
private void setupUI() {
    imgBack = (ImageView) findViewById(R.id.imgBack);
    tvTitleHeader = (TextView) findViewById(R.id.tvTitleHeader);

    tvViews = (TextView) findViewById(R.id.tvViews);
    imgSpaImage = (ImageView) findViewById(R.id.imgSpaImage);
    imgMap = (ImageView) findViewById(R.id.imgMap);
    edName = (EditText) findViewById(R.id.edName);
    edAddress = (EditText) findViewById(R.id.edAddress);
    edDescription = (EditText) findViewById(R.id.edDescription);
    edPhone = (EditText) findViewById(R.id.edPhone);
    edEmail = (EditText) findViewById(R.id.edEmail);
    tvOpenTime = (TextView) findViewById(R.id.tvOpenTime);
    tvCloseTime = (TextView) findViewById(R.id.tvCloseTime);
    imgBack.setOnClickListener(this);
}

@Override
public void onClick(View v) {
    if (v == imgBack) {
        finish();
    }
}
```

Declare at android manifest.xml file

```xml
<activity
    android:name=".SpaDetailActivity"
    android:screenOrientation="portrait" />
```

- Step10: Make fully flow for application

Handle when user clicks on the Add button of News Tab, Open NewsFragment class and update the onClick() method

```java
@Override
public void onClick(View v) {
    //add a new spa
    Intent intent = new Intent(getContext(), SpaRegisterActivity.class);
    startActivity(intent);
}
```

Handle when user clicks on a spa then go to Detail screen. We will put all information of spa into bundle

- Create a new package is common, then create a class is Common

```
▼ 🗀 java
   ▼ 🔳 com.sonnv1368.go2spa
      ▶ 🔳 adapter
      ▼ 🔳 common
            © 🔒 Common
      ▶ 🔳 model
      ▶ 🔳 widgets
```

- Define some key at the Common class

58

```java
public class Common {
    public static final String KEY_ID = "spaID";
    public static final String KEY_IMAGE = "spaImage";
    public static final String KEY_NAME = "spaName";
    public static final String KEY_ADDRESS = "spaAddress";
    public static final String KEY_VIEWS = "spaViews";
    public static final String KEY_LOCATION = "spaLocation";
    public static final String KEY_DESCRIPTION = "spaDescription";
    public static final String KEY_OPEN = "spaOpen";
    public static final String KEY_CLOSE = "spaClose";
    public static final String KEY_PHONE = "spaPhone";
    public static final String KEY_EMAIL = "spaEmail";
}
```

- Handle when click on a spa

  Open NewsFragment and update the onItemClick() method.

```java
@Override
public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
    Spa spa = spaList.get(position);
    Intent intent = new Intent(getContext(), SpaDetailActivity.class);

    intent.putExtra(Common.KEY_ID, spa.getSpaID());
    intent.putExtra(Common.KEY_IMAGE, spa.getSpaImage());
    intent.putExtra(Common.KEY_NAME, spa.getSpaName());
    intent.putExtra(Common.KEY_ADDRESS, spa.getSpaAddress());
    intent.putExtra(Common.KEY_LOCATION, spa.getSpaLocation());
    intent.putExtra(Common.KEY_OPEN, spa.getSpaOpen());
    intent.putExtra(Common.KEY_CLOSE, spa.getSpaClose());
    intent.putExtra(Common.KEY_DESCRIPTION, spa.getSpaDescription());
    intent.putExtra(Common.KEY_VIEWS, spa.getSpaViews());
    intent.putExtra(Common.KEY_PHONE, spa.getSpaPhone());
    intent.putExtra(Common.KEY_EMAIL, spa.getSpaEmail());
    startActivity(intent);
}
```

  Open HotsFragment and update the onItemClick() method.

```java
@Override
public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
    Spa spa = spaList.get(position);
    Intent intent = new Intent(getContext(), SpaDetailActivity.class);

    intent.putExtra(Common.KEY_ID, spa.getSpaID());
    intent.putExtra(Common.KEY_IMAGE, spa.getSpaImage());
    intent.putExtra(Common.KEY_NAME, spa.getSpaName());
    intent.putExtra(Common.KEY_ADDRESS, spa.getSpaAddress());
    intent.putExtra(Common.KEY_LOCATION, spa.getSpaLocation());
    intent.putExtra(Common.KEY_OPEN, spa.getSpaOpen());
    intent.putExtra(Common.KEY_CLOSE, spa.getSpaClose());
    intent.putExtra(Common.KEY_DESCRIPTION, spa.getSpaDescription());
    intent.putExtra(Common.KEY_VIEWS, spa.getSpaViews());
    intent.putExtra(Common.KEY_PHONE, spa.getSpaPhone());
    intent.putExtra(Common.KEY_EMAIL, spa.getSpaEmail());
    startActivity(intent);
}
```

- Handle at the SpaDetailActivity class: Open the SpaDetailActivity class to update the onCreate()

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

    //initial fire base real time database
    FirebaseDatabase firebaseDatabase = FirebaseDatabase.getInstance();
    spaReference = firebaseDatabase.getReference("go2spam10");

    getSpaInformation();

    setupUI();

    setSpaDetail();
}
```

