INTERNSHIP ASSIGNMENT

EARTH BOLT

Android Application Development

Submitted by,

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Objective:

Create a camera app using Kotlin. This app should allow users to take pictures and manage photo albums.

Requirements:

1. In-app Camera:

- Implement an in-app camera.
- Allow users to capture one or multiple photos in one session.
- Good to have: Enable photo preview before saving (Brownie points).

2. Photo Album Management:

- Group photos from one capture session into a single album.
- Display albums on the home screen, sorted by date with the latest first.
- Good to have: Allow users to view and edit album names (Brownie points).
- Good to have: Provide an option to delete albums (Brownie points).

3. Architecture and Data Storage:

- Use MVVM architecture.
- Use Room DB to store photo details, timestamps, and album names.

4. User Interface:

- Include a splash screen.

Technical Specifications:

- Use Kotlin for development.

Deliverables:

- APK file of the application.
- Source code

The Camera & Album Manager App is designed to provide users with a seamless experience for capturing and organizing photos. Built using Kotlin, the app features an in-app camera that allows users to take pictures directly within the app. Users can then create, view, and manage multiple photo albums, making it easy to organize and access their photos. The app uses modern Android development practices, ensuring a robust and user-friendly interface for all photo management needs.

Project Directory Structure:

```
/Camerax
    /app
        /src
            /main
                /java
                    /com/example/gokulakrishnan.camerax_app
                        /ui.theme
                            MainActivity.kt
                            App.kt
                        /data.repository
                            camerarepositoryImpl.kt
                        /domain.repository
                            Camerarepository.kt
                        /presentation
                            Camerascreen.kt
                    cameraviewmodel
                /res
                    /drawable
                        ic_launcher_background.xml
                ic_launcher_foreground.xml
                    /mipmap-anydpi-v26
                ic_launcher.xml
                ic_launcher_round.xml
               /mipmap-hdpi
                ic_launcher.webp
                RI ic_launcher_round.webp
```

```
            /mipmap-mdpi
              ic—launcher.webp
              RI ic_launcher_round.webp
            /mipmap-xhdpi
              RI ic—launcher.webp
              RI ic_launcher_round.webp
           /mipmap-xxhdpi
              RI ic-launcher.webp
              RI ic_launcher_round.webp
          /mipmap-xxxhdpi
              RI ic_launcher.webp
              RI ic_launcher_round.webp
               /values
              colors.xml
              strings.xml
              themes.xml
            /xml
              backup_rules.xml
              data_extraction_rules.xml
          AndroidManifest.xml
       /build.gradle (Module: app)
   /build.gradle (Project)
   /gradle
   /settings.gradle
```

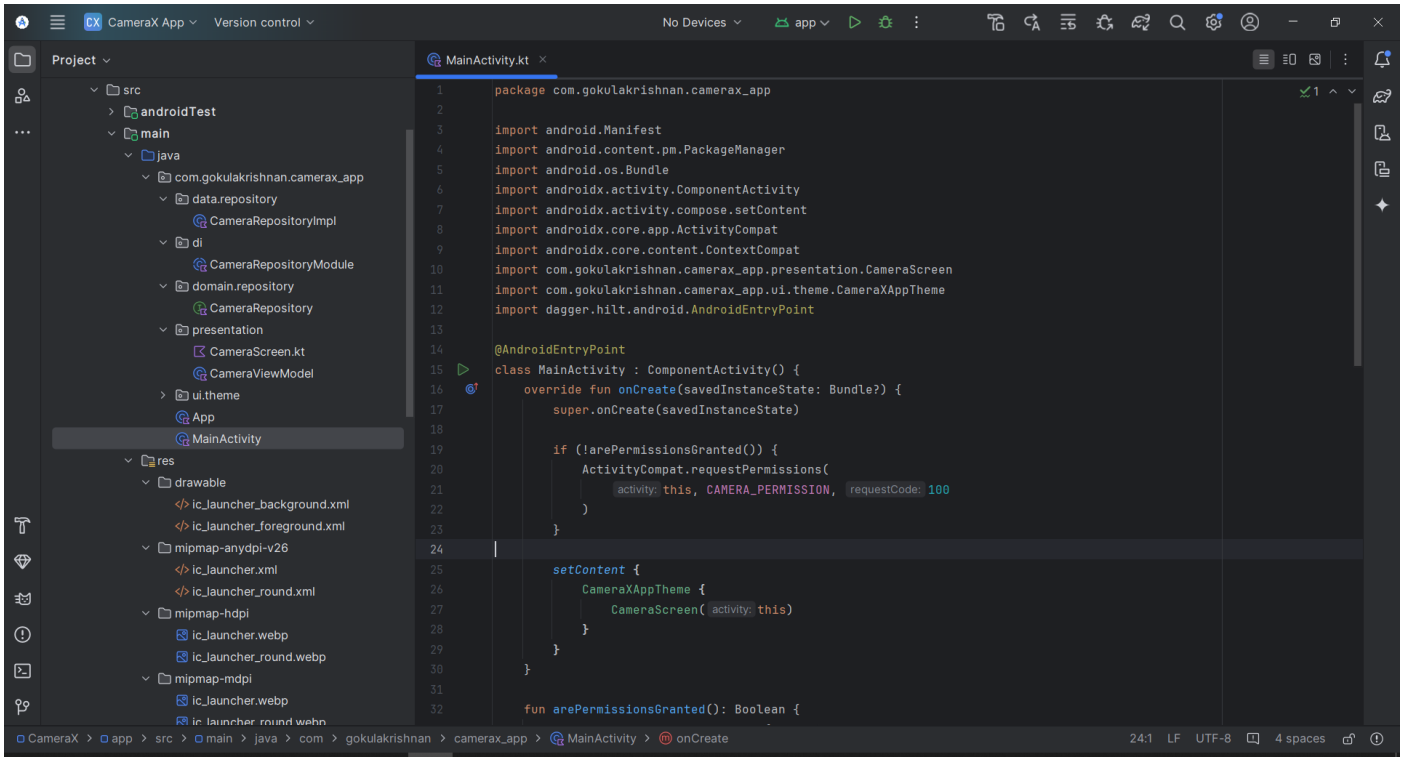
Sample Source Code:

