CS426- Mobile Device Application Development

Class: APCS 2015

Final Project Report

1551044	**1551025**
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I. Project Assessment

In this section, each student should personally evaluate his or her own effort to complete the project.

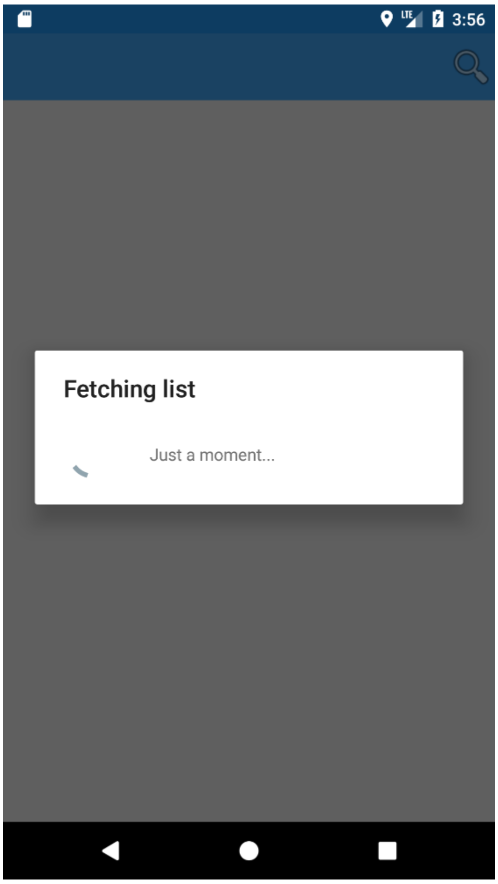
- For each feature, please determine the level of complexity (1-Very simple, 2-Simple, 3-Normal, 4-Difficult, 5-Very difficult) and level of completeness (100%).

Feature	Complexity	Level of completeness (100%)
Use JSON to store data and load data from the internet server	4	100%
Search food by its name within a recommended list	3	100%
Search food by taking image	3	50%
List all the data with names and descriptions in card view	2	100%
Have check box to keep track the ingredients and cooking progress	4	80%
Share cook images on Facebook	3	100%
Have a list of places to buy ingredients and an ability to sort by nearest place or name	4	100%
Show a marker of a place on map and find direction to that place.	3	100%
Make a call and connect to website	1	100%

II. Advanced Features

1. We do not store our data directly in the project but store them on the JSON server and download them at the very beginning.

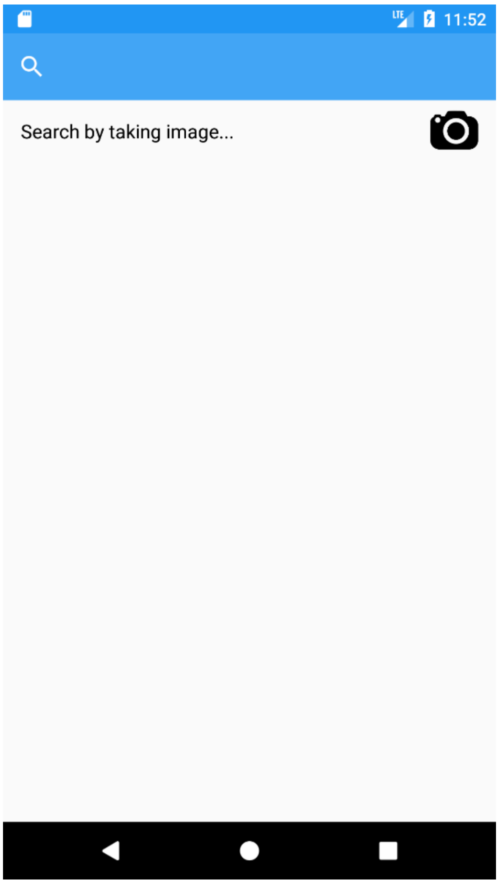
‘



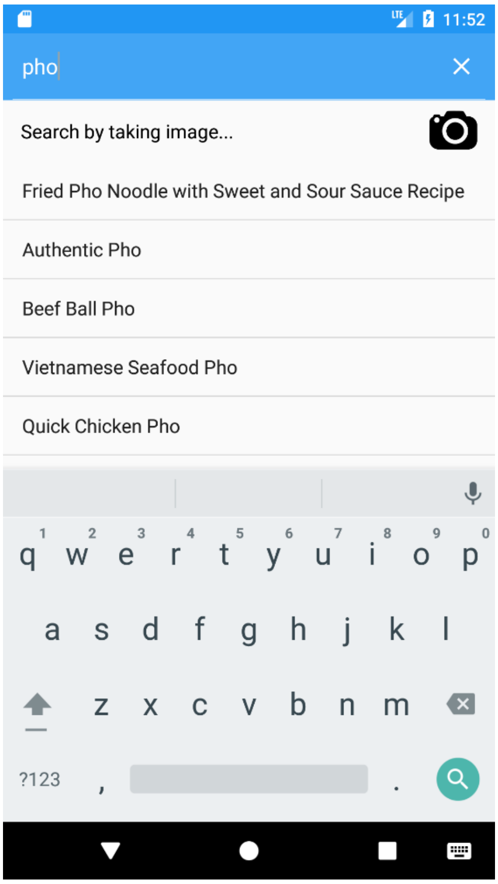
Fetching list

Just a moment...

2. Users can use two ways to search their food to cook: by words or by taking a photo.



Search by taking image...



pho

Search by taking image...

Fried Pho Noodle with Sweet and Sour Sauce Recipe

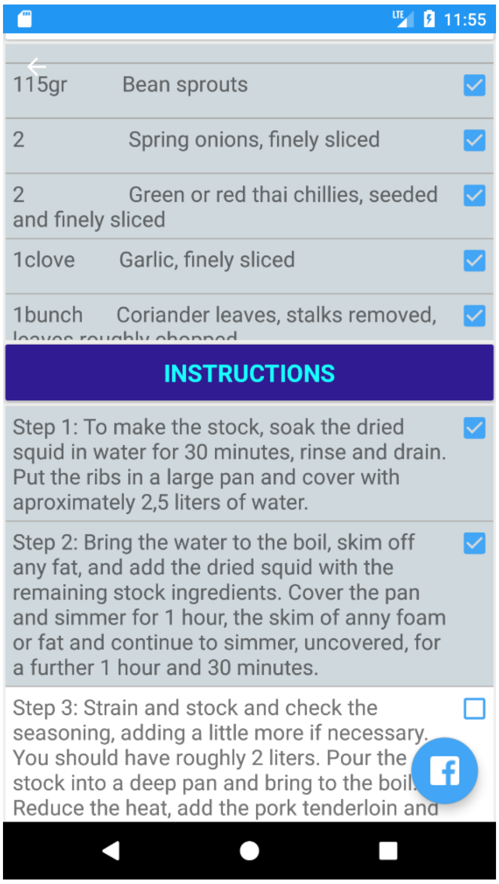
Authentic Pho

Beef Ball Pho

Vietnamese Seafood Pho

Quick Chicken Pho

3. After finishing your dish step by step, users can share their dish on facebook by clicking at the floating facebook's button to take a photo and then share it.



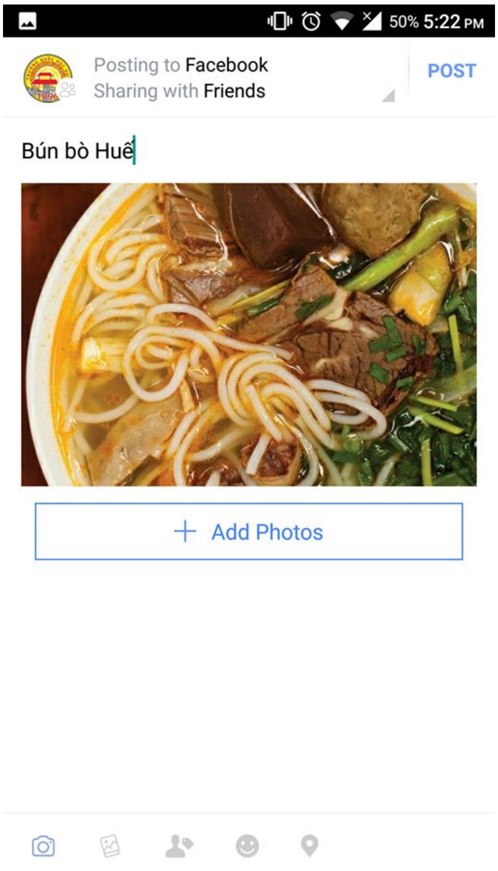
115gr	Bean sprouts	☑
2	Spring onions, finely sliced	☑
2	Green or red thai chillies, seeded and finely sliced	☑
1clove	Garlic, finely sliced	☑
1bunch	Coriander leaves, stalks removed, leaves roughly chopped	☑

INSTRUCTIONS

☑ Step 1: To make the stock, soak the dried squid in water for 30 minutes, rinse and drain. Put the ribs in a large pan and cover with aproximately 2,5 liters of water.

☑ Step 2: Bring the water to the boil, skim off any fat, and add the dried squid with the remaining stock ingredients. Cover the pan and simmer for 1 hour, the skim of anny foam or fat and continue to simmer, uncovered, for a further 1 hour and 30 minutes.

□ Step 3: Strain and stock and check the seasoning, adding a little more if necessary. You should have roughly 2 liters. Pour the stock into a deep pan and bring to the boil. Reduce the heat, add the pork tenderloin and



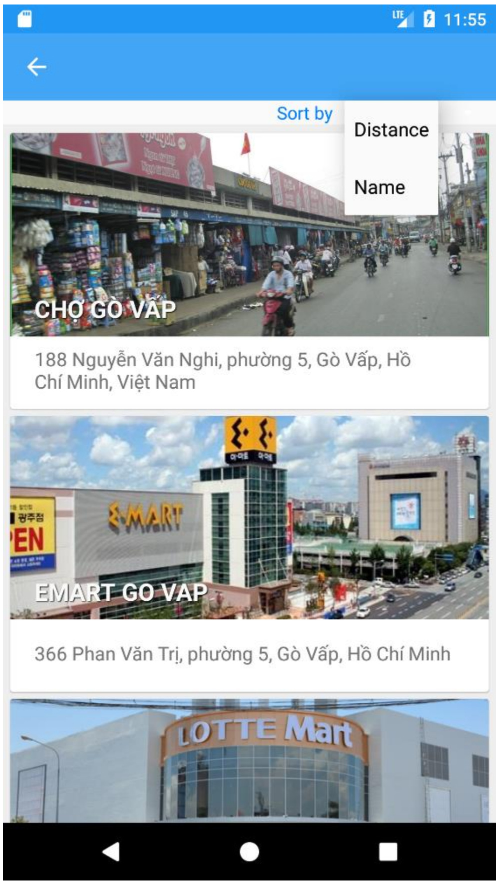
Posting to Facebook
Sharing with Friends

POST

Bún bò Huế

+ Add Photos

4. Users can find their nearest spot to buy ingredient easily and then connect to google map to find the direction to that place.

