❖ **Course Module : MIT3206 – Mobile Computing**

❖ **Course Lecturer : Senior Lecturer Gihan P. Seneviratne Sir**

❖ **Assignment 8 : Web View**

❖ **Used Android Studio : Android Studio Koala | 2024.1.1**
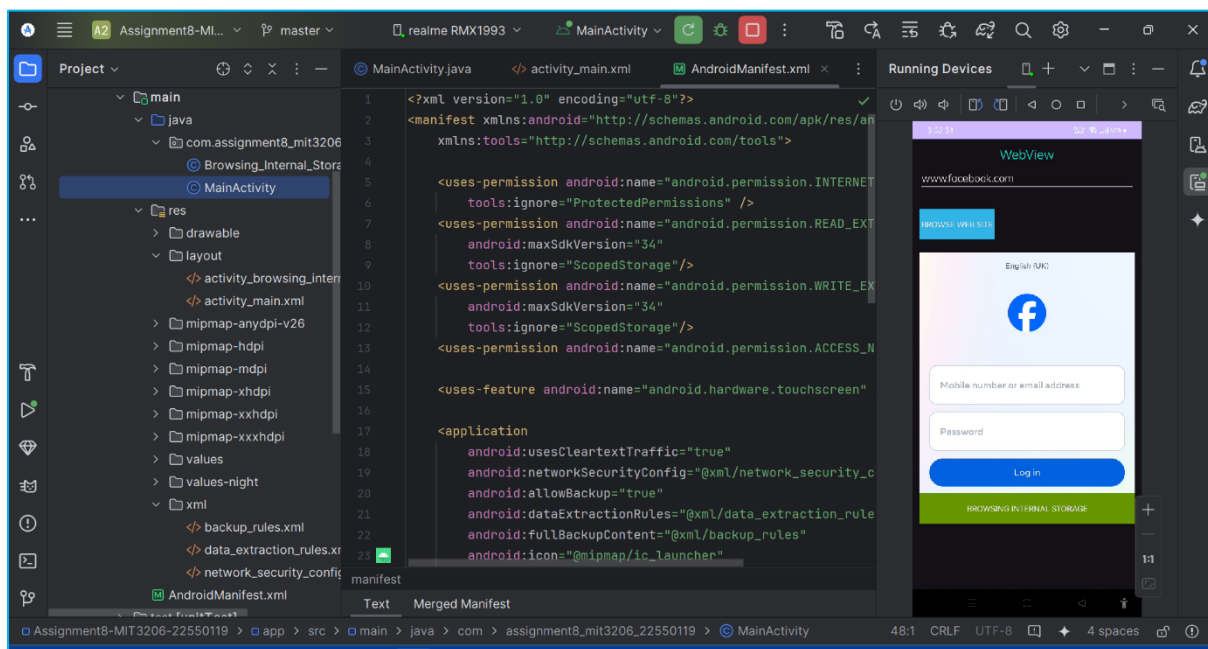
❖ **GitHub Private Repository Link :**

https://github.com/NavinduMadusanka/Assignment8-MIT3206-22550119.git

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Assignment8-MIT3206-22550119

Assignment 8 : Web View

Below is a summary of what I have learned and focused on in this assignment.

1. Android Components

- **API level**

Android Version	API Level	Version Name
Android 7.0	24	Nougat

- **Classes**

  WebView class (an extension of Android's View class)

- **Control Methods in WebView**

No	Method	Description
1	canGoBack()	WebView has a backward.
2	canGoForward()	WebView has a forward.
3	clearHistory()	Clear the WebView forward and backward history.
4	destroy()	Destroy the internal state of WebView.
5	getProgress()	Gets the progress of the current page.
6	getTitle()	Return the title of the current page.
7	getUrl()	Return the URL of the current page.

- **Permissions**
  - uses-permission – Access INTERNET
  - uses-permission – READ EXTERNAL STORAGE
  - uses-permission – WRITE EXTERNAL STORAGE
  - uses-permission – NETWORK STATE

- **Newly learned key points in this assignment**
  - Clicking on a link in the WebView site will not load this page into the WebView application.
  - The default browser has been loaded.
  - To achieve this, we have to extend and override your WebViewClient class.

    ```
    private class MyBrowser extends WebViewClient {
        @Override
        public boolean shouldOverrideUrlLoading(WebView view, String url) {
            view.loadUrl(url);
            return true;
        }
    }
    ```

  - How to disable default web browser.

