

- ❖ Course Module : MIT3206 – Mobile Computing
- ❖ Course Lecturer : Senior Lecturer Gihan P. Seneviratne Sir

❖ Assignment 6 : Camera Demo

❖ Used Android Studio : Android Studio Koala | 2024.1.1

❖ GitHub Private Repository Link :

<https://github.com/NavinduMadusanka/Assignment6-MIT3206-22550119.git>

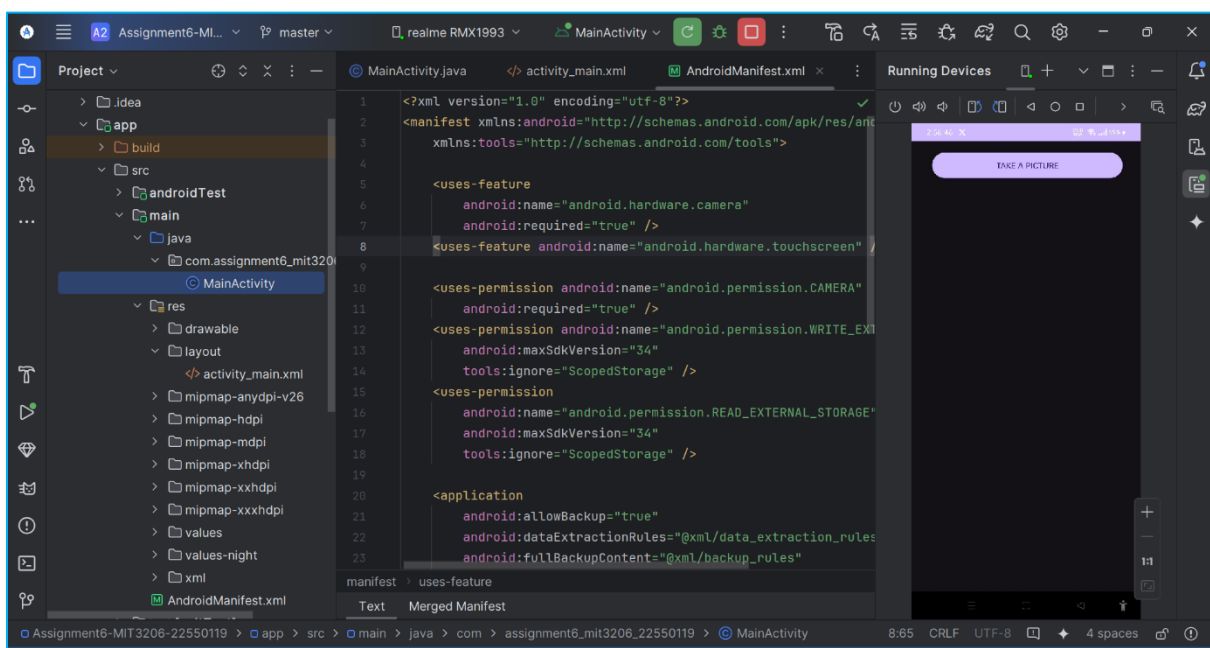
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Assignment6-MIT3206-22550119

## Assignment 6 : Camera Demo

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

- **Permissions**

uses-permission - READ\_EXTERNAL\_STORAGE  
uses-permission - WRITE\_EXTERNAL\_STORAGE  
uses-permission - ACCESS CAMERA

- **Newly learned key points in this assignment**

- Granting user permissions to access hardware  
(External storage & built-in camera)
- Reducing picture file capacity

- **tools:targetApi="34" in AndroidManifest.xml**

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

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

### 2. Functionality of the mobile application

- The app opens with a "Take A Picture" button to take a photo.
- Pressing the "Take A Picture" button opens the camera and gives a chance to take the photo.

- Once the photo is taken, an image of it is displayed.  
If the photo is not up to standard, you will have the opportunity to try again, at the touch of the "Retry = (x)" button.  
If the photo is at the appropriate level, you can press the "Ok = ☑ " button to save it.
- After pressing the "Ok" button, its capacity is reduced and it is saved in the external storage.