With getSpaInformation() method to get all information from (NewsFragment or HotsFragment)

```java
private void getSpaInformation(){
    Bundle extra = getIntent().getExtras();
    if (extra != null) {
        spaID = extra.getString(Common.KEY_ID);
        spaImage = extra.getString(Common.KEY_IMAGE);
        spaName = extra.getString(Common.KEY_NAME);
        spaAddress = extra.getString(Common.KEY_ADDRESS);
        spaLocation = extra.getString(Common.KEY_LOCATION);
        spaViews = extra.getInt(Common.KEY_VIEWS);
        spaOpen = extra.getString(Common.KEY_OPEN);
        spaClose = extra.getString(Common.KEY_CLOSE);
        spaDescription = extra.getString(Common.KEY_DESCRIPTION);
        spaPhone = extra.getString(Common.KEY_PHONE);
        spaEmail = extra.getString(Common.KEY_EMAIL);
    }
}
```

The setSpaDetail() method() to set all information from NewsFragment or HotsFragment for some views. (Data of image spa is string, so we have to convert to Bitmap by the decodeFromFireBaseBase64() method)

60

```java
private void setSpaDetail(){
    tvTitleHeader.setText(spaName);
    tvViews.setText(spaViews + "");
    edName.setText(spaName);
    tvOpenTime.setText(spaOpen);
    tvCloseTime.setText(spaClose);

    edAddress.setText(spaAddress);
    edDescription.setText(spaDescription);
    edPhone.setText(spaPhone);
    edEmail.setText(spaEmail);

    //image of spa
    try {
        Bitmap imageBitmap = decodeFromFireBaseBase64(spaImage);
        imgSpaImage.setImageBitmap(imageBitmap);
    } catch (IOException e) {
        e.printStackTrace();
    }
    //map of spa
    imgMap.setImageBitmap(getImageMapStatic(spaLocation));

    //update number of views
    spaReference.child(spaID).child("spaViews").setValue(spaViews + 1);
}

public Bitmap decodeFromFireBaseBase64(String image) throws IOException {
    byte[] decodedByteArray = android.util.Base64.decode(image, Base64.DEFAULT);
    return BitmapFactory.decodeByteArray(decodedByteArray, 0, decodedByteArray.length);
}
```

