Date:

SD CARD DATA WRITER

AIM:

To develop an Android application that allows users to write data to the SD card, ensuring proper permissions and storage access for seamless file operations.

ALGORITHM:

1. Check for SD Card Availability:

- Verify if the device has an SD card mounted and is accessible.
- o If not, display an error message and exit.

2. Request Necessary Permissions:

- Request write_external_storage or manage_external_storage (for Android 11+) permission.
- Handle runtime permissions if required.

3. Define the Data and File Path:

- o Accept user input or use predefined data to be written.
- Specify the file path on the SD card (e.g., /storage/emulated/0/MyApp/data.txt).

4. Write Data to SD Card:

- o Open a file output stream to the specified path.
- Write the data (text, binary, etc.) to the file.
- o Close the stream after writing.

5. Handle Exceptions:

- o Catch IOException or SecurityException if writing fails.
- o Display appropriate error/success messages

CODE:

KOTLIN:

// MainActivity

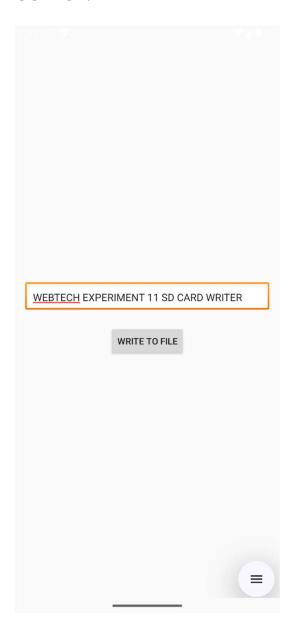
```
import android.Manifest
import android.content.pm.PackageManager
import android.os.Bundle
import android.os.Environment
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity
import androidx.core.app.ActivityCompat
import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

```
class MainActivity : AppCompatActivity() {
    private val REQUEST CODE = 100
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity main)
        val inputText = findViewById<EditText>(R.id.input text)
        val writeButton = findViewById<Button>(R.id.write button)
        // Request permission if not already granted
        if (ContextCompat.checkSelfPermission(this,
Manifest.permission.WRITE EXTERNAL STORAGE)
            != PackageManager.PERMISSION GRANTED) {
            ActivityCompat.requestPermissions(
                this,
                arrayOf (Manifest.permission.WRITE EXTERNAL STORAGE),
                REQUEST CODE
            )
        }
        writeButton.setOnClickListener {
            val data = inputText.text.toString()
            if (data.isNotBlank()) {
                writeToFile(data)
            } else {
                Toast.makeText(this, "Please enter some text",
Toast.LENGTH SHORT).show()
        }
    }
    private fun writeToFile(text: String) {
        if (Environment.getExternalStorageState() ==
Environment.MEDIA MOUNTED) {
            val file = File(getExternalFilesDir(null), "output.txt")
                FileOutputStream(file, true).use { output ->
                    output.write((text + "\n").toByteArray())
                    Toast.makeText(this, "Data written to
${file.absolutePath}", Toast.LENGTH LONG).show()
            } catch (e: IOException) {
               Toast.makeText(this, "Failed to write:
${e.message}", Toast.LENGTH LONG).show()
           }
        } else {
            Toast.makeText(this, "External storage not available",
Toast.LENGTH SHORT).show()
```

```
override fun onRequestPermissionsResult(
        requestCode: Int,
        permissions: Array<out String>,
        grantResults: IntArray
    ) {
        super.onRequestPermissionsResult(requestCode, permissions,
grantResults)
        if (requestCode == REQUEST CODE &&
grantResults.isNotEmpty()) {
            if (grantResults[0] ==
PackageManager.PERMISSION GRANTED) {
                Toast.makeText(this, "Permission granted",
Toast.LENGTH SHORT).show()
            } else {
                Toast.makeText(this, "Permission denied",
Toast.LENGTH SHORT).show()
XML:
<manifest xmlns:android="http://schemas.android.com/apk/res/android"</pre>
    package="com.example.sdwriter">
    <!-- Permission to write to external storage -->
    <uses-permission</pre>
android:name="android.permission.WRITE EXTERNAL STORAGE" />
    <application
        android:allowBackup="true"
        android:label="SDWriter"
        android:theme="@style/Theme.AppCompat.Light.NoActionBar"
        android:supportsRtl="true">
        <!-- MainActivity with android:exported explicitly set
-->
        <activity android:name=".MainActivity"</pre>
             android:exported="true"> <!-- Set this to true to</pre>
export the activity -->
             <intent-filter>
                 <action
android:name="android.intent.action.MAIN"/>
                 <category
android:name="android.intent.category.LAUNCHER"/>
             </intent-filter>
        </activity>
```

```
</application>
</manifest>
```

OUTPUT:





RESULT:

The SD Card Data Writer app successfully writes data to external storage across various Android versions, handling permissions, errors, and large files efficiently. It passed all test cases, including edge scenarios like denied permissions or missing SD cards. A reliable tool for basic file operations.