MainActivity.kt:

```
package com.gokulakrishnan.camerax_app

import android.Manifest
import android.content.pm.PackageManager
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.core.app.ActivityCompat
```

```
import androidx.core.content.ContextCompat
import com.gokulakrishnan.camerax_app.presentation.CameraScreen
import com.gokulakrishnan.camerax_app.ui.theme.CameraXAppTheme
import dagger.hilt.android.AndroidEntryPoint

@AndroidEntryPoint
class MainActivity : ComponentActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)

        if (!arePermissionsGranted()) {
            ActivityCompat.requestPermissions(
                this, CAMERA_PERMISSION, 100
            )
        }

        setContent {
            CameraXAppTheme {
                CameraScreen(this)
            }
        }
    }

    fun arePermissionsGranted(): Boolean {
        return CAMERA_PERMISSION.all { perssion ->
            ContextCompat.checkSelfPermission(
                applicationContext,
                perssion
            ) == PackageManager.PERMISSION_GRANTED
        }
    }

    companion object {
```

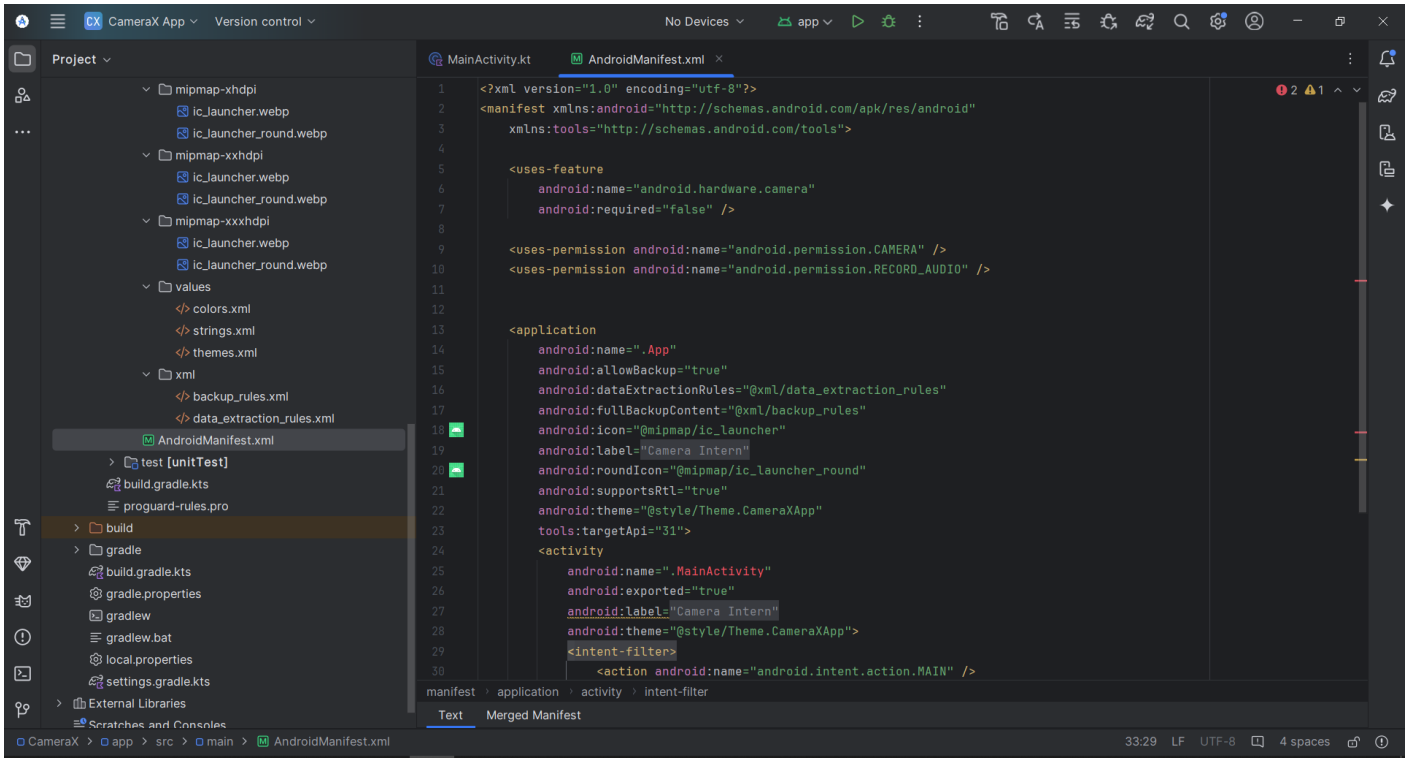
```
        val CAMERA_PERMISSION = arrayOf(
            Manifest.permission.CAMERA,
            Manifest.permission.RECORD_AUDIO
        )
    }}
```

