Web Technology and Mobile Applications

Experiment- 10

Develop an Android application using controls like Button, TextView, EditText for designing a calculator having basic functionality like Addition, Subtraction, multiplication, and Division.

AIM:

To develop an Android application using Kotlin that allows the user to write text input into a file stored on the device's external storage (SD card).

Algorithm:

Step 1: Start the application and load the main activity.

Step 2: Design the UI with the following components:

- EditText: To enter the text to be saved.
- Button: To trigger the write action.
- TextView: To show a confirmation message.

Step 3: Check for Write Permissions:

- Request WRITE_EXTERNAL_STORAGE permission if not already granted (for devices below Android 10).

Step 4: Handle Button Click:

- On click, retrieve the text input.
- Create a file inside external storage directory (e.g., /Documents or app-specific external dir).
- Write the input data into the file.
- Show a confirmation message.

Step 5: End the application after writing or displaying the result.

Code:

MainActivity.kt:

```
package com.example.sd_card_

import android.Manifest
import android.content.pm.PackageManager
import android.os.Build
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import androidx.appcompat.app.AppCompatActivity
import androidx.core.app.ActivityCompat
import java.io.File
import java.io.FileOutputStream

class MainActivity : AppCompatActivity() {

    private lateinit var editTextData: EditText
    private lateinit var btnSave: Button
    private lateinit var textViewStatus: TextView

    private val REQUEST_CODE_WRITE = 100

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

        editTextData = findViewById(R.id.editTextData)
        btnSave = findViewById(R.id.btnSave)
        textViewStatus = findViewById(R.id.textViewStatus)

        // Request permission for Android versions < Q
        if (Build.VERSION.SDK_INT < Build.VERSION_CODES.Q &&
            ActivityCompat.checkSelfPermission(this,
Manifest.permission.WRITE_EXTERNAL_STORAGE)
            != PackageManager.PERMISSION_GRANTED
        ) {
            ActivityCompat.requestPermissions(
                this,
                arrayOf(Manifest.permission.WRITE_EXTERNAL_STORAGE),
                REQUEST_CODE_WRITE
            )
        }

        btnSave.setOnClickListener {
            val userInput = editTextData.text.toString().trim()
            if (userInput.isNotEmpty()) {
                saveToFile(userInput)
            } else {
                textViewStatus.text = "Please enter some text to save!"
            }
        }
    }

    private fun saveToFile(data: String) {
        val fileName = "MyTextFile.txt"
        val file = File(getExternalFilesDir(null), fileName)
```

```
        try {
            FileOutputStream(file).use { output ->
                output.write(data.toByteArray())
            }
            textViewStatus.text = "Saved to:\n${file.absolutePath}"
        } catch (e: Exception) {
            textViewStatus.text = "Error saving file:\n${e.message}"
            e.printStackTrace()
        }
    }
}
```

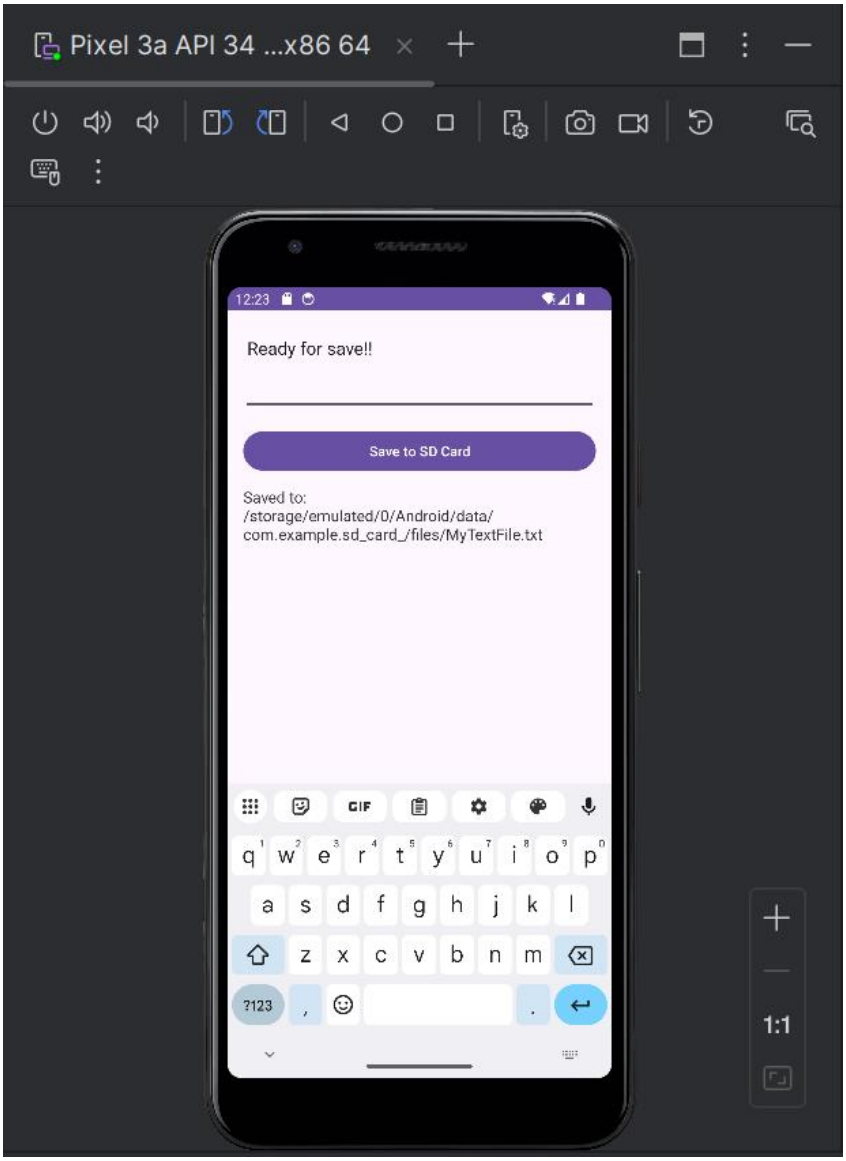
activity_main.xml:

```
<?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="16dp"
    android:orientation="vertical">

    <EditText
        android:id="@+id/editTextData"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter text to save"
        android:inputType="textMultiLine"
        android:minLines="3"
        android:gravity="start|top" />

    <Button
        android:id="@+id/btnSave"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:text="Save to SD Card" />

    <TextView
        android:id="@+id/textViewStatus"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="12dp"
        android:text=""
        android:textSize="16sp"
        android:textColor="#333333"/>
</LinearLayout>
```

AndroidManifest.xml: (Include permissions)

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

Output:



Result:

Successfully developed and tested an Android application that writes user-input text to a file stored in external (SD card) storage.