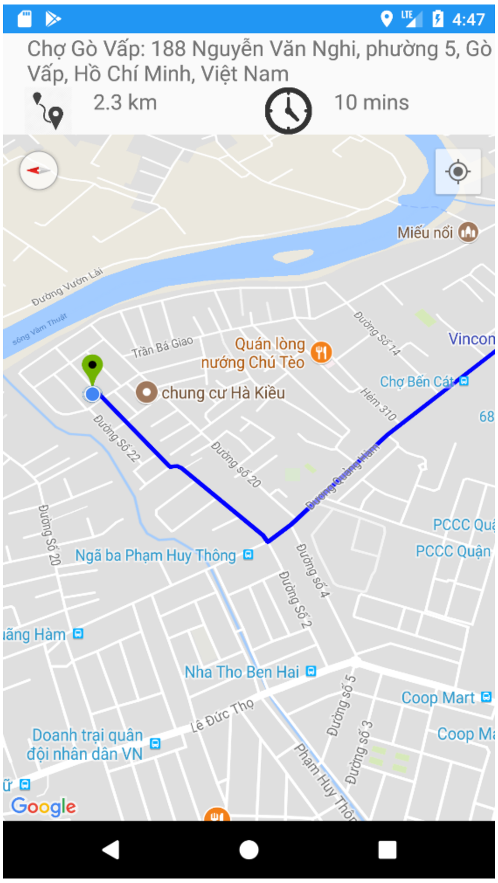


CHỢ GÒ VẤP

188 Nguyễn Văn Nghi, phường 5, Gò Vấp, Hồ Chí Minh, Việt Nam

EMART GO VAP

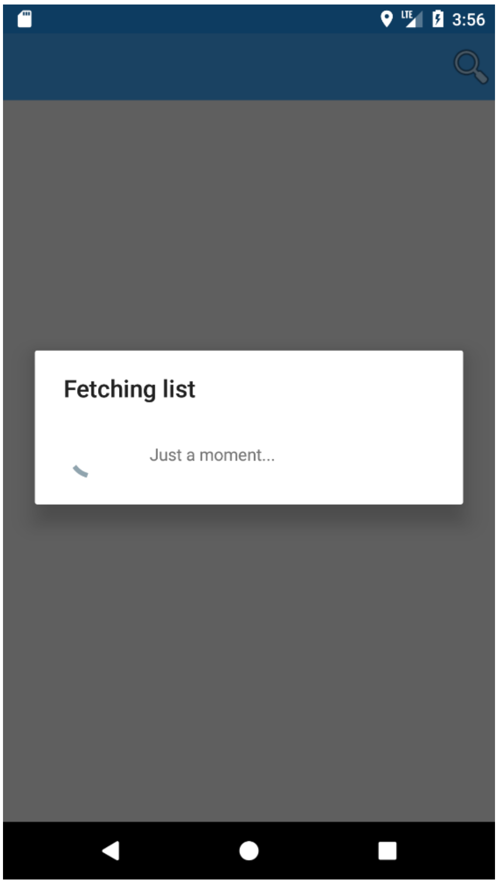
366 Phan Văn Trị, phường 5, Gò Vấp, Hồ Chí Minh



Chợ Gò Vấp: 188 Nguyễn Văn Nghi, phường 5, Gò Vấp, Hồ Chí Minh, Việt Nam

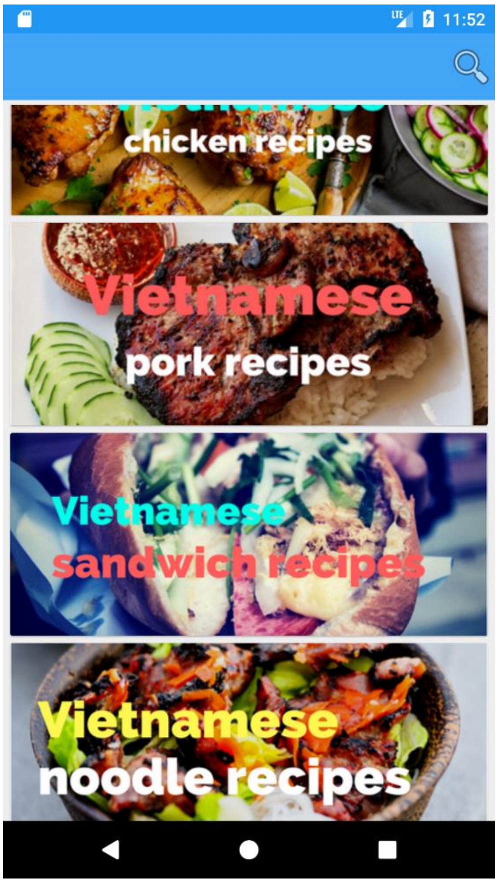
2.3 km 10 mins

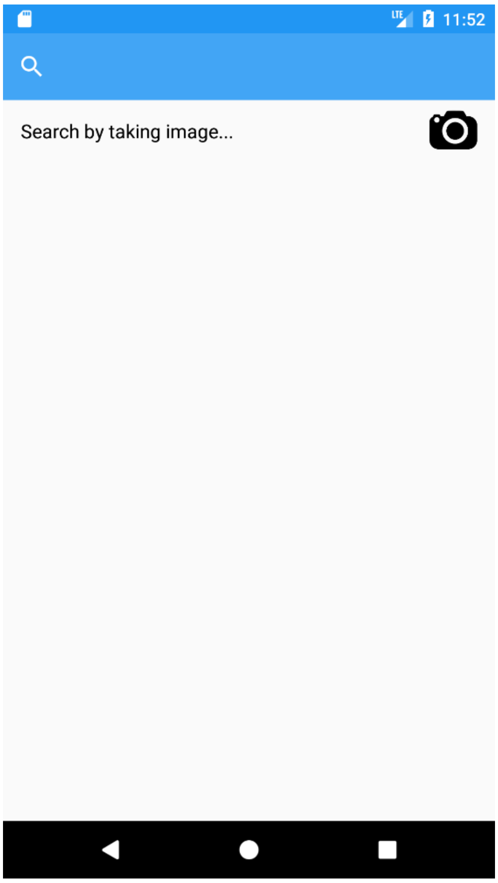
III. Screenshots



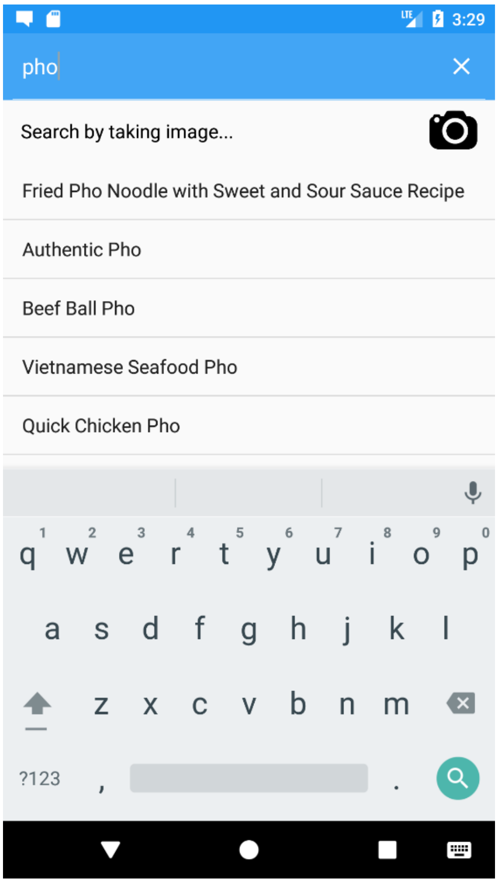
Fetching list

Just a moment...





Search by taking image...



pho

Search by taking image...

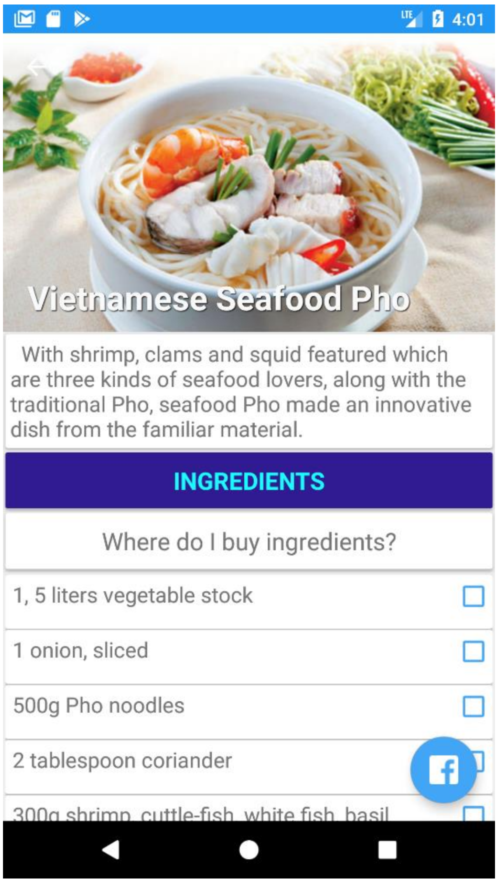
Fried Pho Noodle with Sweet and Sour Sauce Recipe

Authentic Pho

Beef Ball Pho

Vietnamese Seafood Pho

Quick Chicken Pho



4:01

Vietnamese Seafood Pho

With shrimp, clams and squid featured which are three kinds of seafood lovers, along with the traditional Pho, seafood Pho made an innovative dish from the familiar material.

INGREDIENTS

Where do I buy ingredients?

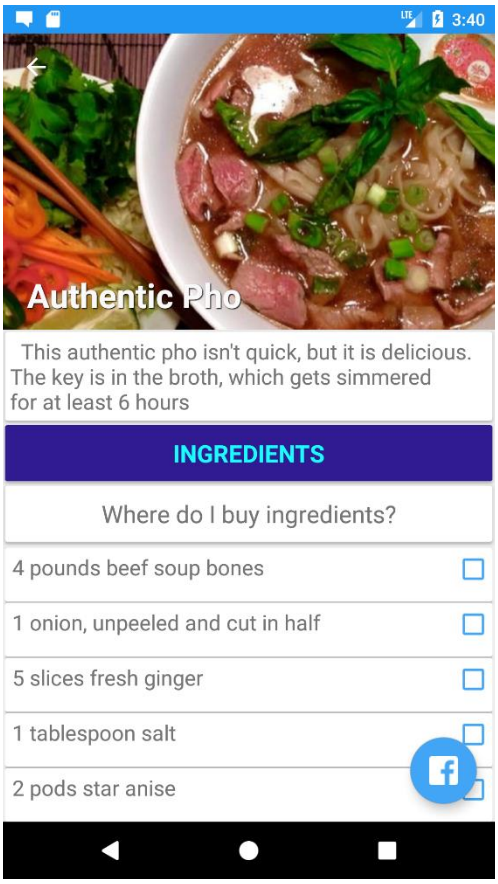
1, 5 liters vegetable stock □

1 onion, sliced □

500g Pho noodles □

2 tablespoon coriander □

300g shrimp, cuttle-fish, white fish, basil □



3:40

Authentic Pho

This authentic pho isn't quick, but it is delicious. The key is in the broth, which gets simmered for at least 6 hours

INGREDIENTS

Where do I buy ingredients?