- **tools:targetApi="34" and android:usesCleartextTraffic="true" in AndroidMainfest.xml**

- **uses-feature android:name="android.hardware.touchscreen"**

- **network_security_config.xml android:networkSecurityConfig="@xml/network_security_config"**

2. **Functionality of the mobile application**
   - Just specify a URL on the URL field and press the "Browse Web Site" button that appears, to launch the website.
   - Browse Local files – Touch on the "Browsing Internal Stroge" button, to launch the Local files.

3. Running the Application on my android mobile device

I was running the android app for testing in my android mobile device.

My android mobile device is Realme X2 RMX1993.

Below is a photo of my android mobile device (Realme X2 RMX1993) while the app was running.

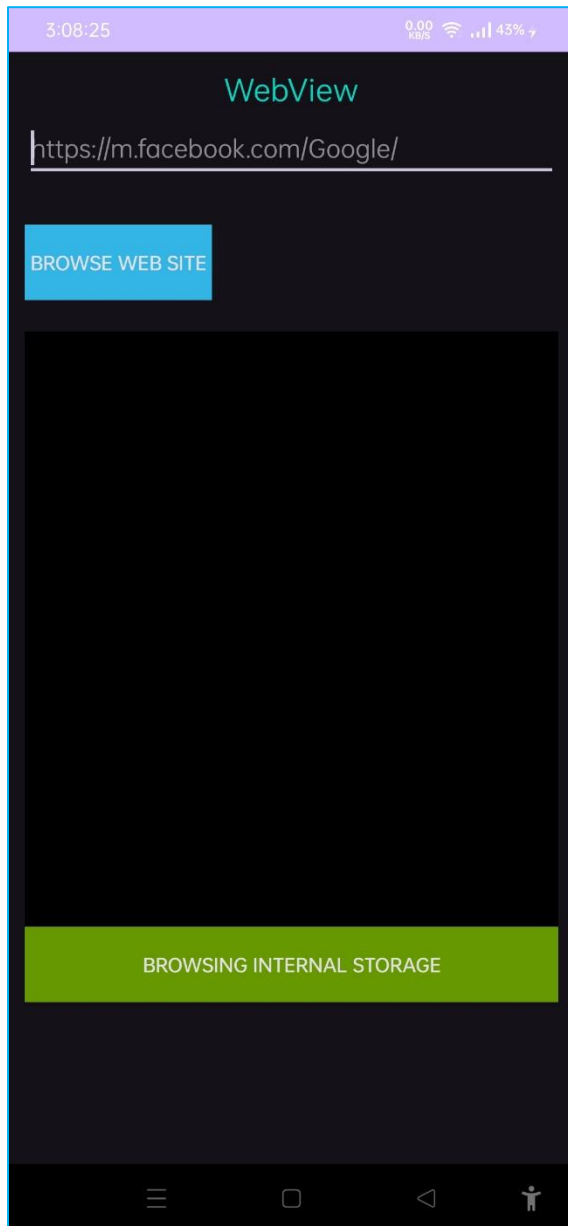My android mobile device display setting is set as dark mode option.

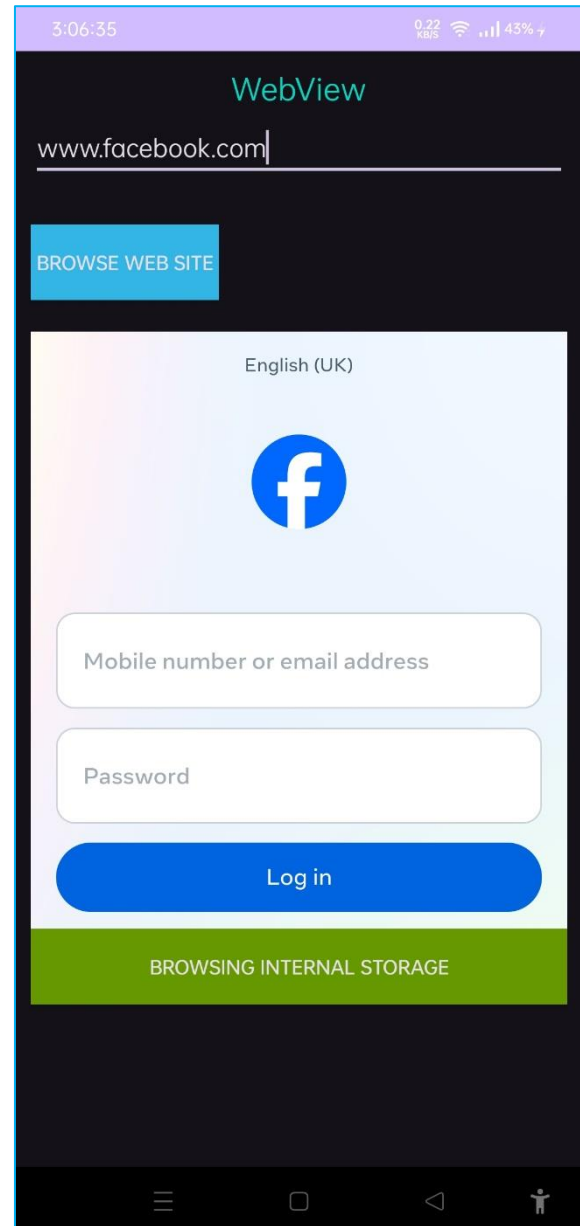**Photo 1 : Assignment8-MIT3206-22550119 in Realme X2 RMX1993**

