MOBILE APPLICATION & DEVELOPMENT ASSIGNMENT

EX-06 SD CARD

AIM:

To implement an application to write the name and CGPA to SD card in text file format.

PROCEDURE:

Step 1: Create New Project

- Open Android Studio → File → New Project.
- Enter Application Name → Click Next.
- Select Minimum SDK → Click Next.
- Choose Blank Activity → Click Next → Finish.

Step 2: Add Permissions

- Open AndroidManifest.xml.
- Add permissions for READ_EXTERNAL_STORAGE and WRITE_EXTERNAL_STORAGE.

Step 3: Design the Layout

- Open activity_main.xml.
- Add two EditText fields for entering Name and CGPA.
- Add one Button to save the data.

Step 4: Write the Logic

- In MainActivity.java, request runtime permissions.
- On Button click:
    - Read Name and CGPA from EditText.
    - Create or open a folder in SD Card (example: /MyAppData/).
    - Write the Name and CGPA into a text file (example: student_info.txt).

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Step 5: Run the Application

- Option 1: Run on Emulator (Virtual Device).
- Option 2: Run on Mobile Device (Enable Developer Mode and USB Debugging).

CODE:

AndroidManifest.xml :

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.sdcardwriter">

    <!-- Permissions for accessing external storage -->
    <uses-permission
android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
    <uses-permission
android:name="android.permission.READ_EXTERNAL_STORAGE" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="SD Card Writer"
        android:theme="@style/Theme.SDCardWriter">

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

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

</application>

</manifest>
</manifest>
```

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:orientation="vertical"
    android:padding="24dp">

    <!-- EditText for entering Student Name -->
    <EditText
        android:id="@+id/inputName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Student Name"
        android:layout_marginBottom="20dp" />
```

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```
    <!-- EditText for entering Student CGPA -->
    <EditText
        android:id="@+id/inputCGPA"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Student CGPA"
        android:inputType="numberDecimal"
        android:layout_marginBottom="20dp" />

    <!-- Button to Save Data -->
    <Button
        android:id="@+id/saveButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Save Info"
        android:layout_gravity="center_horizontal" />

</LinearLayout>
```

MainActivity.kt :

```
package com.example.sdcardwriter

import android.Manifest
import android.content.pm.PackageManager
import android.os.Build
```

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```
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity
import androidx.core.app.ActivityCompat
import androidx.core.content.ContextCompat
import java.io.File
import java.io.FileOutputStream
import java.io.IOException

class MainActivity : AppCompatActivity() {

    private val STORAGE_PERMISSION_CODE = 101
    private lateinit var nameInput: EditText
    private lateinit var cgpaInput: EditText

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        nameInput = findViewById(R.id.inputName)
        cgpaInput = findViewById(R.id.inputCGPA)

        // Check and Request Storage Permission
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
```

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```
        if (ContextCompat.checkSelfPermission(this,
Manifest.permission.WRITE_EXTERNAL_STORAGE)
            != PackageManager.PERMISSION_GRANTED) {


            ActivityCompat.requestPermissions(
                this,
                arrayOf(Manifest.permission.WRITE_EXTERNAL_STORAGE),
                STORAGE_PERMISSION_CODE
            )
        } else {
            setupSaveButton()
        }
    } else {
        setupSaveButton()
    }
}


  override fun onRequestPermissionsResult(requestCode: Int, permissions:
Array<out String>, grantResults: IntArray) {
    super.onRequestPermissionsResult(requestCode, permissions,
grantResults)
    if (requestCode == STORAGE_PERMISSION_CODE) {
        if (grantResults.isNotEmpty() && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
            setupSaveButton()
        } else {
```

```
            Toast.makeText(this, "Storage Permission Denied!",
Toast.LENGTH_SHORT).show()
        }
    }
}

private fun setupSaveButton() {
    val buttonSave = findViewById<Button>(R.id.saveButton)

    buttonSave.setOnClickListener {
        val studentName = nameInput.text.toString()
        val studentCGPA = cgpaInput.text.toString()

        if (studentName.isNotEmpty() && studentCGPA.isNotEmpty()) {
            saveDataToFile(studentName, studentCGPA)
        } else {
            Toast.makeText(this, "Please fill both fields!",
Toast.LENGTH_SHORT).show()
        }
    }
}

private fun saveDataToFile(name: String, cgpa: String) {
    try {
        val file = File(getExternalFilesDir(null), "student_info.txt")
        val fileOutputStream = FileOutputStream(file, true)
```

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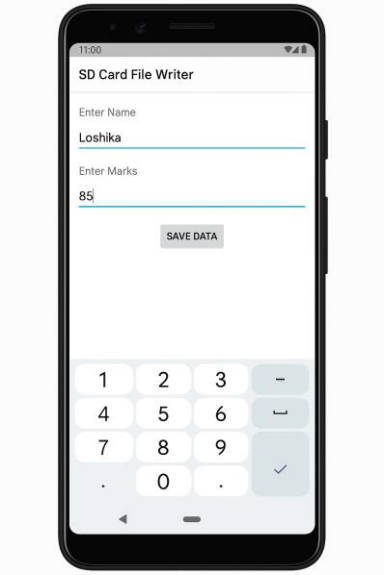
```
            val textToWrite = "Student: $name, CGPA: $cgpa\n"
            fileOutputStream.write(textToWrite.toByteArray())
            fileOutputStream.close()

            Toast.makeText(this, "Data saved successfully!",
Toast.LENGTH_SHORT).show()
        } catch (e: IOException) {
            e.printStackTrace()
            Toast.makeText(this, "Failed to save data!",
Toast.LENGTH_SHORT).show()
        }
    }
```

}**OUTPUT IMAGE:**



RESULT:

The application has been successfully developed using Kotlin and android studio.