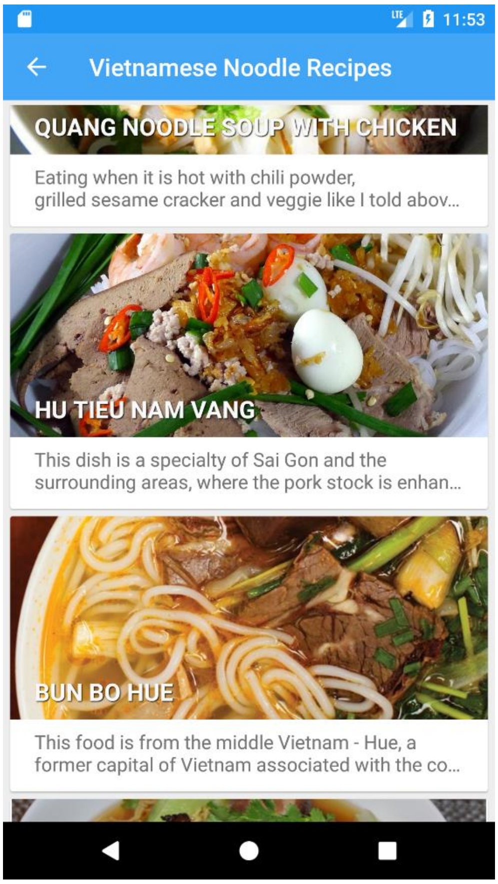
4 pounds beef soup bones □

1 onion, unpeeled and cut in half □

5 slices fresh ginger □

1 tablespoon salt □

2 pods star anise □



11:53

Vietnamese Noodle Recipes

QUANG NOODLE SOUP WITH CHICKEN

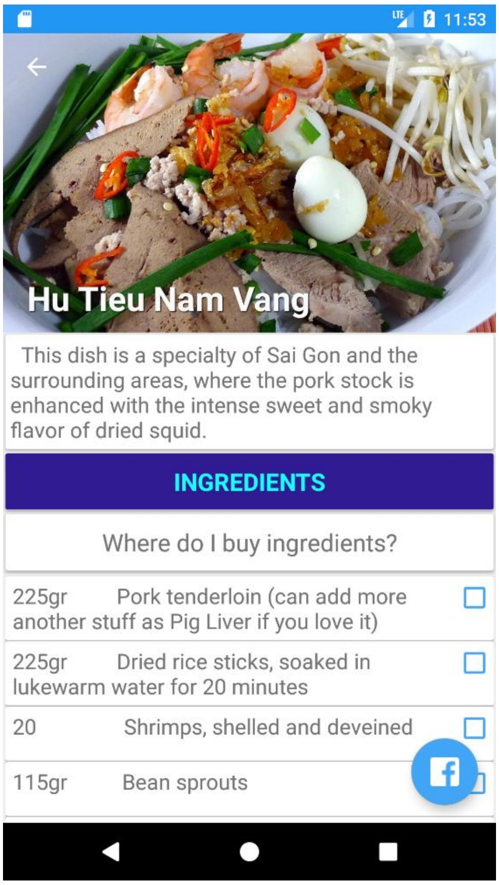
Eating when it is hot with chili powder, grilled sesame cracker and veggie like I told abov...

HU TIEU NAM VANG

This dish is a specialty of Sai Gon and the surrounding areas, where the pork stock is enhan...

BUN BO HUE

This food is from the middle Vietnam - Hue, a former capital of Vietnam associated with the co...



11:53

Hu Tieu Nam Vang

This dish is a specialty of Sai Gon and the surrounding areas, where the pork stock is enhanced with the intense sweet and smoky flavor of dried squid.

INGREDIENTS

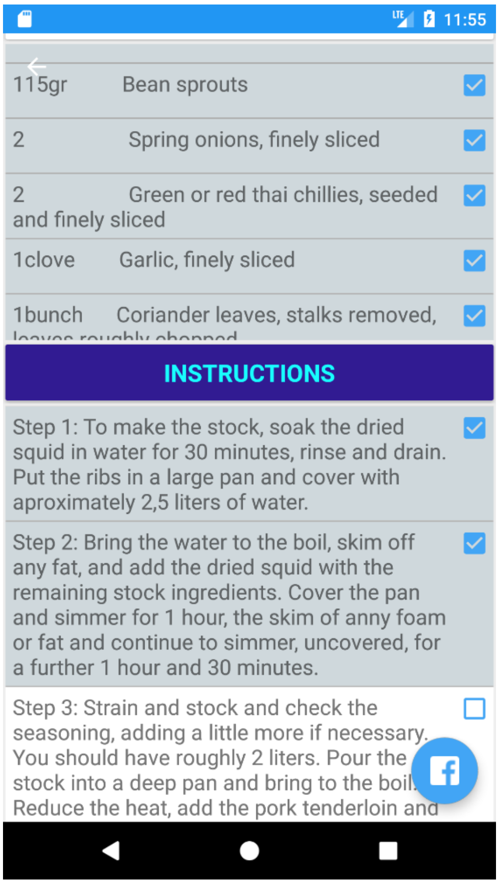
Where do I buy ingredients?

225gr Pork tenderloin (can add more another stuff as Pig Liver if you love it) □

225gr Dried rice sticks, soaked in lukewarm water for 20 minutes □

20 Shrimps, shelled and deveined □

115gr Bean sprouts □



11:55

115gr	Bean sprouts	☑
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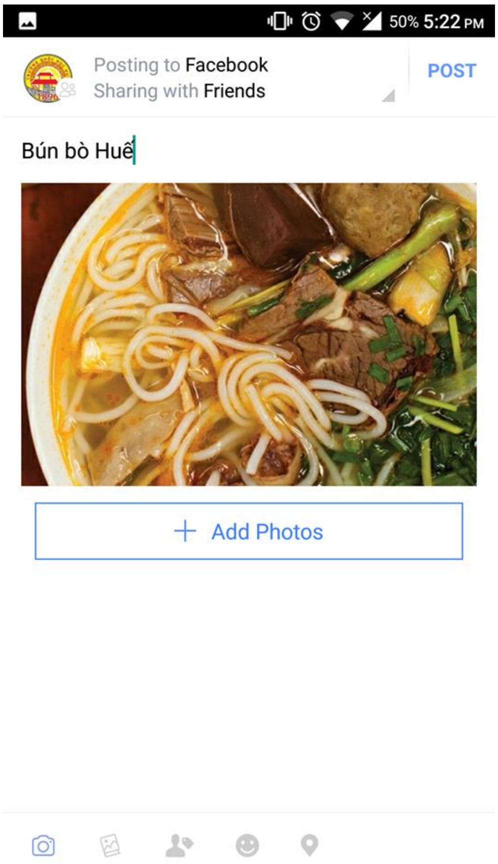
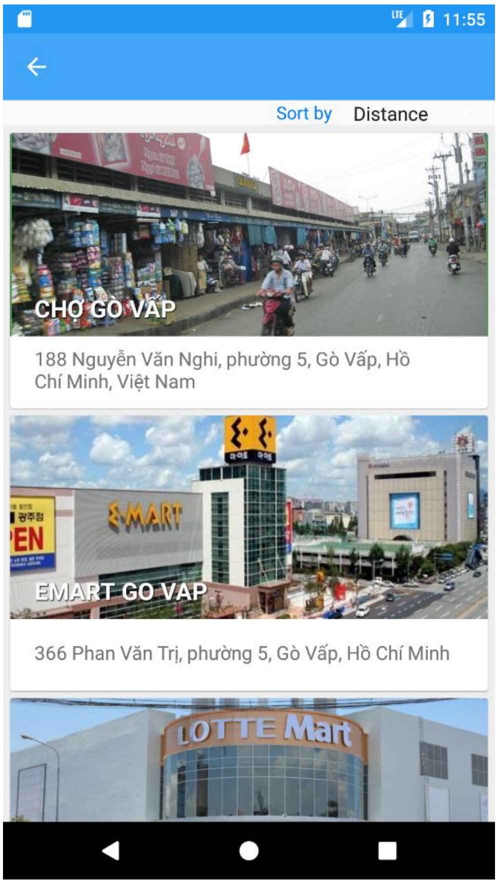