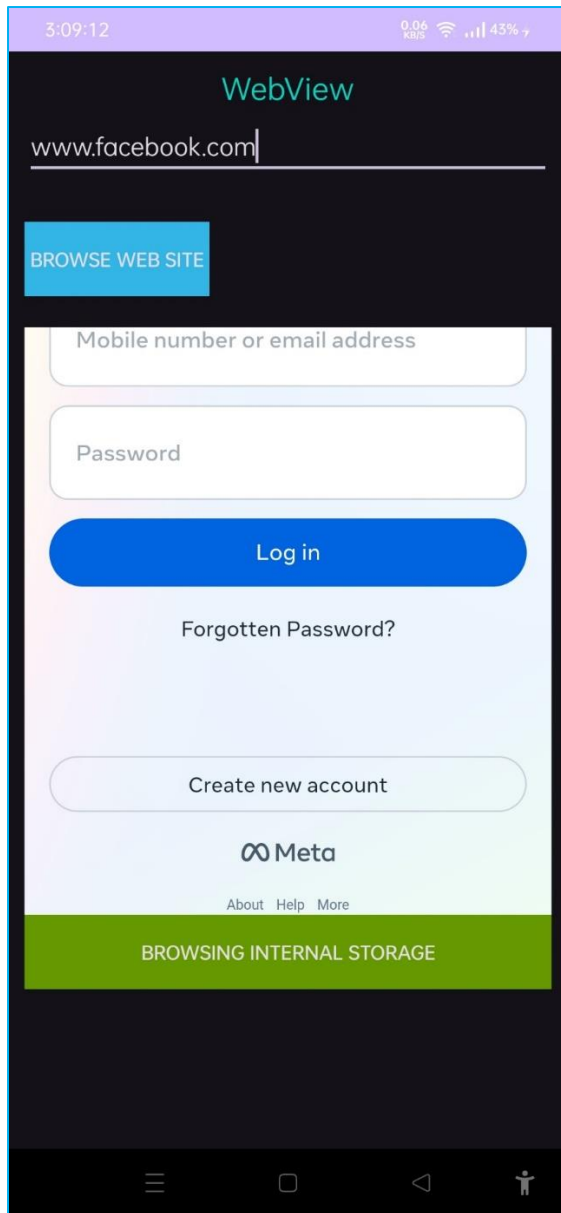**Photo 2 : Assignment8-MIT3206-22550119 in Realme X2 RMX1993**