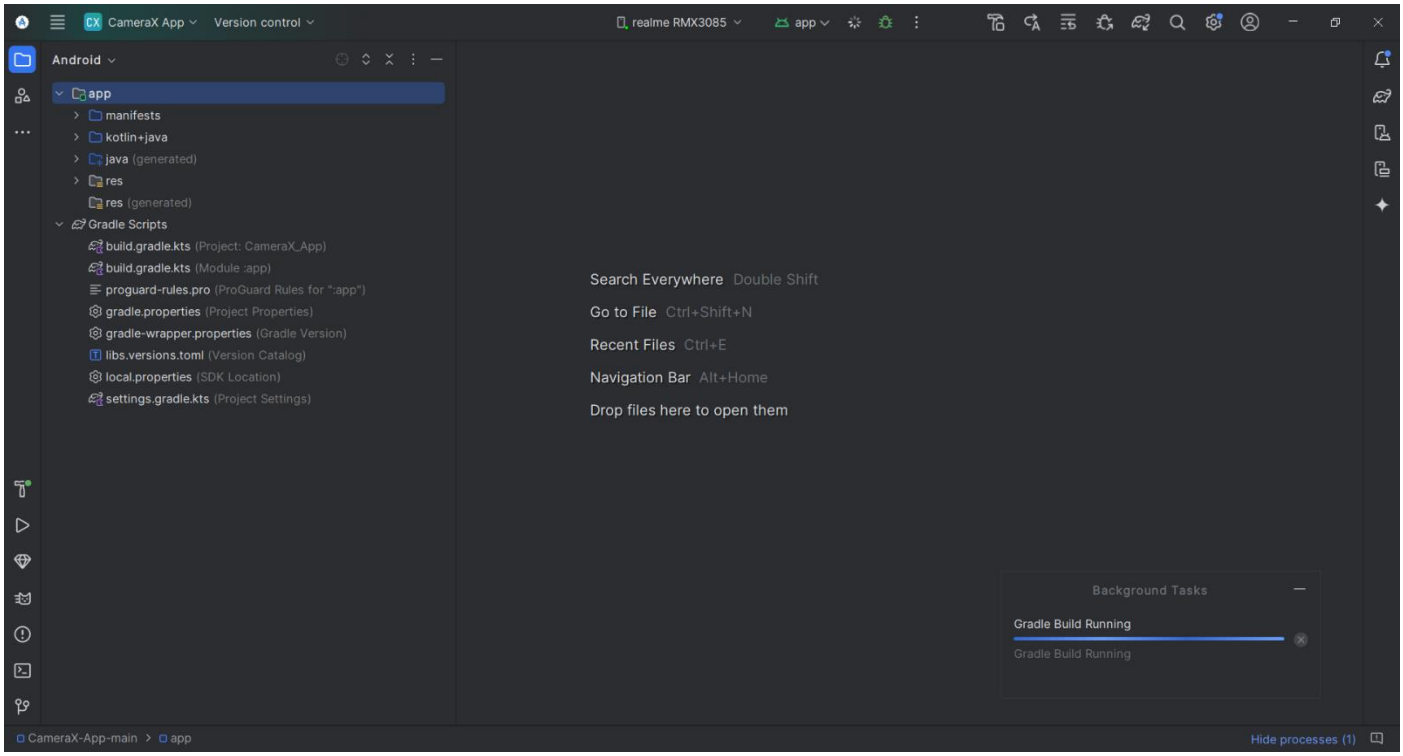


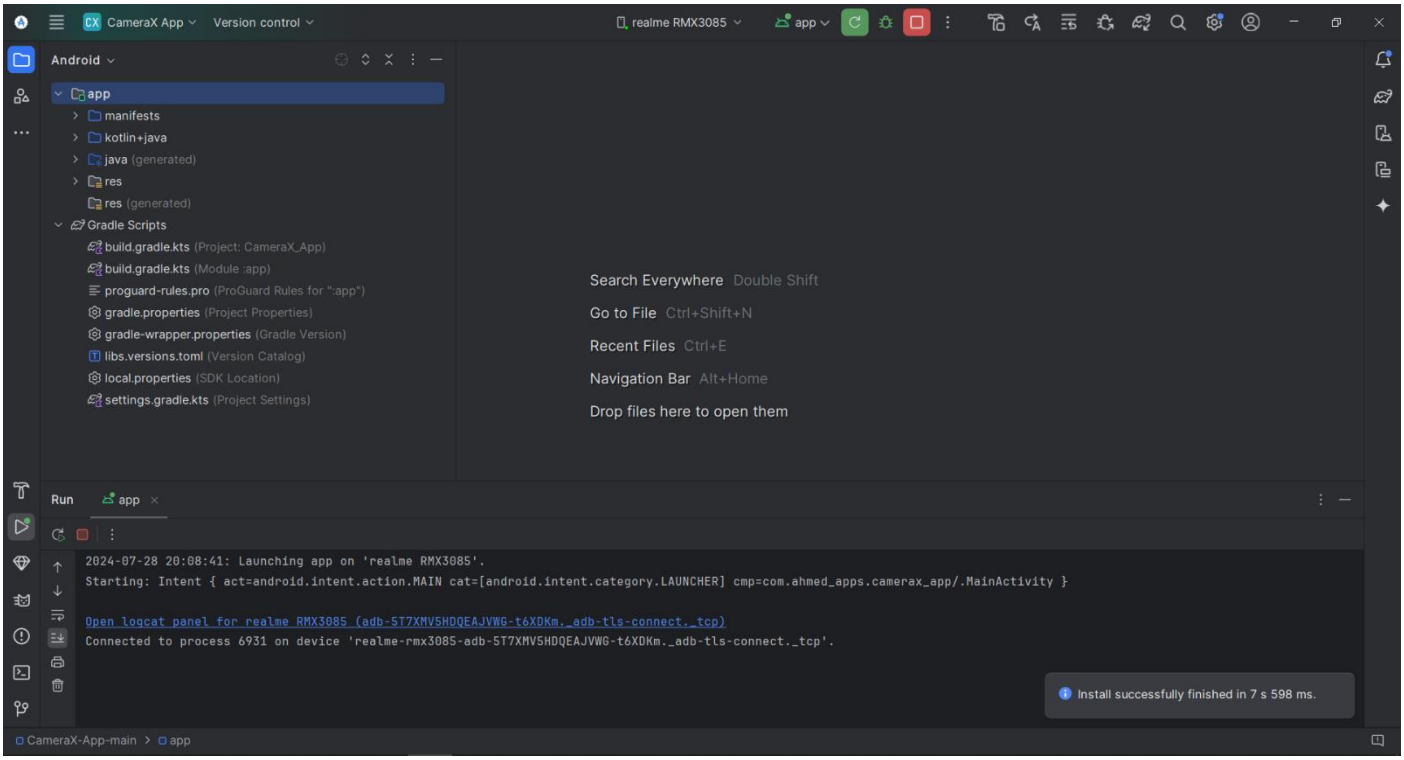
AndroidManifest.xml

```
<?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="false" />
    <uses-permission android:name="android.permission.CAMERA" />
    <uses-permission android:name="android.permission.RECORD_AUDIO" />
    <application
        android:name=".App"
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
```

```
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.CameraXApp"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true"
            android:label="@string/app_name"
            android:theme="@style/Theme.CameraXApp">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```




