Software for Mobile Devices

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Task 1:

Main Activity

package com.example.download\_image;  
  
import android.content.Intent;  
import android.graphics.Bitmap;  
import android.os.Bundle;  
import android.widget.Button;  
import android.widget.ImageView;  
  
  
  
import android.graphics.Bitmap;  
import android.graphics.BitmapFactory;  
import android.os.AsyncTask;  
  
  
  
import androidx.activity.EdgeToEdge;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.graphics.Insets;  
import androidx.core.view.ViewCompat;  
import androidx.core.view.WindowInsetsCompat;  
  
import java.util.concurrent.ExecutionException;  
  
public class MainActivity extends AppCompatActivity {  
  
  
 ImageView imageView;  
 Button btn;  
 Button btn2;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 EdgeToEdge.*enable*(this);  
 setContentView(R.layout.*activity\_main*);  
  
 imageView=findViewById(R.id.*imageDown*);  
 btn=findViewById(R.id.*btnDown*);  
 btn2=findViewById(R.id.*webBtn*);  
  
 btn.setOnClickListener(v -> {  
  
  
 // Create and execute the AsyncTask  
 imageDownload download =new imageDownload();  
 Bitmap bitmap = null;  
 try {  
 // Execute AsyncTask and get the result (image)  
 bitmap = download.execute("https://images.pexels.com/photos/414612/pexels-photo-414612.jpeg").get();  
 imageView.setImageBitmap(bitmap); // Set the downloaded image in the ImageView  
 } catch (ExecutionException | InterruptedException e) {  
 throw new RuntimeException(e);  
 }  
  
 });  
  
 btn2.setOnClickListener(v -> {  
 Intent newIntent=new Intent(MainActivity.this, WebContentActivity.class);  
 startActivity(newIntent);  
  
 });  
 }  
}

Main xml

<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <ImageView  
 android:id="@+id/imageDown"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="139dp"  
 android:layout\_marginTop="152dp"  
 android:layout\_marginEnd="144dp"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 tools:srcCompat="@tools:sample/avatars" />  
  
 <Button  
 android:id="@+id/btnDown"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="150dp"  
 android:layout\_marginTop="288dp"  
 android:layout\_marginEnd="150dp"  
 android:text="Download Pic 🖼️"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.507"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/imageDown" />  
  
 <Button  
 android:id="@+id/webBtn"  
 android:layout\_width="184dp"  
 android:layout\_height="48dp"  
 android:layout\_marginStart="211dp"  
 android:layout\_marginTop="79dp"  
 android:layout\_marginEnd="16dp"  
 android:layout\_marginBottom="33dp"  
 android:text="Download Web ➡️"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/btnDown" />  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="164dp"  
 android:layout\_marginTop="18dp"  
 android:layout\_marginEnd="189dp"  
 android:layout\_marginBottom="75dp"  
 android:text="Image Download"  
 app:layout\_constraintBottom\_toTopOf="@+id/imageDown"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.531"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="1.0" />  
</androidx.constraintlayout.widget.ConstraintLayout>

Image download class

package com.example.download\_image;  
  
import android.graphics.Bitmap;  
import android.graphics.BitmapFactory;  
import android.os.AsyncTask;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import java.io.IOException;  
import java.io.InputStream;  
import java.net.URL;  
  
import javax.net.ssl.HttpsURLConnection;  
  
public class imageDownload extends AsyncTask<String ,Void ,Bitmap > {  
 @Override  
 protected Bitmap doInBackground(String... strings) {  
 try {  
 URL url = new URL(strings[0]);  
 HttpsURLConnection connection = (HttpsURLConnection) url.openConnection();  
 connection.connect();  
 InputStream inputStream = connection.getInputStream();  
 return BitmapFactory.*decodeStream*(inputStream); // Convert InputStream to Bitmap  
 } catch (IOException e) {  
 throw new RuntimeException(e);  
 }  
 }  
}

Web content

package com.example.download\_image;  
  
import android.os.AsyncTask;  
import android.os.Bundle;  
import android.util.Log;  
import android.widget.Button;  
import android.widget.EditText;  
  
import androidx.activity.EdgeToEdge;  
import androidx.appcompat.app.AppCompatActivity;  
  
import java.io.IOException;  
import java.io.InputStream;  
import java.io.InputStreamReader;  
import java.net.HttpURLConnection;  
import java.net.URL;  
import java.util.concurrent.ExecutionException;  
  
public class WebContentActivity extends AppCompatActivity {  
 EditText editText;  
 Button button;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 EdgeToEdge.*enable*(this);  
 setContentView(R.layout.*activity\_web\_content*);  
  
 button = findViewById(R.id.*button8*);  
 editText = findViewById(R.id.*tbtMulltiLineWeb*);  
  
 button.setOnClickListener(v -> {  
 try {  
 // Execute AsyncTask to download web content  
 String content = new DownloadWebContent().execute("https://www.google.com").get();  
 Log.*d*("TAG", "Back in MainActivity");  
 editText.setText(content); // Set the downloaded content in the EditText  
 } catch (ExecutionException | InterruptedException e) {  
 throw new RuntimeException(e);  
 }  
 });  
 }  
  
  
 // AsyncTask to download the web content  
 private static class DownloadWebContent extends AsyncTask<String, Void, String> {  
 @Override  
 protected String doInBackground(String... strings) {  
 Log.*d*("Tag", "doInBackground in Progress");  
 StringBuilder webContent = new StringBuilder();  
  
 try {  
 URL url = new URL(strings[0]);  
 HttpURLConnection connection = (HttpURLConnection) url.openConnection();  
 connection.connect();  
 InputStream stream = connection.getInputStream();  
 InputStreamReader reader = new InputStreamReader(stream);  
  
 int data;  
 while ((data = reader.read()) != -1) {  
 webContent.append((char) data);  
 }  
  
 } catch (IOException e) {  
 return "Error: " + e.getMessage();  
 }  
  
 return webContent.toString();  
 }  
  
 @Override  
 protected void onPostExecute(String s) {  
 Log.*d*("Tag", "Download Completed");  
 }  
 }  
}

Web xml

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:paddingTop="80dp"  
 tools:context=".WebContentActivity">  
  
  
 <!-- EditText to display the downloaded web content -->  
 <Button  
  
 android:id="@+id/button8"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_gravity="center\_horizontal"  
 android:padding="10dp"  
 android:text="Download Web Content"  
 android:textSize="18sp" />  
  
 <EditText  
 android:id="@+id/tbtMulltiLineWeb"  
 android:layout\_width="match\_parent"  
 android:layout\_height="0dp"  
 android:layout\_marginTop="20dp"  
 android:layout\_weight="1"  
 android:padding="10dp"  
 android:scrollbars="vertical"  
 android:gravity="top"  
 android:textSize="16sp"  
 android:background="@android:drawable/edit\_text"  
 android:hint="Web content will appear here..."/>  
  
  
</LinearLayout>