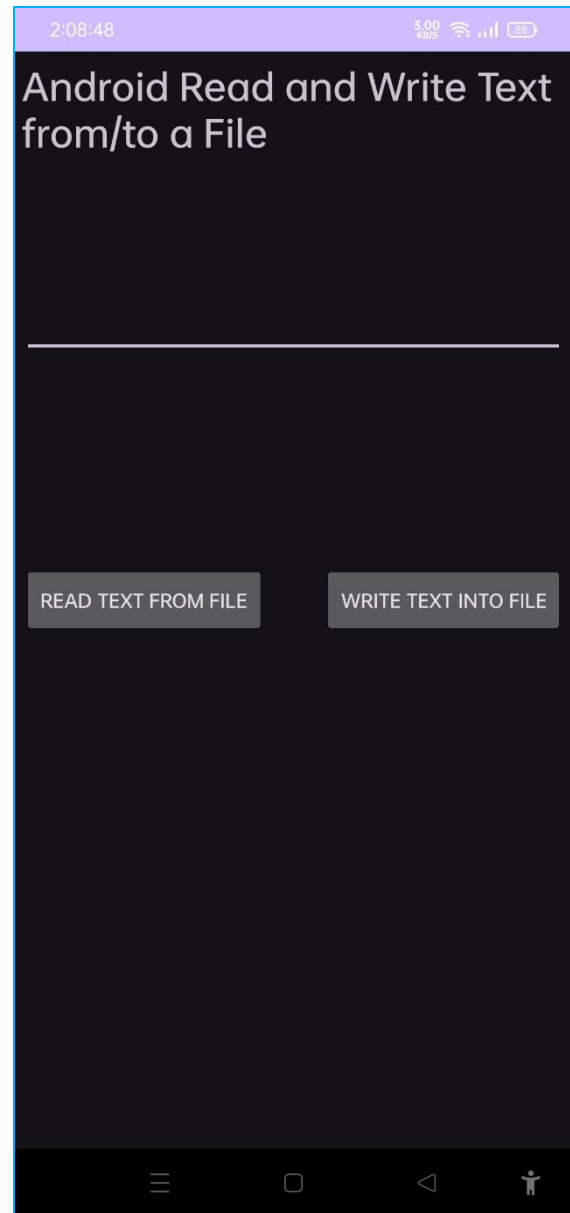**Photo 3 : Assignment8-MIT3206-22550119 in Realme X2 RMX1993**

Photo 4 : Assignment8-MIT3206-22550119 in Realme X2 RMX1993

4. Main Coding files

- **MainActivity.java**

```java
package com.assignment8_mit3206_22550119;

import android.app.Activity;
import android.os.Bundle;
import android.os.Environment;
import android.view.View;
import android.webkit.WebView;
import android.webkit.WebViewClient;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends Activity  {
    Button b1;
    Button btninternal;
    EditText ed1;

    private WebView wv1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        b1=(Button)findViewById(R.id.button);
        ed1=(EditText)findViewById(R.id.editText);
        btninternal=(Button)findViewById(R.id.btninternal);

        wv1=(WebView)findViewById(R.id.webView);
        wv1.setWebViewClient(new MyBrowser());

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String url = ed1.getText().toString();

                wv1.getSettings().setLoadsImagesAutomatically(true);
                wv1.getSettings().setJavaScriptEnabled(true);
                wv1.setScrollBarStyle(View.SCROLLBARS_INSIDE_OVERLAY);
                wv1.loadUrl(url);
            }
        });

        btninternal.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String base =
Environment.getExternalStorageDirectory().getAbsolutePath()
                    .toString();
                String imagePath = "file:///"+ base + "/logo.png";
                String html = "<!DOCTYPE html>";
                html += "<head><title>Loading files from
SDCard</title></head>";
                html += "<body><img src=\""+ imagePath + "\" />/body>";
                html += "</html>";
                wv1.loadDataWithBaseURL("", html, "text/html","UTF-8",
null);
            }
```

```
            });

    }

    private class MyBrowser extends WebViewClient {
        @Override
        public boolean shouldOverrideUrlLoading(WebView view, String url) {
            view.loadUrl(url);
            return true;
        }

    }

}
```

- **Browsing_Internal_Storage.java**

```java
package com.assignment8_mit3206_22550119;

import android.os.Bundle;
import android.app.Activity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.InputStreamReader;
import java.io.OutputStreamWriter;

public class Browsing_Internal_Storage extends Activity {

    EditText textmsg;
    Button ReadBtn;

    static final int READ_BLOCK_SIZE = 100;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_browsing_internal_storage);

        textmsg=(EditText)findViewById(R.id.editText1);
        ReadBtn=(Button)findViewById(R.id.button2);

    }

    // write text to file
    public void WriteBtn(View v) {
        // add-write text into file
        try {
            FileOutputStream fileout=openFileOutput("mytextfile.txt",
MODE_PRIVATE);
            OutputStreamWriter outputWriter=new
OutputStreamWriter(fileout);
            outputWriter.write(textmsg.getText().toString());
            outputWriter.close();

            //display file saved message
            Toast.makeText(getBaseContext(), "File saved successfully!",
                    Toast.LENGTH_SHORT).show();
```

```java
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    // Read text from file
    public void ReadBtn(View v) {
        //reading text from file
        try {
            FileInputStream fileIn=openFileInput("mytextfile.txt");
            InputStreamReader InputRead= new InputStreamReader(fileIn);

            char[] inputBuffer= new char[READ_BLOCK_SIZE];
            String s="";
            int charRead;

            while ((charRead=InputRead.read(inputBuffer))>0) {
                // char to string conversion
                String
readstring=String.copyValueOf(inputBuffer,0,charRead);
                s +=readstring;
            }
            InputRead.close();
            textmsg.setText(s);

        } catch (Exception e) {
            e.printStackTrace();
        }
    }

}
```