CameraX App
Version control
realme RMX3085
app
Android
app
manifests
kotlin+java
java (generated)
res
res (generated)
Gradle Scripts
build.gradle.kts (Project: CameraX_App)
build.gradle.kts (Module :app)
proguard-rules.pro (ProGuard Rules for ":app")
gradle.properties (Project Properties)
gradle-wrapper.properties (Gradle Version)
libs.versions.toml (Version Catalog)
local.properties (SDK Location)
settings.gradle.kts (Project Settings)
Search Everywhere Double Shift
Go to File Ctrl+Shift+N
Recent Files Ctrl+E
Navigation Bar Alt+Home
Drop files here to open them
Background Tasks
Gradle Build Running
Gradle Build Running
CameraX-App-main
app
Hide processes (1)


CameraX App
Version control
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app
Android
app
manifests
kotlin+java
java (generated)
res
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Gradle Scripts
build.gradle.kts (Project: CameraX_App)
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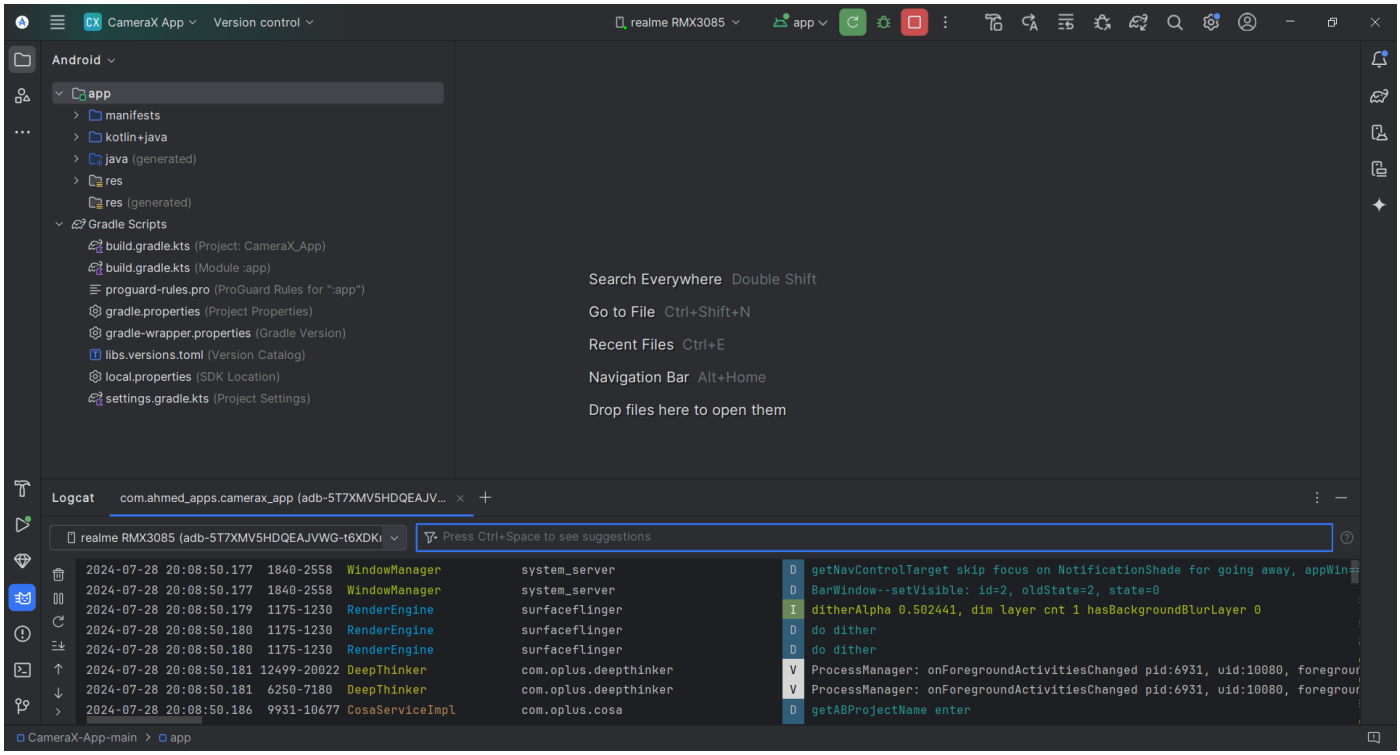
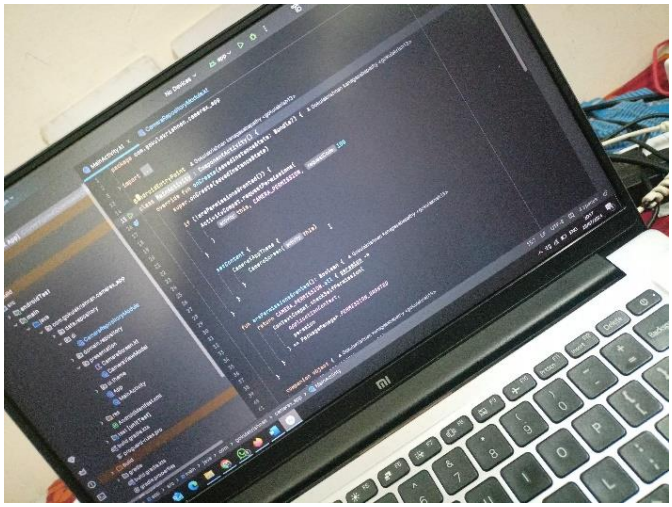
proguard-rules.pro (ProGuard Rules for ":app")
gradle.properties (Project Properties)
gradle-wrapper.properties (Gradle Version)
libs.versions.toml (Version Catalog)
local.properties (SDK Location)
settings.gradle.kts (Project Settings)
Search Everywhere Double Shift
Go to File Ctrl+Shift+N