50% 5:22 PM

Posting to Facebook
Sharing with Friends

POST

Bún bò Huế



11:55

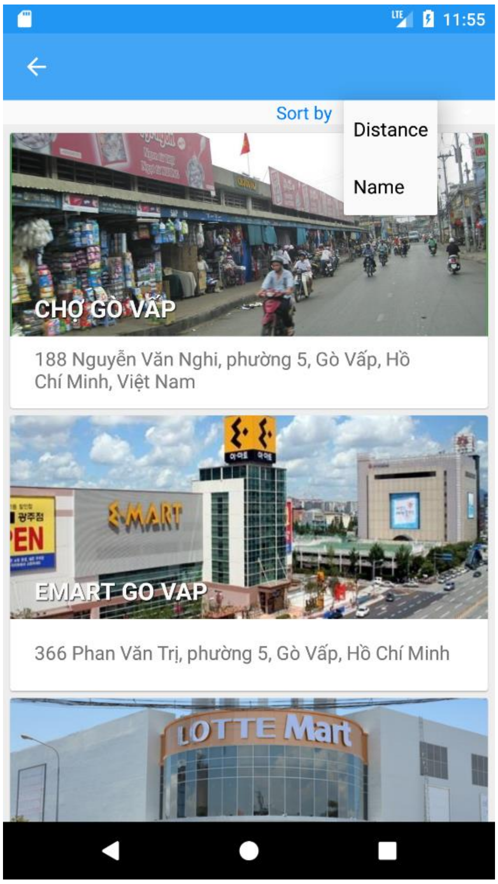
Sort by Distance

CHỢ GÒ VẤP

188 Nguyễn Văn Nghi, phường 5, Gò Vấp, Hồ Chí Minh, Việt Nam

EMART GO VAP

366 Phan Văn Trị, phường 5, Gò Vấp, Hồ Chí Minh



11:55

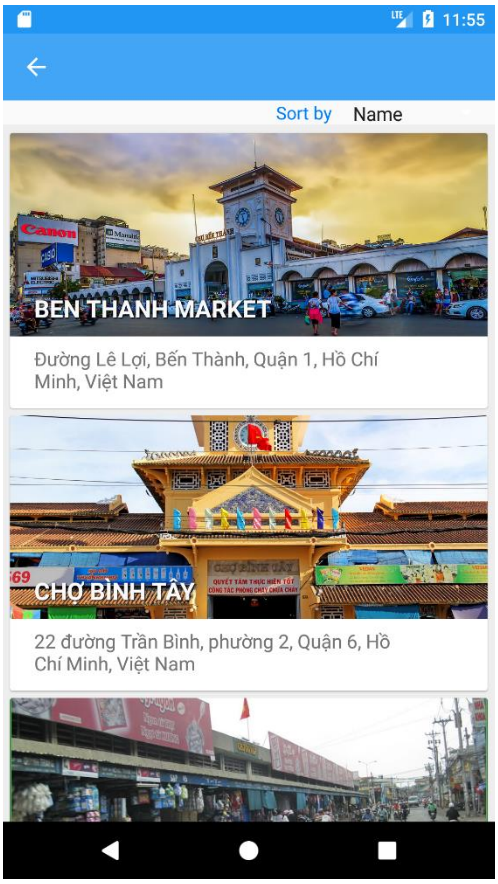
Sort by

CHỢ GÒ VẤP

188 Nguyễn Văn Nghi, phường 5, Gò Vấp, Hồ Chí Minh, Việt Nam

EMART GO VAP

366 Phan Văn Trị, phường 5, Gò Vấp, Hồ Chí Minh

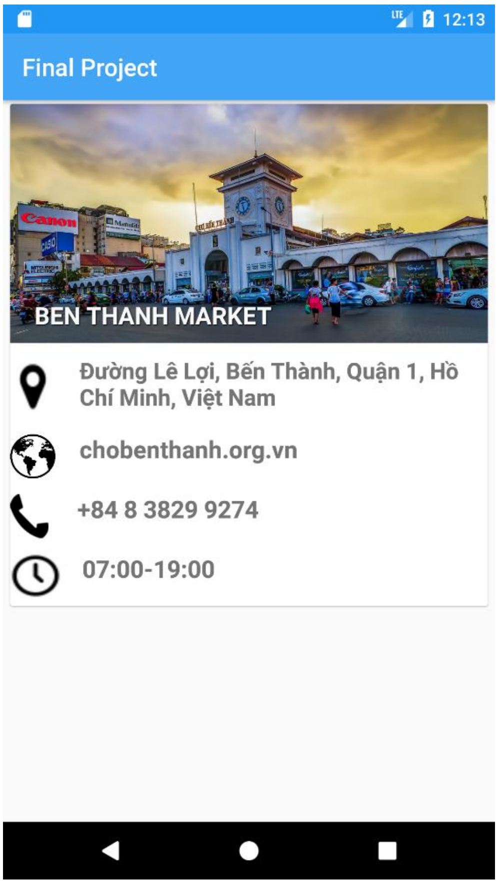


BEN THANH MARKET

Đường Lê Lợi, Bến Thành, Quận 1, Hồ Chí Minh, Việt Nam

CHỢ BÌNH TÂY

22 đường Trần Bình, phường 2, Quận 6, Hồ Chí Minh, Việt Nam



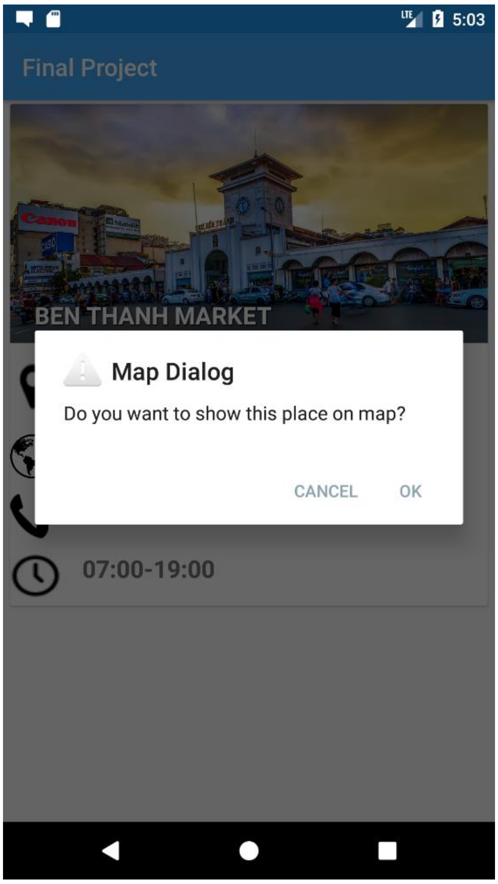
BEN THANH MARKET

Đường Lê Lợi, Bến Thành, Quận 1, Hồ Chí Minh, Việt Nam

chobenthanh.org.vn

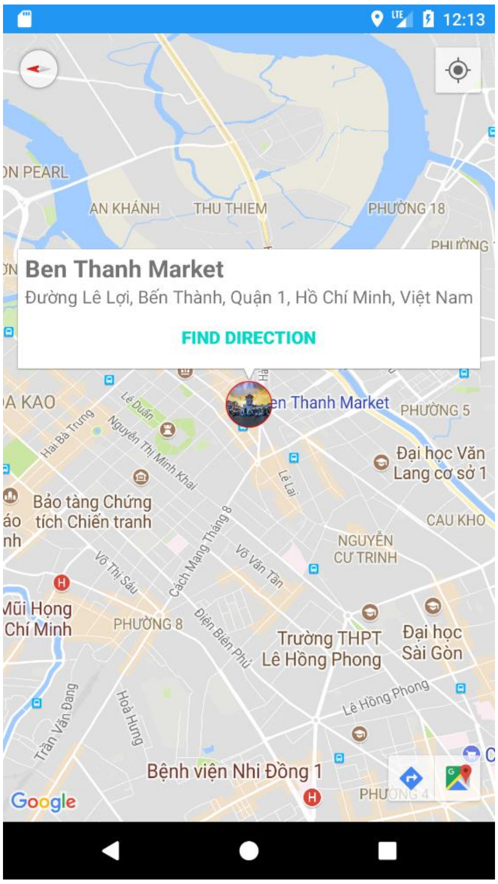
+84 8 3829 9274

07:00-19:00



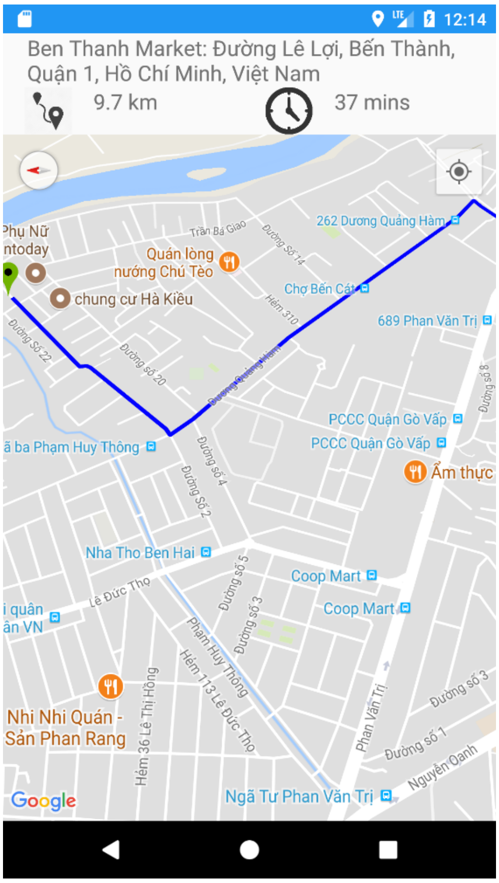
Map Dialog

Do you want to show this place on map?



Ben Thanh Market

Đường Lê Lợi, Bến Thành, Quận 1, Hồ Chí Minh, Việt Nam

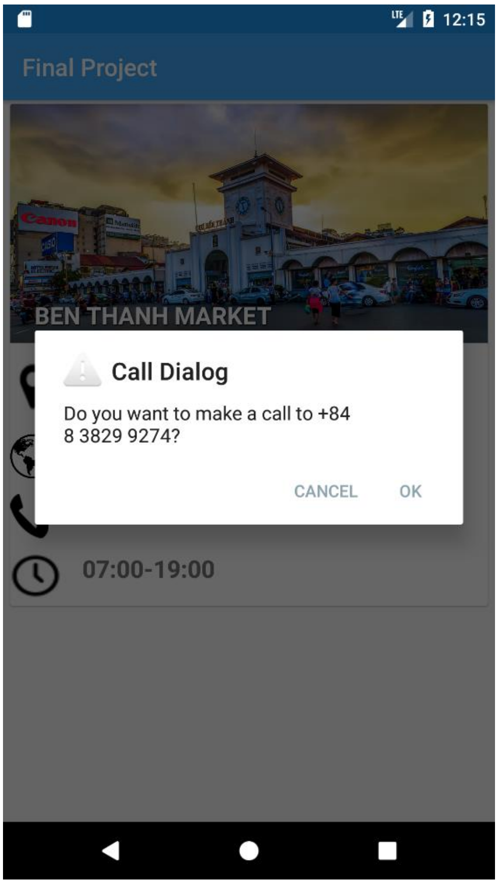


12:14

Ben Thanh Market: Đường Lê Lợi, Bến Thành, Quận 1, Hồ Chí Minh, Việt Nam

9.7 km

37 mins



12:15

Final Project

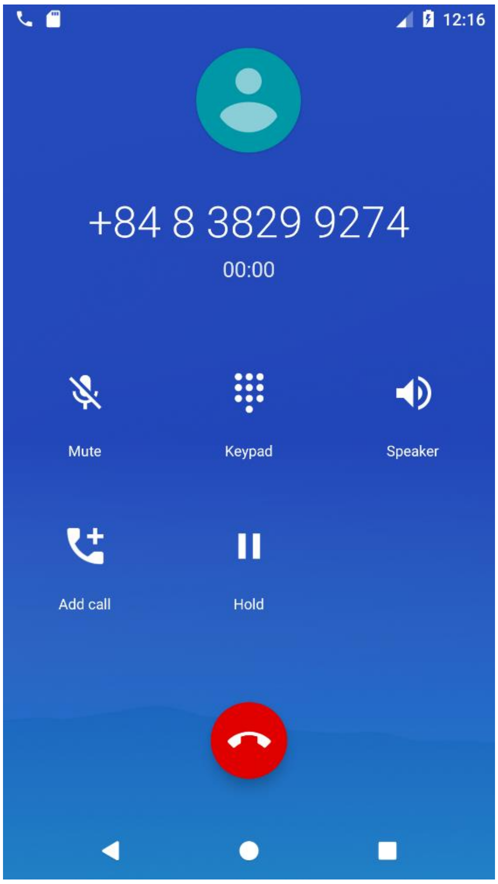
BEN THANH MARKET

Call Dialog

Do you want to make a call to +84 8 3829 9274?

