

24. Design a C program to demonstrate UNIX system calls for file management.

```
#include <stdio.h>

#include <fcntl.h>    // for open() and O_* constants
#include <unistd.h>   // for read(), write(), close()
#include <stdlib.h>

int main() {
    int fd;

    char buffer[100];

    fd = open("demo.txt", O_CREAT | O_RDWR, 0777);
    if (fd < 0) {
        printf("Error opening file!\n");
        exit(1);
    }

    printf("File created/opened successfully.\n");
    write(fd, "Hello, UNIX System Calls!\n", 26);
    printf("Data written to file.\n");

    lseek(fd, 0, SEEK_SET);

    int n = read(fd, buffer, sizeof(buffer));

    buffer[n] = '\0';

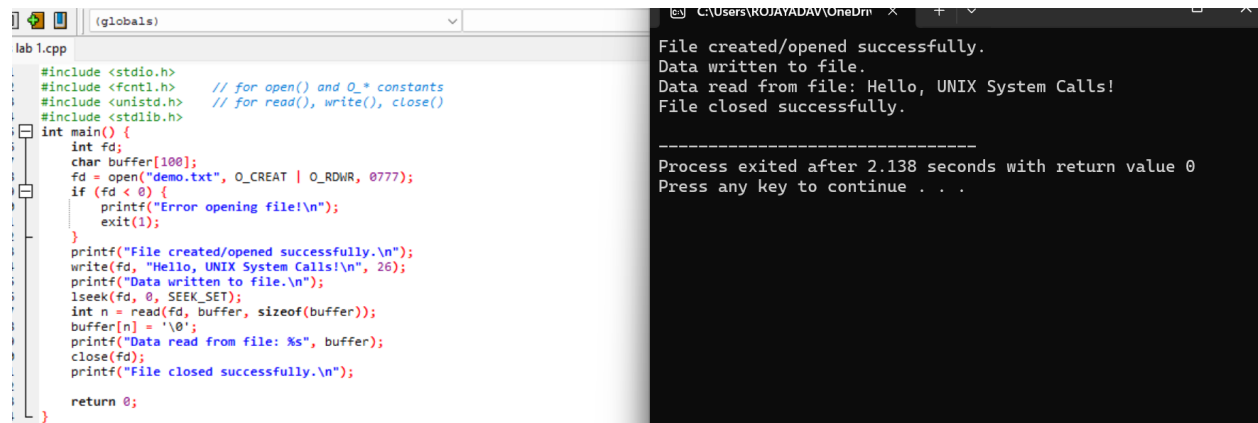
    printf("Data read from file: %s", buffer);

    close(fd);

    printf("File closed successfully.\n");

    return 0;
}
```

OUTPUT-



The image shows a C++ program in a code editor and its execution output in a terminal window. The code, located in `lab 1.cpp`, uses `open()`, `write()`, `read()`, and `close()` to create, write to, read from, and close a file named `demo.txt`. The output in the terminal window shows the successful execution of these operations, including the data written to and read from the file, and a final message indicating the process exited after 2.138 seconds.

```
lab 1.cpp
#include <stdio.h>
#include <fcntl.h> // for open() and O_* constants
#include <unistd.h> // for read(), write(), close()
#include <stdlib.h>

int main() {
    int fd;
    char buffer[100];
    fd = open("demo.txt", O_CREAT | O_RDWR, 0777);
    if (fd < 0) {
        printf("Error opening file!\n");
        exit(1);
    }
    printf("File created/opened successfully.\n");
    write(fd, "Hello, UNIX System Calls!\n", 26);
    printf("Data written to file.\n");
    lseek(fd, 0, SEEK_SET);
    int n = read(fd, buffer, sizeof(buffer));
    buffer[n] = '\0';
    printf("Data read from file: %s", buffer);
    close(fd);
    printf("File closed successfully.\n");

    return 0;
}
```

```
File created/opened successfully.
Data written to file.
Data read from file: Hello, UNIX System Calls!
File closed successfully.

-----
Process exited after 2.138 seconds with return value 0
Press any key to continue . . .
```