- **activity_main.xml**

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="10dp"
    android:paddingRight="10dp"
    android:paddingTop="10dp"
    android:paddingBottom="10dp"
    tools:context="com.assignment8_mit3206_22550119.MainActivity">

    <TextView
        android:text="WebView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textview"
        android:textSize="20dp"
        android:textColor="@color/colorAccent"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true" />


    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
```

```xml
                    android:layout_height="wrap_content"
                    android:layout_alignParentTop="true"
                    android:layout_centerHorizontal="true"
                    android:layout_marginTop="30dp"
                    android:focusable="true"
                    android:hint="https://m.facebook.com/Google/"/>

        <Button
                android:id="@+id/button"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_alignParentStart="true"
                android:layout_alignParentTop="true"
                android:layout_marginTop="100dp"
                android:background="@android:color/holo_blue_light"
                android:text=" Browse Web Site " />

        <WebView
                android:id="@+id/webView"
                android:layout_width="match_parent"
                android:layout_height="400dp"
                android:layout_below="@+id/button"
                android:layout_marginTop="20dp">

        </WebView>

        <LinearLayout
                android:layout_width="401dp"
                android:layout_height="138dp"
                android:layout_alignParentStart="true"
                android:layout_alignParentBottom="true"
                android:layout_marginStart="0dp"
                android:layout_marginBottom="3dp"
                android:orientation="horizontal">

            <Button
                    android:id="@+id/btninternal"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:background="@android:color/holo_green_dark"
                    android:text="@string/btninternal" />
        </LinearLayout>

</RelativeLayout>
```

- **activity_browsing_internal_storage.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">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
```

```
            android:padding="5dp"
            android:text="Android Read and Write Text from/to a File"
            android:textStyle="bold"
            android:textSize="28sp" />

    <EditText
            android:id="@+id/editText1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentLeft="true"
            android:layout_alignParentRight="true"
            android:layout_below="@+id/textView1"
            android:layout_marginTop="22dp"
            android:minLines="5"
            android:layout_margin="5dp">

            <requestFocus />
    </EditText>

    <Button
            android:id="@+id/button1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Write Text into File"
            android:onClick="WriteBtn"
            android:layout_alignTop="@+id/button2"
            android:layout_alignRight="@+id/editText1"
            android:layout_alignEnd="@+id/editText1" />

    <Button
            android:id="@+id/button2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Read Text From file"
            android:onClick="ReadBtn"
            android:layout_centerVertical="true"
            android:layout_alignLeft="@+id/editText1"
            android:layout_alignStart="@+id/editText1" />

</RelativeLayout>
```

- **network_security_config.xml**

```xml
<?xml version="1.0" encoding="utf-8"?>
<network-security-config xmlns:tools="http://schemas.android.com/tools">
    <domain-config cleartextTrafficPermitted="true">
        <domain includeSubdomains="true"
            tools:ignore="NetworkSecurityConfig">facebook.com</domain>
        <domain includeSubdomains="true"
            tools:ignore="NetworkSecurityConfig">google.com</domain>
        <domain includeSubdomains="true"
            tools:ignore="NetworkSecurityConfig">bing.com</domain>
        <domain includeSubdomains="true"
            tools:ignore="NetworkSecurityConfig">.com</domain>
    </domain-config>
</network-security-config>
```

- **AndroidManifest.xml**

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

    <uses-permission android:name="android.permission.INTERNET"
        tools:ignore="ProtectedPermissions" />
    <uses-permission
android:name="android.permission.READ_EXTERNAL_STORAGE"
        android:maxSdkVersion="34"
        tools:ignore="ScopedStorage"/>
    <uses-permission
android:name="android.permission.WRITE_EXTERNAL_STORAGE"
        android:maxSdkVersion="34"
        tools:ignore="ScopedStorage"/>
    <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE"
/>

    <uses-feature android:name="android.hardware.touchscreen" />

    <application
        android:usesCleartextTraffic="true"
        android:networkSecurityConfig="@xml/network_security_config"
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="Assignment8-MIT3206-22550119"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Assignment8MIT320622550119"
        tools:targetApi="34">
        <activity
            android:name=".Browsing_Internal_Storage"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER"
/>
            </intent-filter>
        </activity>
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```