CANCEL OK

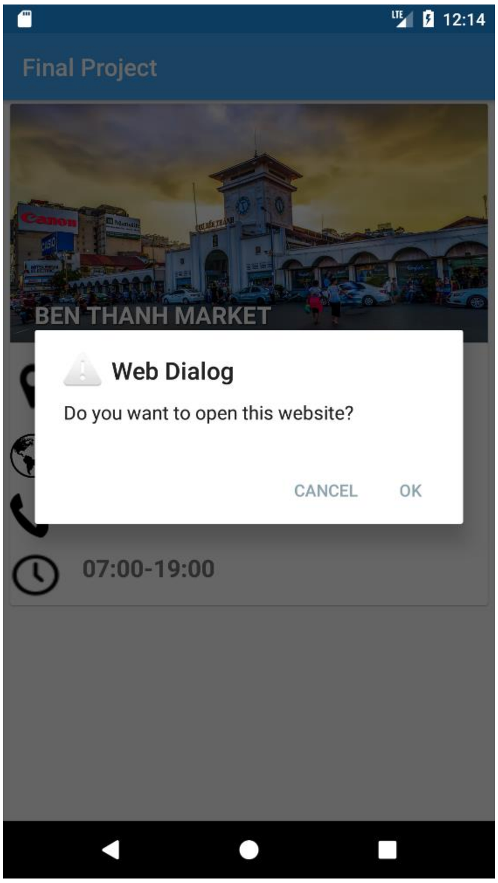
07:00-19:00



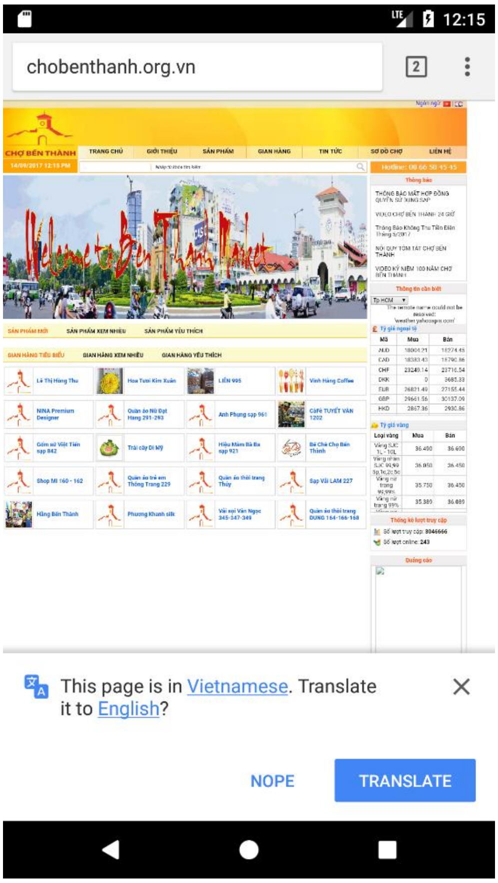
12:16

+84 8 3829 9274

00:00



Do you want to open this website?



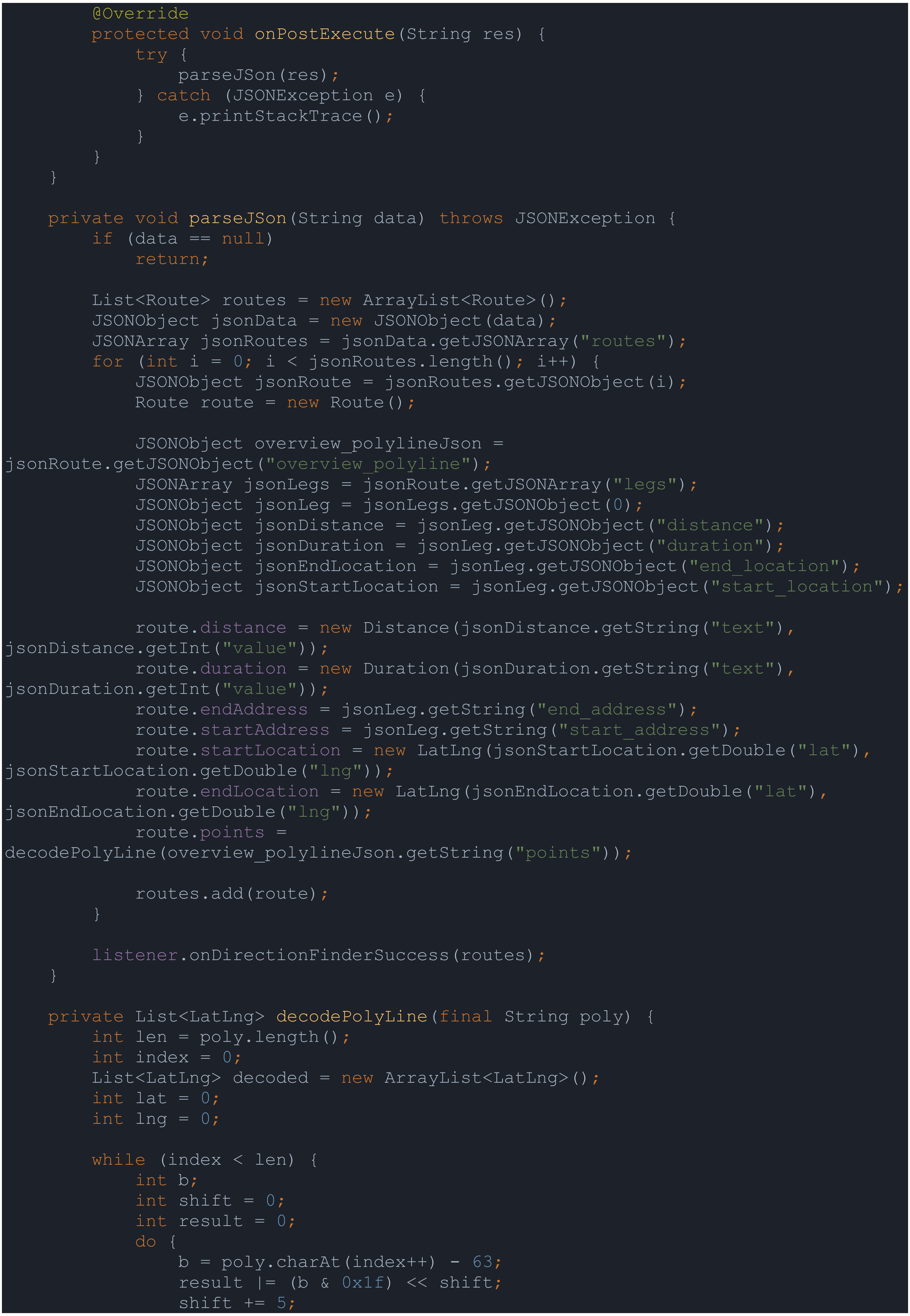
This page is in Vietnamese. Translate it to English?

IV. References

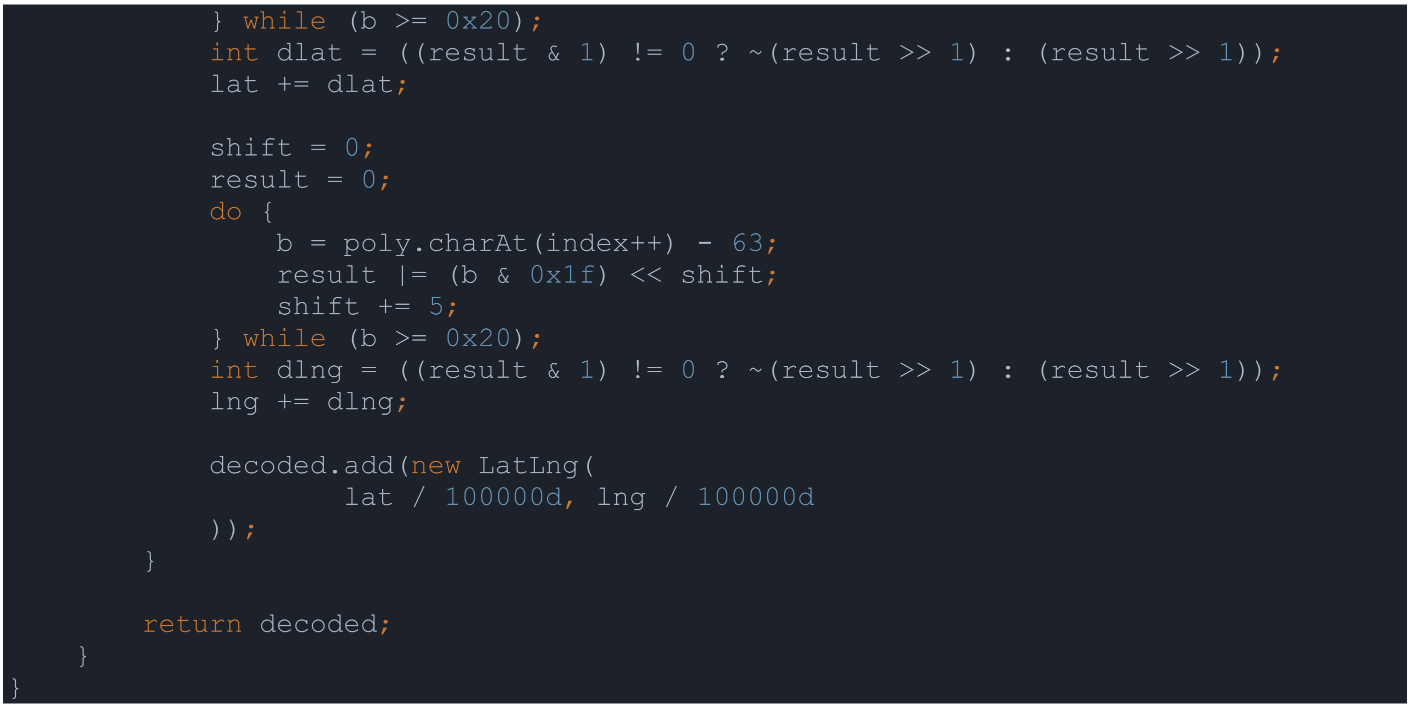
1. Find Direction in Google Map

DirectionFinder Module Code is taken from tutorial 10

```
public class DirectionFinder {
    private static final String DIRECTION_URL_API =
"https://maps.googleapis.com/maps/api/directions/json?";
    private static final String GOOGLE_API_KEY =
"AIzaSyDXlQd7ensdy3XxgZ5m27gYfPe3Py4hrOE";
    private DirectionFinderListener listener;
    private String origin;
    private String destination;

    public DirectionFinder(DirectionFinderListener listener, String origin, String
destination) {
        this.listener = listener;
        this.origin = origin;
        this.destination = destination;
    }

    public void execute() throws UnsupportedEncodingException {
        listener.onDirectionFinderStart();
        new DownloadRawData().execute(createUrl());
    }

    private String createUrl() throws UnsupportedEncodingException {
        //String urlOrigin = URLEncoder.encode(origin, "utf-8");
        //String urlDestination = URLEncoder.encode(destination, "utf-8");
        String urlOrigin = origin;
        String urlDestination = destination;
        Log.i("url", DIRECTION_URL_API + "origin=" + urlOrigin + "&destination=" +
urlDestination + "&key=" + GOOGLE_API_KEY);
        return DIRECTION_URL_API + "origin=" + urlOrigin + "&destination=" +
urlDestination + "&key=" + GOOGLE_API_KEY;
    }

    private class DownloadRawData extends AsyncTask<String, Void, String> {

        @Override
        protected String doInBackground(String... params) {
            String link = params[0];
            try {
                URL url = new URL(link);
                InputStream is = url.openConnection().getInputStream();
                StringBuffer buffer = new StringBuffer();
                BufferedReader reader = new BufferedReader(new
InputStreamReader(is));

                String line;
                while ((line = reader.readLine()) != null) {
                    buffer.append(line + "\n");
                }
                Log.i("buffer", buffer.toString());
                return buffer.toString();

            } catch (MalformedURLException e) {
                e.printStackTrace();
            } catch (IOException e) {
                e.printStackTrace();
            }
            return null;
        }
```