- **Functions descriptions**

In this assignment I will mention the special activity functions that I have just learned.

No	Function	Description
1	onCreate(Bundle savedInstanceState)	This is the first method called when the activity is created. It is used to initialize the activity and set up the user interface.
2	setOnClickListener(View.OnClickListener listener)	This method is used to set a click listener for a button or other view. When the button is clicked, the code in the listener is executed.
3	startActivityForResult(Intent intent, int requestCode)	This method is used to start another activity and receive a result from it. The requestCode is used to identify the request.
4	onActivityResult(int requestCode, int resultCode, Intent data)	This method is called when an activity started with startActivityForResult() finishes. The requestCode is used to identify the request, the resultCode indicates whether the activity was successful, and the data contains any data returned by the activity.

### 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.

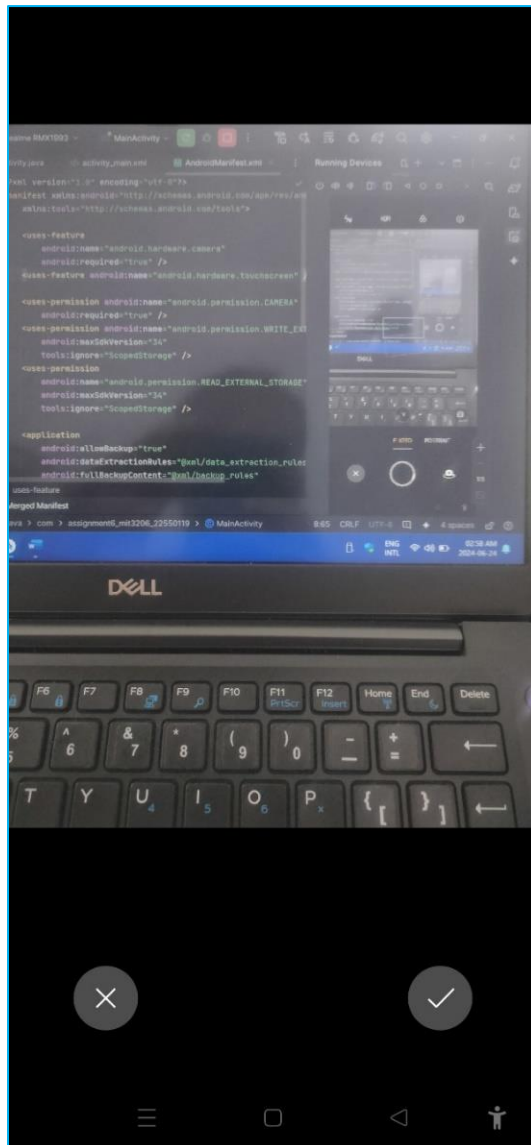


Photo 1 : Assignment6-MIT3206-22550119 in Realme X2 RMX1993

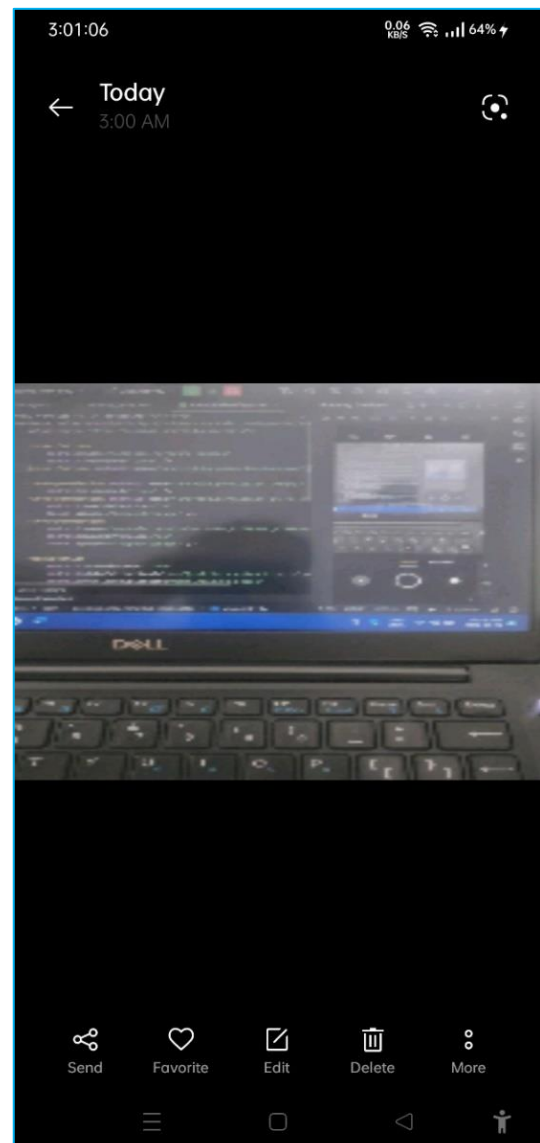
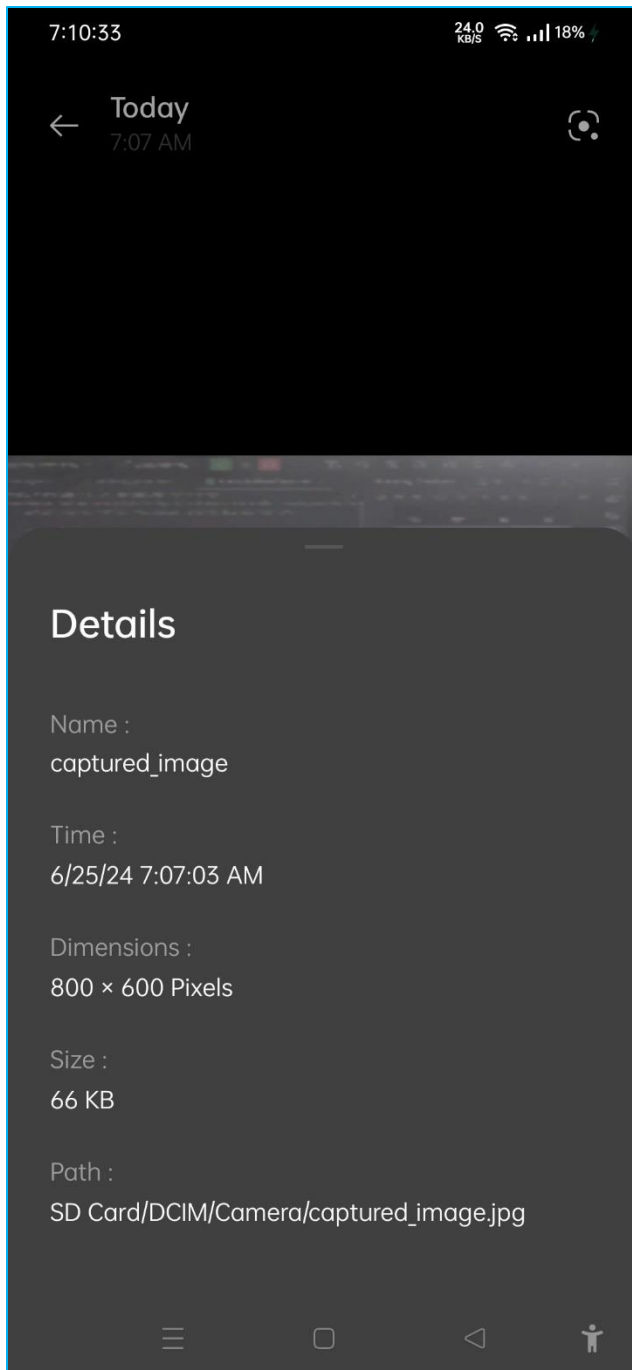
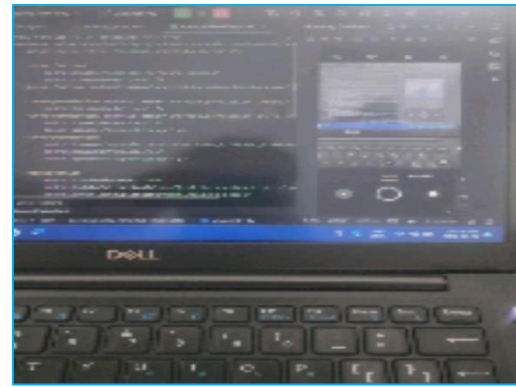