Special the getImageMapStatic() method will help us load map of spa by static map
(picture)

```java
/**
 * Get static map with a marker
 *
 * @param locationText is 21.029815,105.835040
 * @return Bitmap
 */
public Bitmap getImageMapStatic(String locationText) {
    Bitmap bitmap = null;
    String pathPlaceSearch = addressImagePart1 + locationText +
            addressImagePart2 + locationText + addressImagePart3;

    try {
        StrictMode.ThreadPolicy policy = new StrictMode.ThreadPolicy.Builder().permitAll().build();
        StrictMode.setThreadPolicy(policy);

        bitmap = BitmapFactory.decodeStream((InputStream) new URL(pathPlaceSearch).getContent());

    } catch (MalformedURLException e) {
        e.printStackTrace();
    } catch (IOException e) {
        e.printStackTrace();
    }

    return bitmap;
}
```
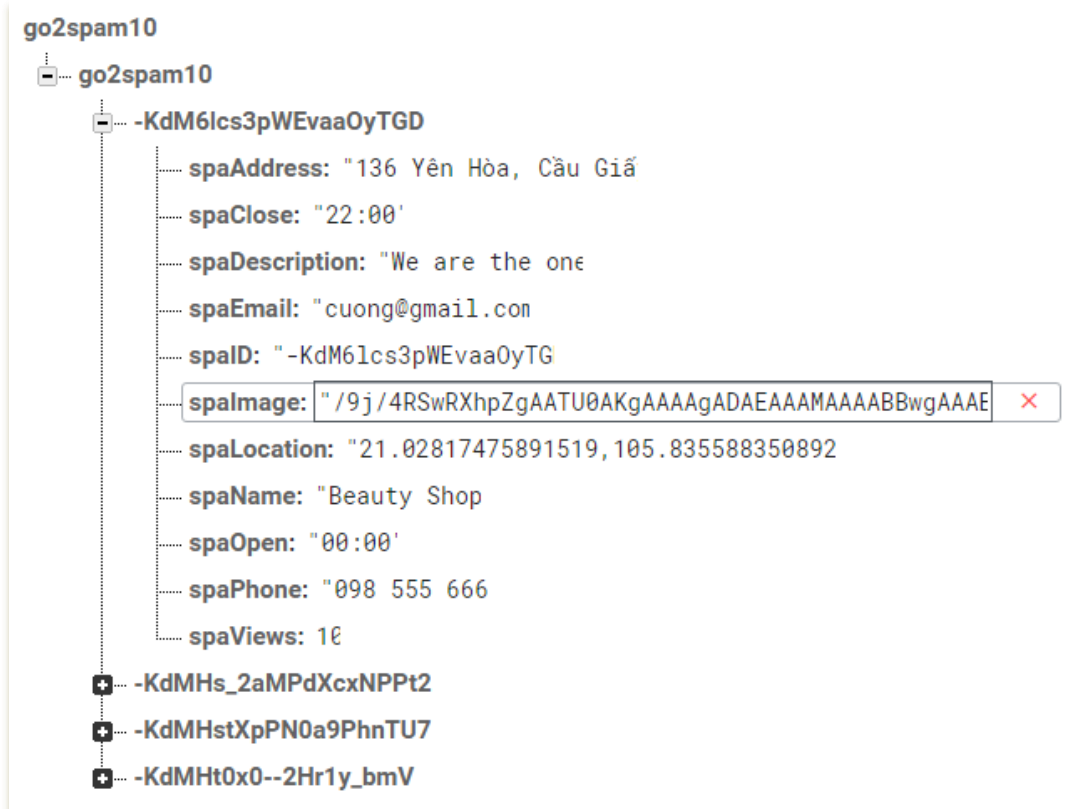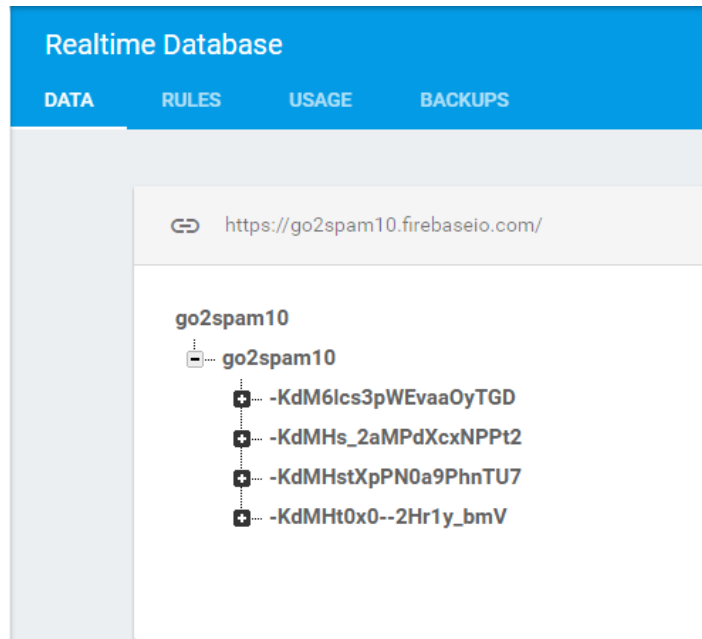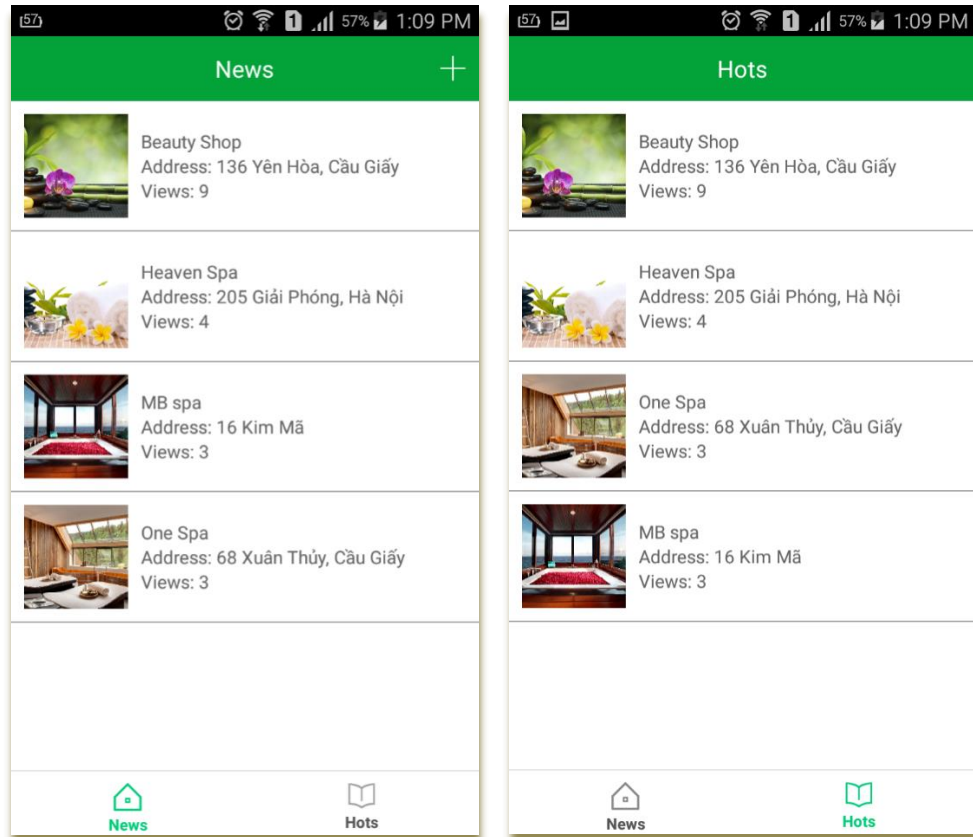
Result: We can check database on the https://console.firebase.google.com/

That is all!

Please get full source code at the /Module10/Go2Spa