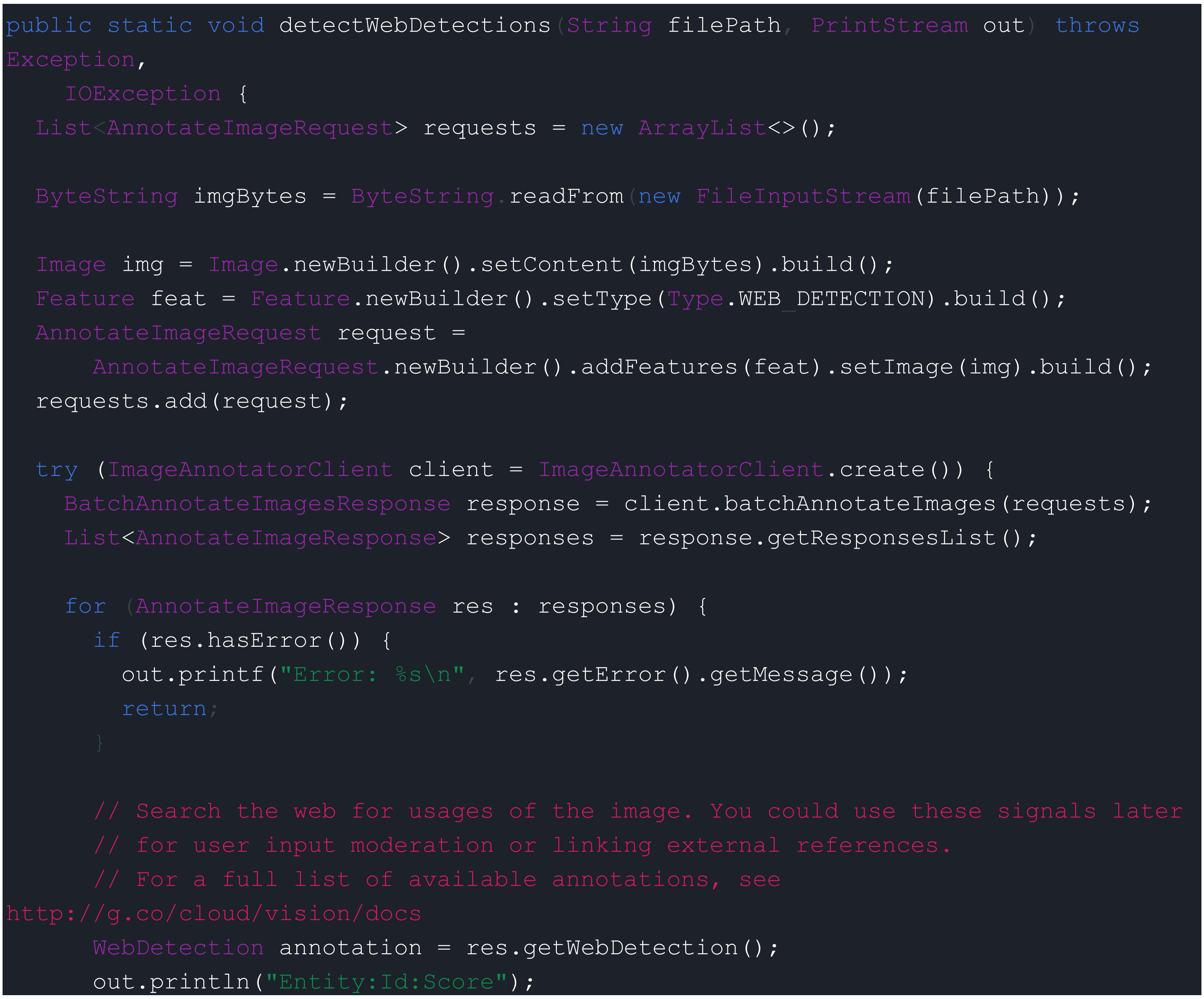
```
        @Override
        protected void onPostExecute(String res) {
            try {
                parseJSon(res);
            } catch (JSONException e) {
                e.printStackTrace();
            }
        }
    }

    private void parseJSon(String data) throws JSONException {
        if (data == null)
            return;

        List<Route> routes = new ArrayList<Route>();
        JSONObject jsonData = new JSONObject(data);
        JSONArray jsonRoutes = jsonData.getJSONArray("routes");
        for (int i = 0; i < jsonRoutes.length(); i++) {
            JSONObject jsonRoute = jsonRoutes.getJSONObject(i);
            Route route = new Route();

            JSONObject overview_polylineJson =
jsonRoute.getJSONObject("overview_polyline");
            JSONArray jsonLegs = jsonRoute.getJSONArray("legs");
            JSONObject jsonLeg = jsonLegs.getJSONObject(0);
            JSONObject jsonDistance = jsonLeg.getJSONObject("distance");
            JSONObject jsonDuration = jsonLeg.getJSONObject("duration");
            JSONObject jsonEndLocation = jsonLeg.getJSONObject("end_location");
            JSONObject jsonStartLocation = jsonLeg.getJSONObject("start_location");

            route.distance = new Distance(jsonDistance.getString("text"),
jsonDistance.getInt("value"));
            route.duration = new Duration(jsonDuration.getString("text"),
jsonDuration.getInt("value"));
            route.endAddress = jsonLeg.getString("end_address");
            route.startAddress = jsonLeg.getString("start_address");
            route.startLocation = new LatLng(jsonStartLocation.getDouble("lat"),
jsonStartLocation.getDouble("lng"));
            route.endLocation = new LatLng(jsonEndLocation.getDouble("lat"),
jsonEndLocation.getDouble("lng"));
            route.points =
decodePolyLine(overview_polylineJson.getString("points"));

            routes.add(route);
        }

        listener.onDirectionFinderSuccess(routes);
    }

    private List<LatLng> decodePolyLine(final String poly) {
        int len = poly.length();
        int index = 0;
        List<LatLng> decoded = new ArrayList<LatLng>();
        int lat = 0;
        int lng = 0;

        while (index < len) {
            int b;
            int shift = 0;
            int result = 0;
            do {
                b = poly.charAt(index++) - 63;
                result |= (b & 0x1f) << shift;
                shift += 5;
```



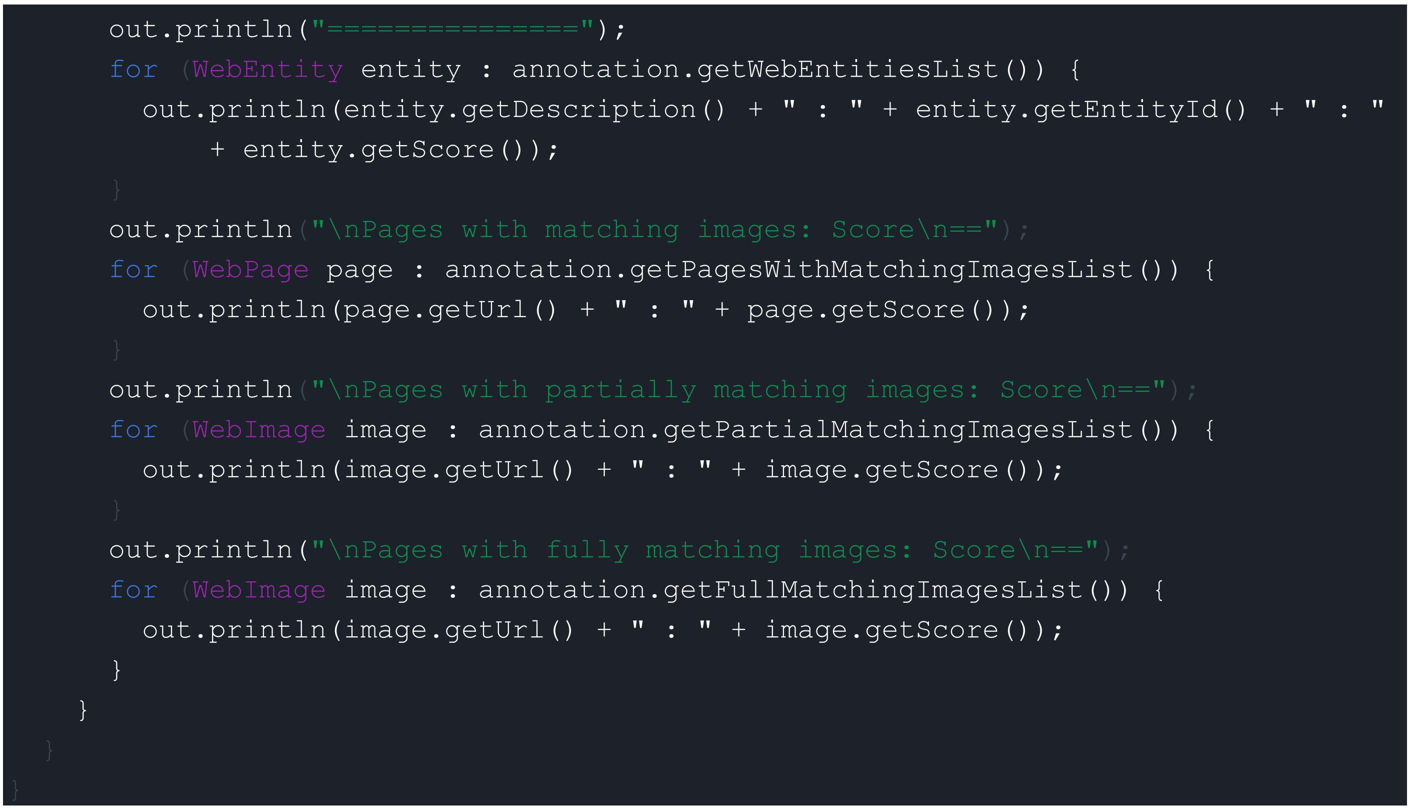
```
            } while (b >= 0x20);
            int dlat = ((result & 1) != 0 ? ~(result >> 1) : (result >> 1));
            lat += dlat;

            shift = 0;
            result = 0;
            do {
                b = poly.charAt(index++) - 63;
                result |= (b & 0x1f) << shift;
                shift += 5;
            } while (b >= 0x20);
            int dlng = ((result & 1) != 0 ? ~(result >> 1) : (result >> 1));
            lng += dlng;

            decoded.add(new LatLng(
                    lat / 100000d, lng / 100000d
            ));
        }

        return decoded;
    }
}
```