Photo 2 : Assignment6-MIT3206-22550119 in Realme X2 RMX1993



**Photo 3 : Assignment6-MIT3206-22550119 in Realme X2 RMX1993**



**Photo 4 : Assignment6-MIT3206-22550119 in Realme X2 RMX1993**



**Photo 5 : Assignment6-MIT3206-22550119 in Realme X2 RMX1993**

#### 4. Main Coding files

- MainActivity.java

```
package com.assignment6_mit3206_22550119;

import android.content.Intent;
import android.graphics.Bitmap;
import android.net.Uri;
import android.os.Bundle;
import android.os.Environment;
import android.provider.MediaStore;
import android.view.View;
import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;

import java.io.File;
import java.io.FileOutputStream;
import java.io.IOException;

public class MainActivity extends AppCompatActivity {

    private static final int REQUEST_IMAGE_CAPTURE = 1;
    private Button btnCaptureImage;

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

        btnCaptureImage = findViewById(R.id.btn_capture_image);
        btnCaptureImage.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                dispatchTakePictureIntent();
            }
        });
    }

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

    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent
data) {
        if (requestCode == REQUEST_IMAGE_CAPTURE && resultCode ==
RESULT_OK) {
            Bundle extras = data.getExtras();
            Bitmap imageBitmap = (Bitmap) extras.get("data");
            saveImageToSDCard(imageBitmap);
        }
    }
}
```

```
private void saveImageToSDCard(Bitmap bitmap) {
    // Reduce the size of the captured image
    Bitmap resizedBitmap = Bitmap.createScaledBitmap(bitmap, 800, 600,
true);

    // Create a file to save the image
    File imageFile = new
File(Environment.getExternalStoragePublicDirectory(Environment.DIRECTORY_PIC
TURES), "captured_image.jpg");

    try {
        // Save the image to the SD card
        FileOutputStream fos = new FileOutputStream(imageFile);
        resizedBitmap.compress(Bitmap.CompressFormat.JPEG, 90, fos);
        fos.close();

        // Notify the user that the image has been saved
        Uri imageUri = Uri.fromFile(imageFile);
        sendBroadcast(new Intent(Intent.ACTION_MEDIA_SCANNER_SCAN_FILE,
imageUri));
    } catch (IOException e) {
        e.printStackTrace();
    }
}
}
```

- activity\_main.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:padding="14dp">

    <Button
        android:id="@+id/btn_capture_image"
        android:layout_width="300dp"
        android:layout_marginStart="18dp"
        android:layout_height="wrap_content"
        android:text="TAKE A PICTURE" />

</LinearLayout>
```

- AndroidManifest.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-feature
        android:name="android.hardware.camera"
        android:required="true" />
    <uses-feature android:name="android.hardware.touchscreen" />

    <uses-permission android:name="android.permission.CAMERA"
        android:required="true" />
    <uses-permission
        android:name="android.permission.WRITE_EXTERNAL_STORAGE"
```

```
        android:maxSdkVersion="34"
        tools:ignore="ScopedStorage" />
    <uses-permission
        android:name="android.permission.READ_EXTERNAL_STORAGE"
        android:maxSdkVersion="34"
        tools:ignore="ScopedStorage" />

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="Assignment6-MIT3206-22550119"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Assignment6MIT320622550119"
        tools:targetApi="34">
        <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>
```