Assignment 7

SD Card File I/O

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Learning Objective

Implement an application that writes data to the SD card

XML (`activity_main.xml`)

```xml
1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:app="http://schemas.android.com/apk/res-auto"
4      xmlns:tools="http://schemas.android.com/tools"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
7      tools:context=".MainActivity"
8      android:orientation="vertical"
9      android:gravity="center_horizontal">
10
11     <TextView
12         android:layout_width="match_parent"
13         android:layout_height="wrap_content"
14         android:fontFamily="@font/roboto"
15         android:text="Enter a file name, read or write to it."
16         android:textSize="25sp"
17         android:layout_margin="20dp"/>
18
19     <EditText
20         android:id="@+id/nameEditTxt"
21         android:layout_width="match_parent"
22         android:layout_height="wrap_content"
23         android:fontFamily="@font/roboto"
24         android:hint="File Name"
25         android:textSize="20sp"
```

```
26          android:layout_margin="20dp"
27          android:inputType="text"
28          android:maxLines="1"/>
29
30     <EditText
31          android:id="@+id/contentEditTxt"
32          android:layout_width="match_parent"
33          android:layout_height="wrap_content"
34          android:fontFamily="@font/roboto"
35          android:hint="File Contents"
36          android:textSize="15sp"
37          android:layout_margin="20dp" />
38
39     <LinearLayout
40          android:layout_width="match_parent"
41          android:layout_height="wrap_content"
42          android:layout_margin="20dp"
43          android:gravity="center_horizontal">
44
45          <Button
46               android:id="@+id/readBtn"
47               android:layout_width="wrap_content"
48               android:layout_height="wrap_content"
49               android:fontFamily="@font/roboto"
50               android:text="Read"
51               android:textSize="15sp"
52               android:layout_margin="10dp"/>
53
54          <Button
55               android:id="@+id/writeBtn"
56               android:layout_width="wrap_content"
57               android:layout_height="wrap_content"
58               android:fontFamily="@font/roboto"
59               android:text="Write"
60               android:textSize="15sp"
61               android:layout_margin="10dp"/>
62
63     </LinearLayout>
64
65 </LinearLayout>
```

Java (`MainActivity.java`)

```java
package com.madlab.sdcard;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import java.io.BufferedReader;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.FileReader;
import java.io.IOException;

public class MainActivity extends AppCompatActivity {

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

        final EditText nameEditText = findViewById(R.id.nameEditTxt);
        final EditText contentEditText = findViewById(R.id.contentEditTxt);
        final Button readButton = findViewById(R.id.readBtn);
        final Button writeButton = findViewById(R.id.writeBtn);

        readButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String line, content = "";

                File file = new File(getFilesDir(), nameEditText.getEditableText().toString());
                try {
                    BufferedReader bufferedReader = new BufferedReader(new FileReader(file));

                    while ((line = bufferedReader.readLine()) != null) content += line;

                    contentEditText.setText(content);
                    Toast.makeText(MainActivity.this, "Contents successfully read!", Toast.LENGTH_SHORT).show();
                } catch (FileNotFoundException e) {
                    e.printStackTrace();
```

```java
45                       Toast.makeText(MainActivity.this, "No such file exists
    on your SD Card!", Toast.LENGTH_SHORT).show();
46                   } catch (IOException e) {
47                       e.printStackTrace();
48                       Toast.makeText(MainActivity.this, "Error while reading
    file!", Toast.LENGTH_SHORT).show();
49                   }
50               }
51           });
52
53           writeButton.setOnClickListener(new View.OnClickListener() {
54               @Override
55               public void onClick(View view) {
56                   File file = new File(getFilesDir(), nameEditText.
    getEditableText().toString());
57                   try {
58                       FileOutputStream fileOutputStream = new
    FileOutputStream(file);
59
60                       fileOutputStream.write(contentEditText.getEditableText
    ().toString().getBytes());
61
62                       fileOutputStream.close();
63                       Toast.makeText(MainActivity.this, "Contents
    successfully written!", Toast.LENGTH_SHORT).show();
64                   } catch (FileNotFoundException e) {
65                       e.printStackTrace();
66                       Toast.makeText(MainActivity.this, "No such file exists
     on your SD Card!", Toast.LENGTH_SHORT).show();
67                   } catch (IOException e) {
68                       e.printStackTrace();
69                       Toast.makeText(MainActivity.this, "Error while writing
    file!", Toast.LENGTH_SHORT).show();
70                   }
71               }
72           });
73       }
74 }
```

App Screenshots

SD Card

Enter a file name, read or write to it.

AndroidStudio.txt

Android Studio is the official Integrated
Development Environment (IDE) for
Google's Android operating system, built
on JetBrains' IntelliJ IDEA software and
designed specifically for Android
development.

READ   WRITE

SD Card

Enter a file name, read or write to it.

AndroidStudio.txt

Android Studio is the official Integrated
Development Environment (IDE) for
Google's Android operating system, built
on JetBrains' IntelliJ IDEA software and
designed specifically for Android
development.

Contents successfully written!

READ   WRITE

Left screen:

SD Card

11:52 PM 0.2KB/s

Enter a file name, read or write to it.

Androidstudio.txt

File Contents

READ   WRITE

No such file exists on your SD Card!

Right screen:

SD Card

11:51 PM 0.1KB/s

Enter a file name, read or write to it.

AndroidStudio.txt

Android Studio is the official Integrated Development Environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.

Contents successfully read!

READ   WRITE