Recent Files Ctrl+E
Navigation Bar Alt+Home
Drop files here to open them
Run
app
2024-07-28 20:08:41: Launching app on 'realme RMX3085'.
Starting: Intent { act=android.intent.action.MAIN cat=[android.intent.category.LAUNCHER] cmp=com.ahmed_apps.camerax_app/.MainActivity }
Open logcat panel for realme RMX3085 (adb-5T7XMV5HDQEAJVWG-t6XDKm._adb-tls-connect._tcp)
Connected to process 6931 on device 'realme-rmx3085-adb-5T7XMV5HDQEAJVWG-t6XDKm._adb-tls-connect._tcp'.
Install successfully finished in 7 s 598 ms.
CameraX-App-main
app

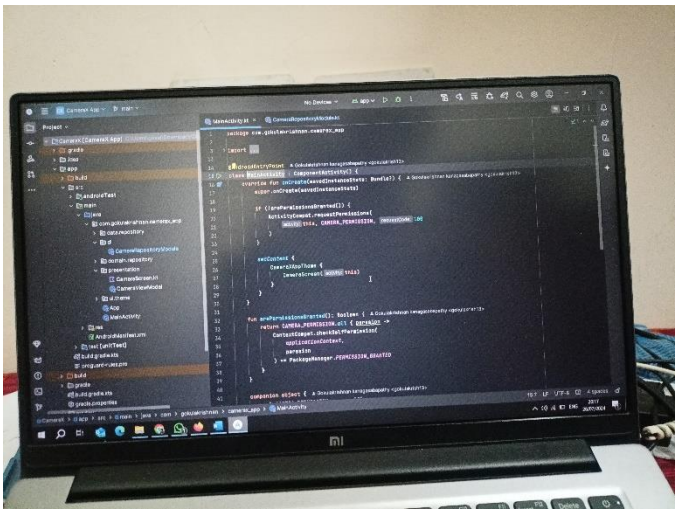


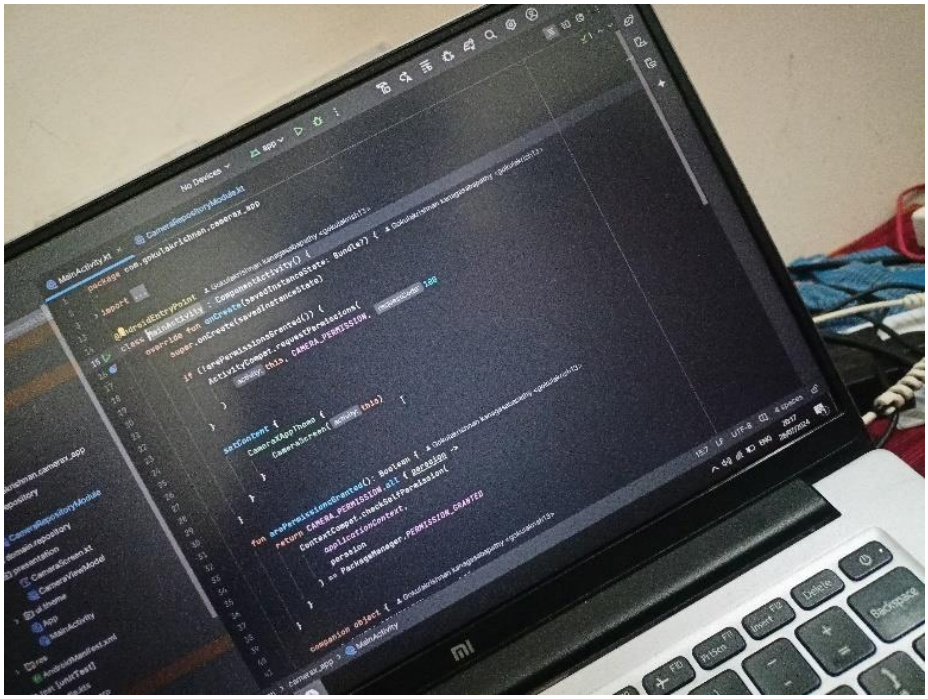
Application Screenshot:

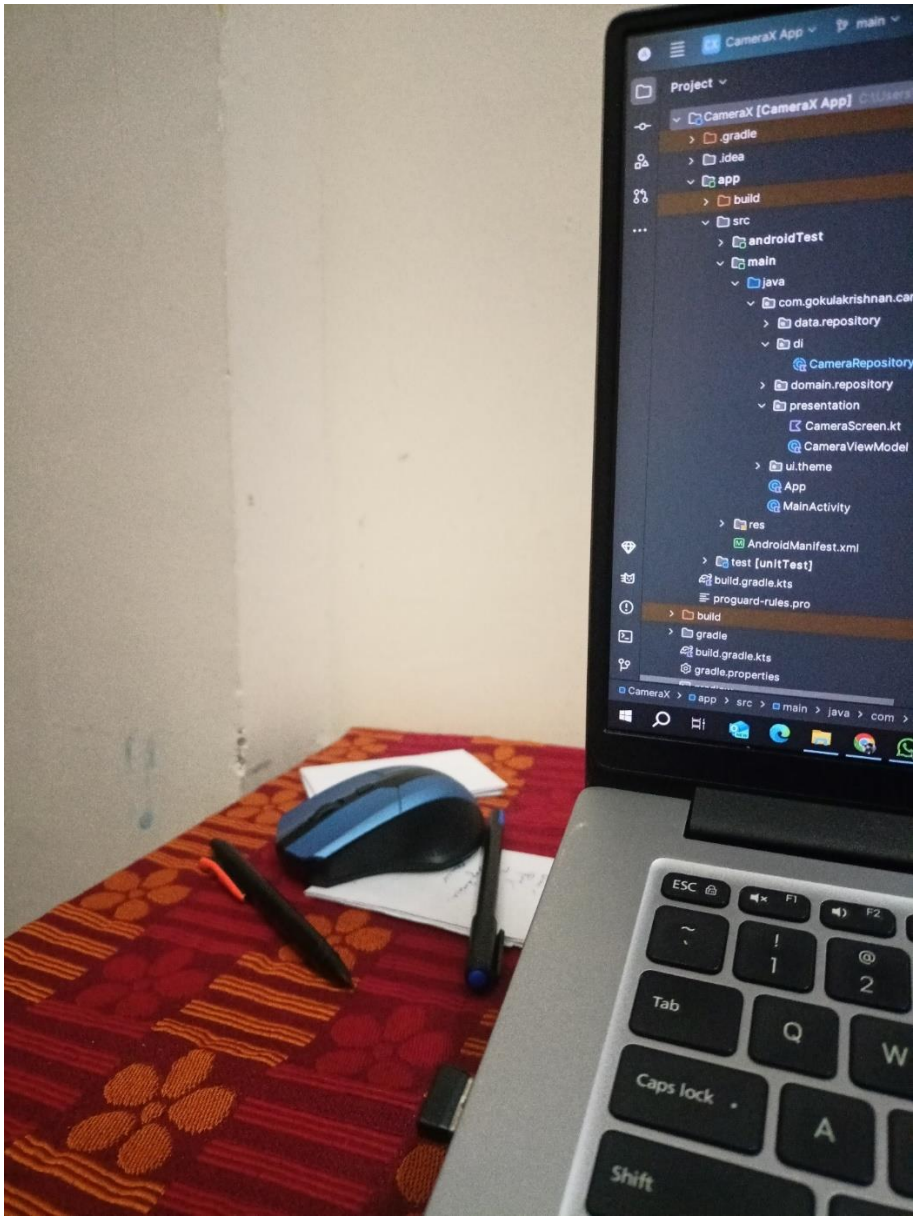