2. Vision web detection

https://cloud.google.com/vision/docs/detecting-web#vision-web-detection-java

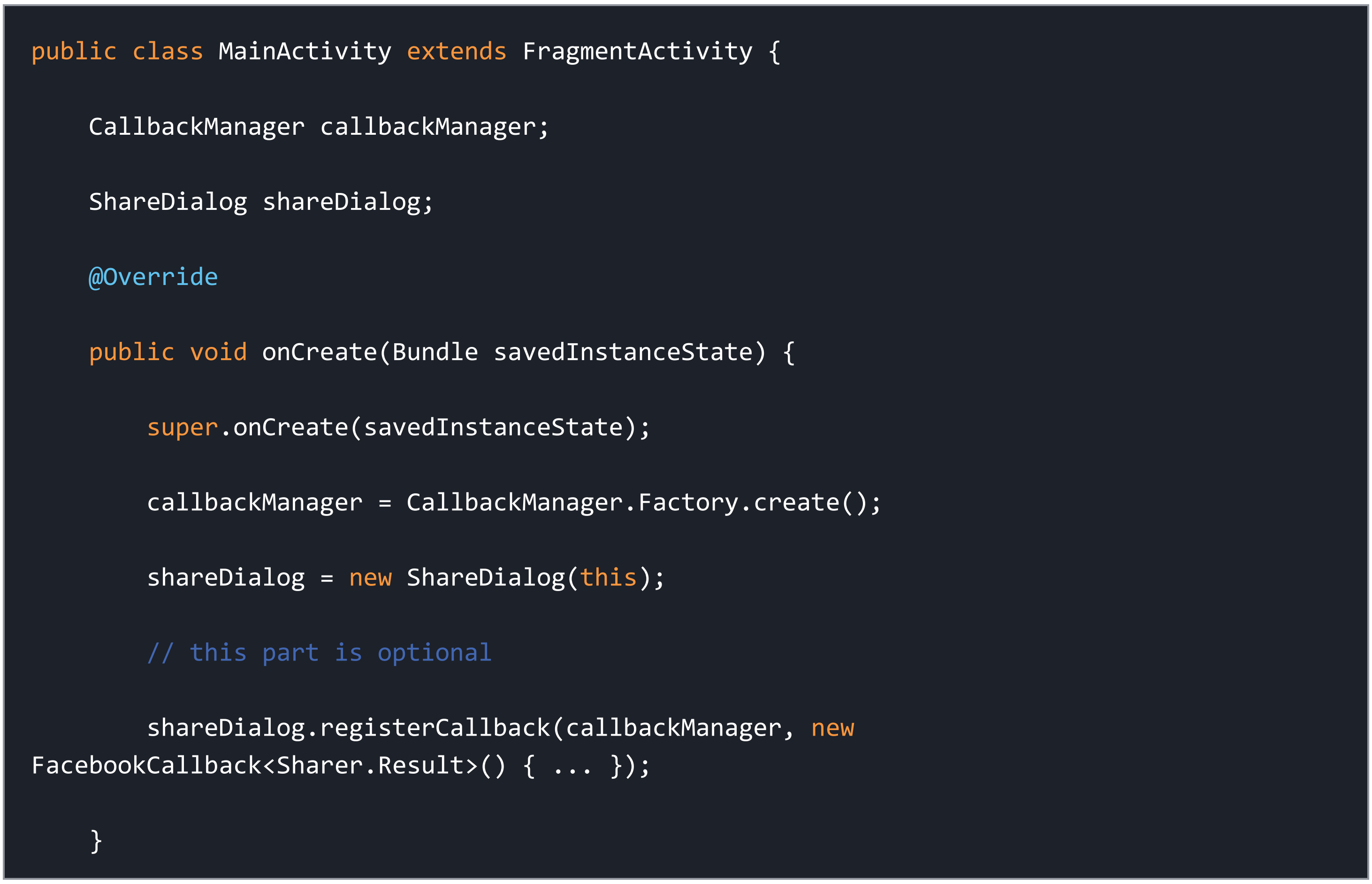


```
public static void detectWebDetections(String filePath, PrintStream out) throws
Exception,
    IOException {
  List<AnnotateImageRequest> requests = new ArrayList<>();

  ByteString imgBytes = ByteString.readFrom(new FileInputStream(filePath));

  Image img = Image.newBuilder().setContent(imgBytes).build();
  Feature feat = Feature.newBuilder().setType(Type.WEB_DETECTION).build();
  AnnotateImageRequest request =
      AnnotateImageRequest.newBuilder().addFeatures(feat).setImage(img).build();
  requests.add(request);

  try (ImageAnnotatorClient client = ImageAnnotatorClient.create()) {
    BatchAnnotateImagesResponse response = client.batchAnnotateImages(requests);
    List<AnnotateImageResponse> responses = response.getResponsesList();

    for (AnnotateImageResponse res : responses) {
      if (res.hasError()) {
        out.printf("Error: %s\n", res.getError().getMessage());
        return;
      }

      // Search the web for usages of the image. You could use these signals later
      // for user input moderation or linking external references.
      // For a full list of available annotations, see
http://g.co/cloud/vision/docs
      WebDetection annotation = res.getWebDetection();
      out.println("Entity:Id:Score");
```

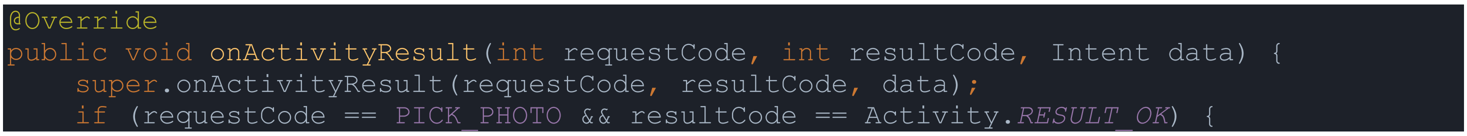


```
      out.println("===============");
      for (WebEntity entity : annotation.getWebEntitiesList()) {
        out.println(entity.getDescription() + " : " + entity.getEntityId() + " : "
            + entity.getScore());
      }
      out.println("\nPages with matching images: Score\n==");
      for (WebPage page : annotation.getPagesWithMatchingImagesList()) {
        out.println(page.getUrl() + " : " + page.getScore());
      }
      out.println("\nPages with partially matching images: Score\n==");
      for (WebImage image : annotation.getPartialMatchingImagesList()) {
        out.println(image.getUrl() + " : " + image.getScore());
      }
      out.println("\nPages with fully matching images: Score\n==");
      for (WebImage image : annotation.getFullMatchingImagesList()) {
        out.println(image.getUrl() + " : " + image.getScore());
      }
    }
  }
}
```

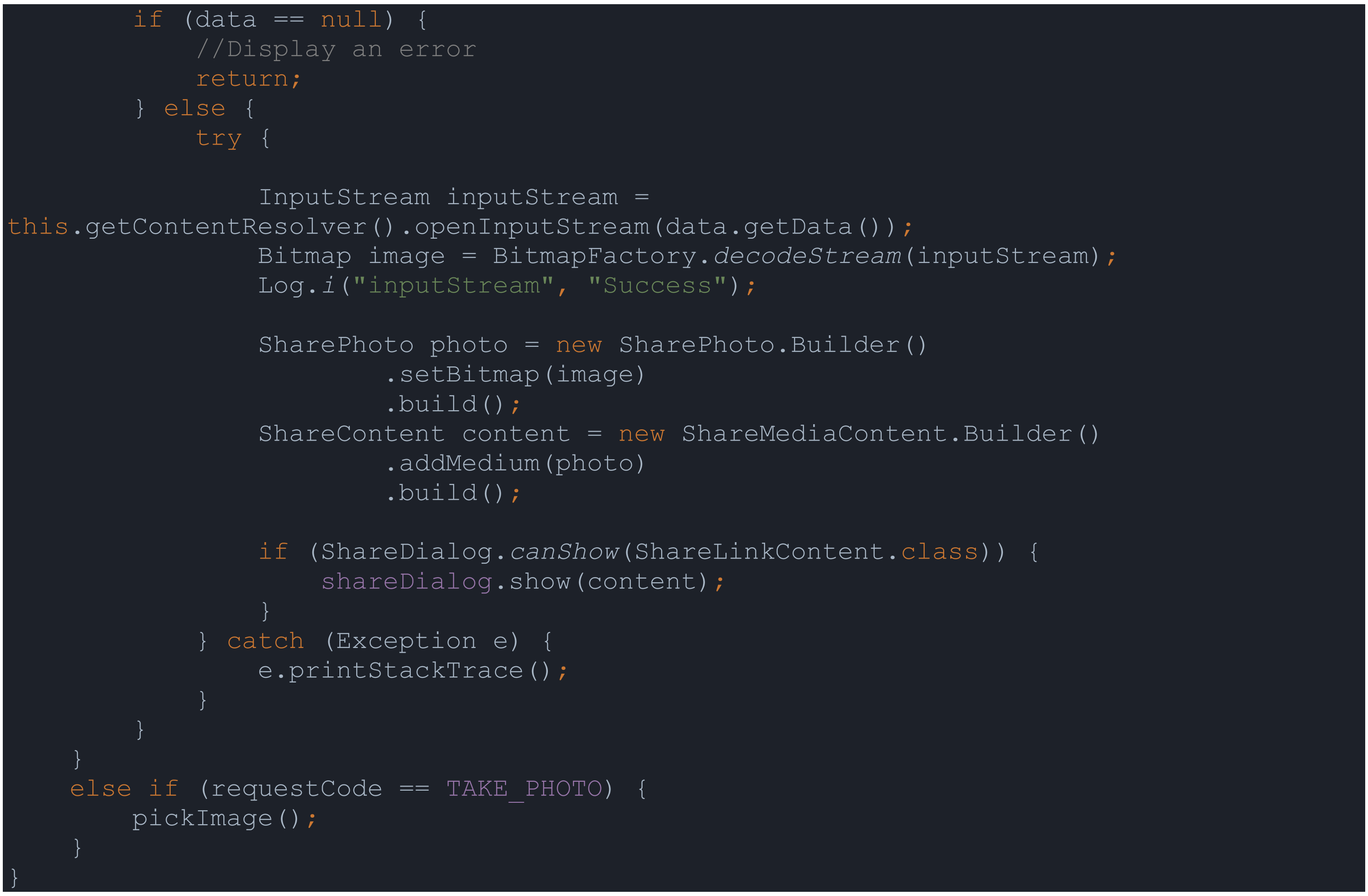
3. **Android Sharing**
   https://developers.facebook.com/docs/sharing/android



```
public class MainActivity extends FragmentActivity {

    CallbackManager callbackManager;

    ShareDialog shareDialog;

    @Override

    public void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        callbackManager = CallbackManager.Factory.create();

        shareDialog = new ShareDialog(this);

        // this part is optional

        shareDialog.registerCallback(callbackManager, new
FacebookCallback<Sharer.Result>() { ... });

    }
```



