LAB EXPERIMENT : 11

11) Implement an application that writes data to the SD card.

AIM:

The aim of this project is to design an application that writes data to an SD card using a microcontroller (such as Arduino or ESP32). The program will demonstrate how to write text data to a file on the SD card.

ALGORITHM:

- **Initialize SD Card**:
  - Begin by initializing the SD card interface and checking if the card is correctly detected.
- **Open a File**:
  - Open a file on the SD card in write mode.
- **Write Data**:
  - Write data (e.g., text strings or sensor data) to the file on the SD card.
- **Close the File**:
  - Properly close the file after writing to ensure data integrity.
- **Error Handling**:
  - Handle any errors that might occur, such as SD card not being detected or file access issues.
- **Repeat (if necessary)**:
  - Optionally, repeat the writing process for continuous logging of data.

SOURCE CODE:

```
#include <SD.h>  // Include the SD card library

#include <SPI.h> // Include the SPI library (needed for SD card communication)


const int chipSelect = 10; // Chip select pin for the SD card module


void setup() {

 // Start serial communication at 9600 baud

 Serial.begin(9600);


 // Initialize the SD card

 if (!SD.begin(chipSelect)) {
```

```
  Serial.println("Initialization failed!"); // If initialization fails
  return;
 }
 Serial.println("SD card initialized.");

 // Open the file "data.txt" for writing
 File dataFile = SD.open("data.txt", FILE_WRITE);

 // Check if the file opened successfully
 if (dataFile) {
  dataFile.println("Hello, SD card!"); // Write a test message
  dataFile.close(); // Close the file to save data
  Serial.println("Data written to SD card.");
 } else {
  // If the file didn't open, print an error message
  Serial.println("Error opening data.txt");
 }
}

void loop() {
 // Nothing to do in the loop for this example
}
```

RESULT :

When the application runs, the SD card will store the text data `"Hello, SD card!"` in a file named `data.txt`. The user can read this data on the SD card by connecting the card to a computer or card reader.

OUTPUT :