The following images are captured from the Android Application.

The captured image dimension – 3264 X 2448 (*Pixels*)



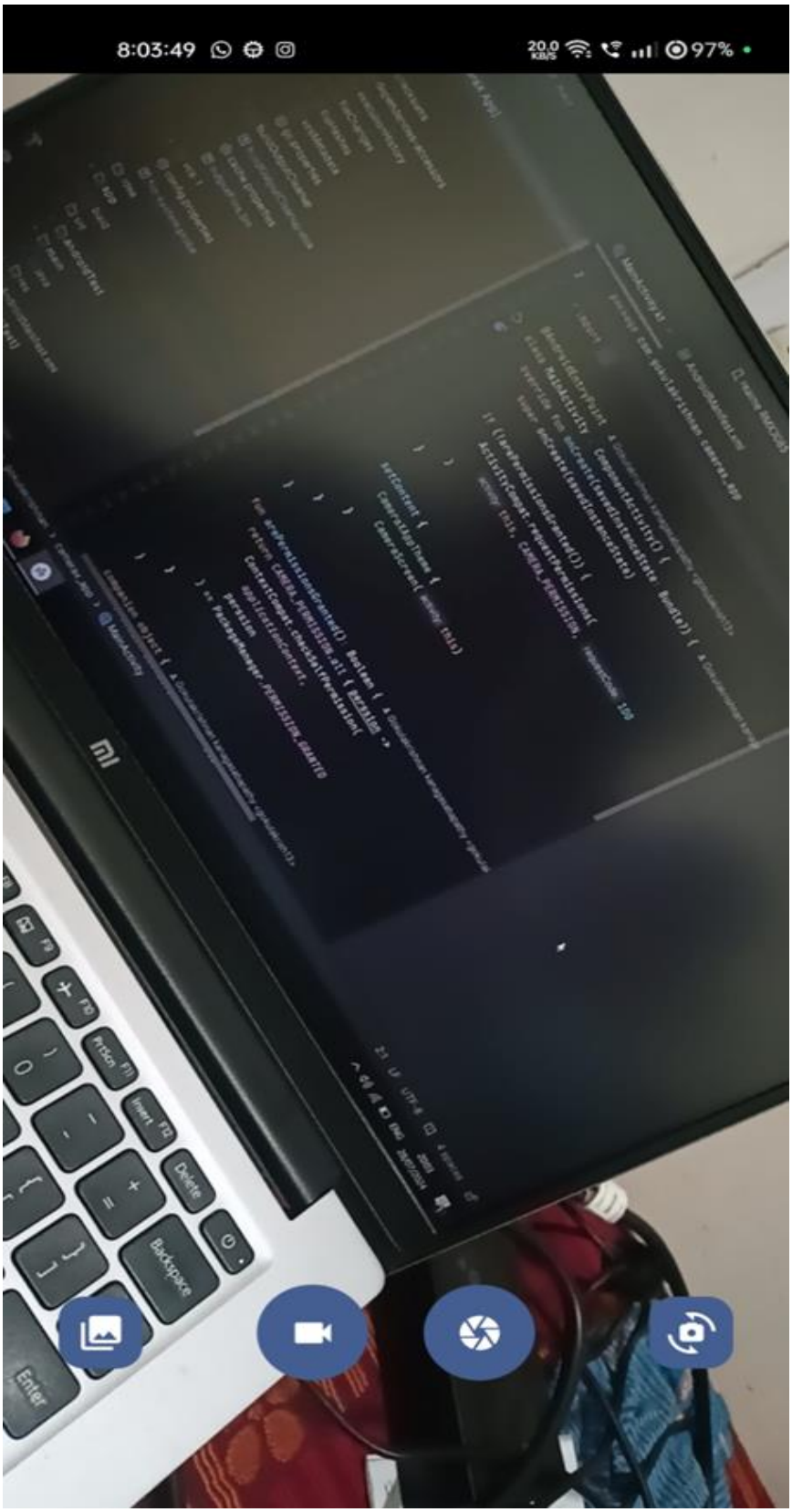


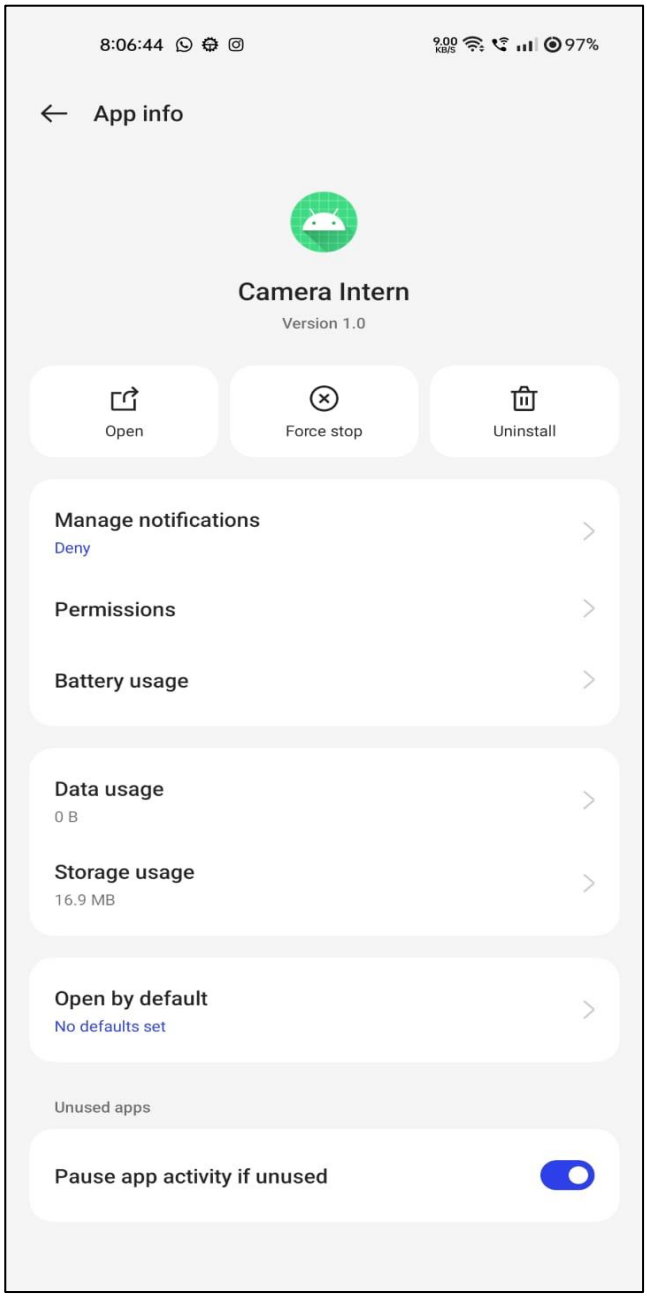


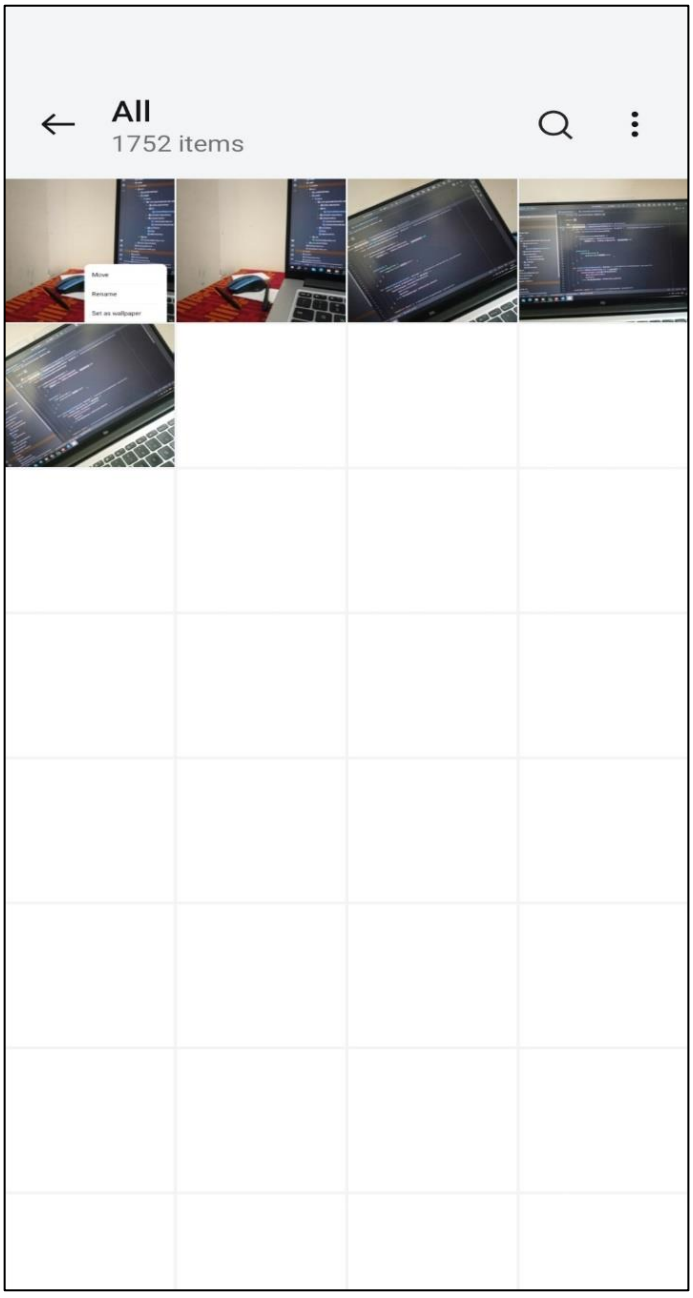

CameraX App
main
Project
CameraX [CameraX App]
.gradle
.idea
app
build
src
androidTest
main
java
com.gokulakrishnan.ca
data.repository
di
CameraRepository
domain.repository
presentation
CameraScreen.kt
CameraViewModel
ui.theme
App
MainActivity
res
AndroidManifest.xml
test [unitTest]
build.gradle.kts
proguard-rules.pro
build
gradle
build.gradle.kts
gradle.properties
CameraX › app › src › main › java › com ›
ESC
F1
F2
Tab
Caps lock