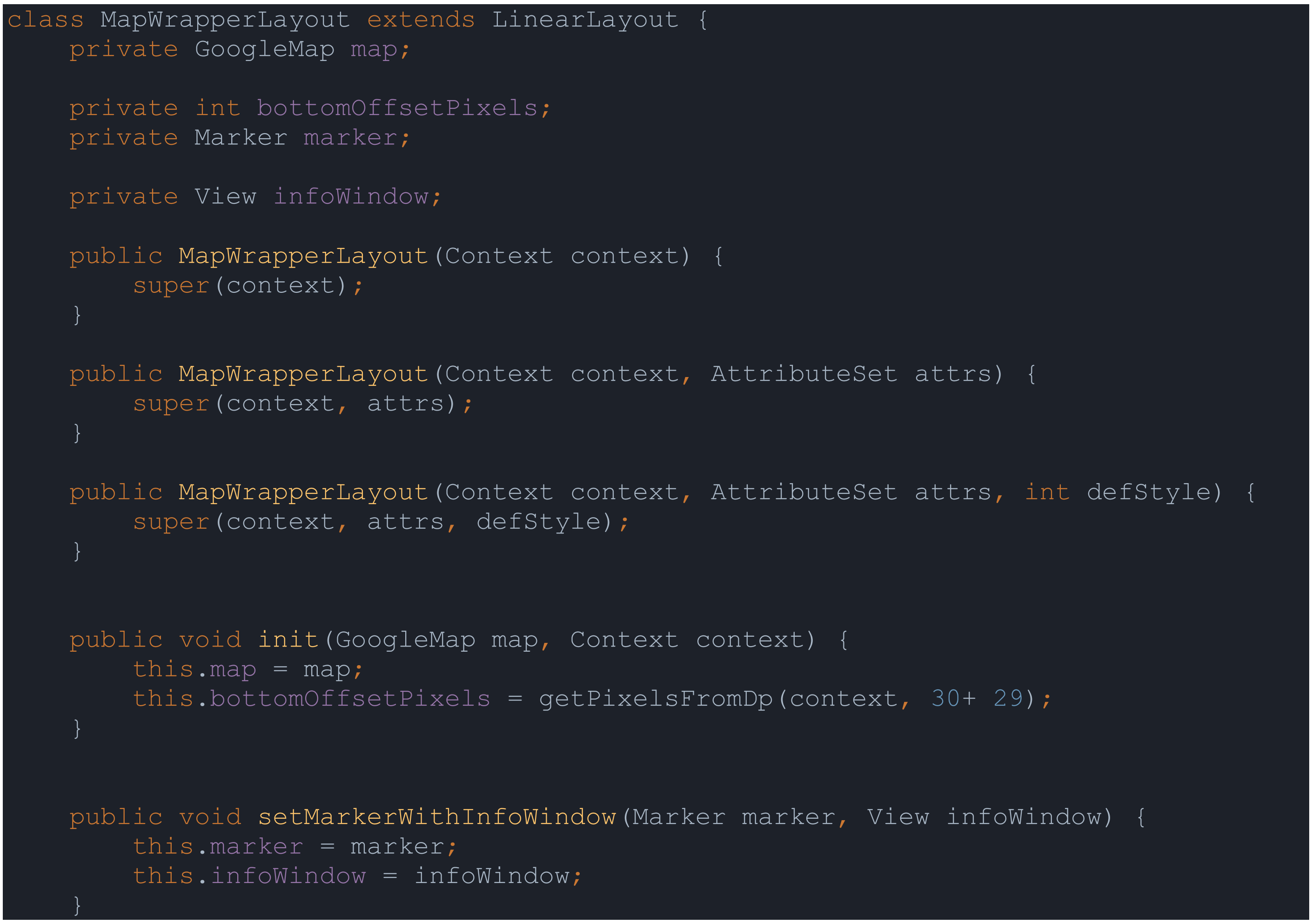
```
@Override
public void onActivityResult(int requestCode, int resultCode, Intent data) {
    super.onActivityResult(requestCode, resultCode, data);
    if (requestCode == PICK_PHOTO && resultCode == Activity.RESULT_OK) {
```



```
        if (data == null) {
            //Display an error
            return;
        } else {
            try {

                InputStream inputStream =
this.getContentResolver().openInputStream(data.getData());
                Bitmap image = BitmapFactory.decodeStream(inputStream);
                Log.i("inputStream", "Success");

                SharePhoto photo = new SharePhoto.Builder()
                        .setBitmap(image)
                        .build();
                ShareContent content = new ShareMediaContent.Builder()
                        .addMedium(photo)
                        .build();

                if (ShareDialog.canShow(ShareLinkContent.class)) {
                    shareDialog.show(content);
                }
            } catch (Exception e) {
                e.printStackTrace();
            }
        }
    }
    else if (requestCode == TAKE_PHOTO) {
        pickImage();
    }
}
```

4. **MapWrapperLayout**

   MapWrapperLayout is taken from tutorial 9.



```
class MapWrapperLayout extends LinearLayout {
    private GoogleMap map;

    private int bottomOffsetPixels;
    private Marker marker;

    private View infoWindow;

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

    public MapWrapperLayout(Context context, AttributeSet attrs) {
        super(context, attrs);
    }

    public MapWrapperLayout(Context context, AttributeSet attrs, int defStyle) {
        super(context, attrs, defStyle);
    }


    public void init(GoogleMap map, Context context) {
        this.map = map;
        this.bottomOffsetPixels = getPixelsFromDp(context, 30+ 29);
    }


    public void setMarkerWithInfoWindow(Marker marker, View infoWindow) {
        this.marker = marker;
        this.infoWindow = infoWindow;
    }
    @Override
    public boolean dispatchTouchEvent(MotionEvent ev) {
        boolean ret = false;
        // Make sure that the buildingInfoWindow is shown and we have all the
needed references
        if (marker != null && marker.isInfoWindowShown() && map != null &&
infoWindow != null) {
            // Get a marker position on the screen
            Point point =
map.getProjection().toScreenLocation(marker.getPosition());

            // Make a copy of the MotionEvent and adjust it's location
            // so it is relative to the buildingInfoWindow left top corner
            MotionEvent copyEv = MotionEvent.obtain(ev);
            copyEv.offsetLocation(
                    -point.x + (infoWindow.getWidth() / 2),
                    -point.y + infoWindow.getHeight() + bottomOffsetPixels);

            // Dispatch the adjusted MotionEvent to the buildingInfoWindow
            ret = infoWindow.dispatchTouchEvent(copyEv);
        }
        // If the buildingInfoWindow consumed the touch event, then just return
true.
        // Otherwise pass this event to the super class and return it's result
        return ret || super.dispatchTouchEvent(ev);
    }

    private int getPixelsFromDp(Context context, float dp) {
        final float scale = context.getResources().getDisplayMetrics().density;
        return (int)(dp * scale + 0.5f);
    }
}
```

5. **Get current location**
   https://stackoverflow.com/questions/32290045/error-invoke-virtual-method-double-android-location-location-getlatitude-on

```
public class MyLocationManager implements LocationListener{
    Timer timer1;
    LocationManager locationManager;
    Location location = null;
    double latitude,longitude;
    Context context;
    public Criteria criteria;
    public String bestProvider;
    String voice2text; //added
    public MyLocationManager(Context context) {
        this.context = context;
        //getLocation();
    }

    public double getLatitude() {
        return latitude;
    }

    public double getLongitude() {
        return longitude;
    }

    public void getLocation() {
        if (isLocationEnabled()) {
            locationManager = (LocationManager)
context.getSystemService(Context.LOCATION_SERVICE);
            criteria = new Criteria();
            bestProvider = String.valueOf(locationManager.getBestProvider(criteria,
true)).toString();

            //You can still do this if you like, you might get lucky:
            if (ActivityCompat.checkSelfPermission(context,
Manifest.permission.ACCESS_FINE_LOCATION) != PackageManager.PERMISSION_GRANTED ) {

                ActivityCompat.requestPermissions((Activity)context, new String[]
{Manifest.permission.ACCESS_FINE_LOCATION}, 1);
                return;
            }
            Location location = locationManager.getLastKnownLocation(bestProvider);
            if (location != null) {
                Log.i("TAG", "GPS is on");
                latitude = location.getLatitude();
                longitude = location.getLongitude();
            } else {
                //This is what you need:
                Log.i("TAG", "NO LOCATION");
                locationManager.requestLocationUpdates(bestProvider, 1000, 0,
this);
            }
        } else {
            //prompt user to enable location....
            //.................
            showSettingsAlert();
        }
    }


    @Override
    public void onLocationChanged(Location location) {
        Log.i("TAG", "LOCATION CHANGED");
        //remove location callback:
        locationManager.removeUpdates(this);

        //open the map:
        latitude = location.getLatitude();
        longitude = location.getLongitude();
        //Toast.makeText(context, "latitude:" + latitude + " longitude:" +
longitude, Toast.LENGTH_SHORT).show();
    }
    public boolean isLocationEnabled() {
        int locationMode = 0;
        String locationProviders;

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.KITKAT){
            try {
                locationMode = Settings.Secure.getInt(context.getContentResolver(),
Settings.Secure.LOCATION_MODE);

            } catch (Settings.SettingNotFoundException e) {
                e.printStackTrace();
                return false;
            }

            return locationMode != Settings.Secure.LOCATION_MODE_OFF;

        }else{
            locationProviders =
Settings.Secure.getString(context.getContentResolver(),
Settings.Secure.LOCATION_PROVIDERS_ALLOWED);
            return !TextUtils.isEmpty(locationProviders);
        }

    }
```