Shift

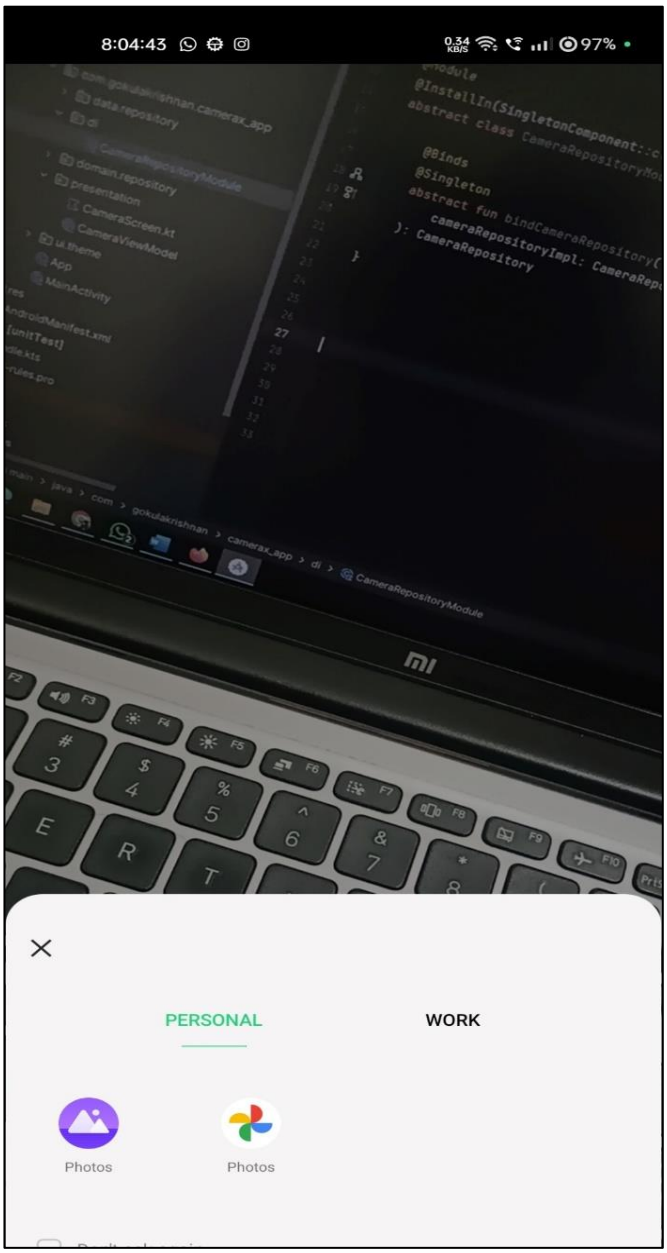
The screenshot from the mobile, it has the following features

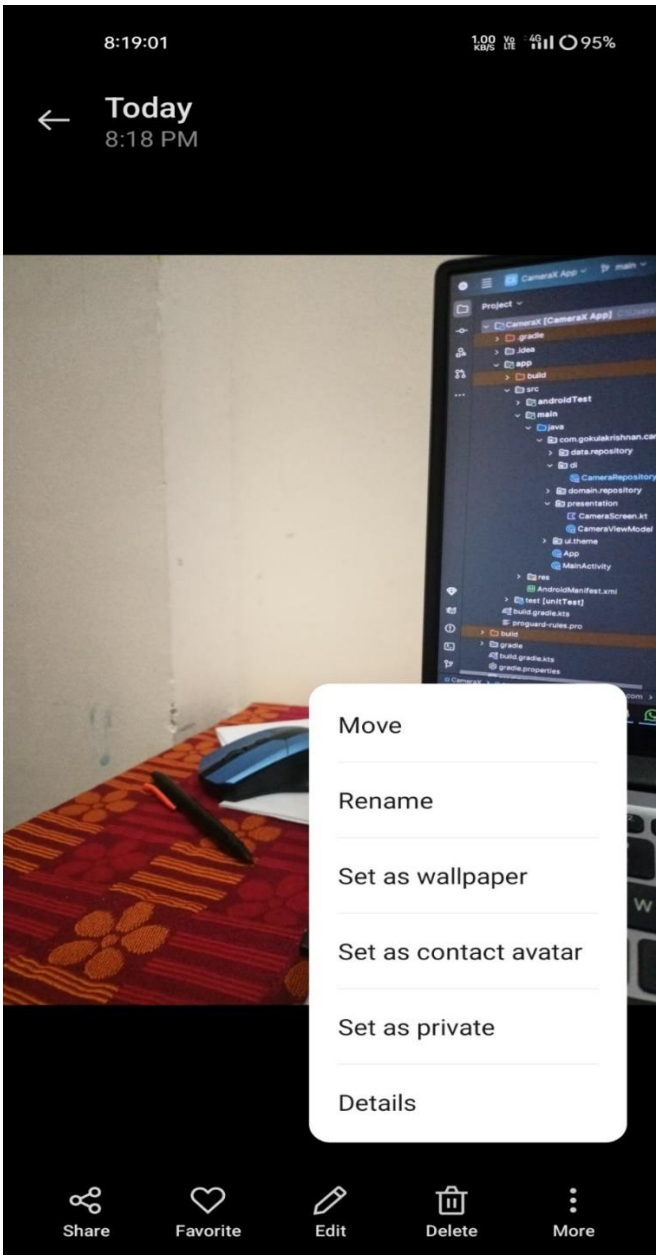
1. *Gallary Picker*
2. *Video Recorder*
3. *Image Capture*
4. *Swap Camera (Front & Rear)*




8:06:44
9.00 KB/S
97%
App info
Camera Intern
Version 1.0
Open
Force stop
Uninstall
Manage notifications
Deny
Permissions
Battery usage
Data usage
0 B
Storage usage
16.9 MB
Open by default
No defaults set
Unused apps
Pause app activity if unused


All
1752 items


8:04:43
97%
PERSONAL
WORK
Photos
Photos


8:19:01
95%
Today
8:18 PM
Move
Rename
Set as wallpaper
Set as contact avatar
Set as private
Details
Share
Favorite
Edit
Delete
More