ONLINE FILE MANAGER

A PROJECT REPORT

Submitted by

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for the course 21CSC202J Operating System

Under the Guidance of

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In partial satisfaction of the requirements for the degree of

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Certified that the 21CSC202J Operating System course project report titled **"ONLINE FILE MANAGER"** is the bonafide work done by **AKSHAT MITTAL [RA2211003010790], RITVIK RAJVANSHI [RA2211003010792] & YUGUAM SHAH [RA2211003010796] of II Year/III Sem B.Tech(CSE)** who carried out the mini project under my supervision for the course 21CSC202J Operating System in SRM Institute of Science and Technology during the academic year 2022-2023(Odd Sem). Certified further, that to the best of my knowledge the work reported herein does not form part of any other work.

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ACKNOWLEDGEMENT

We express our humble gratitude to **Dr. C. Muthamizhchelvan**, Vice-Chancellor, SRMInstitute of Science and Technology, for the facilities extended for the project work and his continued support.

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BACKGROUND

File management is one of the basic and important features of operating system. Operating system is used to manage files of computer system. All the files with different extensions are managed by operating system.

A file is collection of specific information stored in the memory of computer system. File management is defined as the process of manipulating files in computer system, its management includes the process of creating, modifying and deleting the files.

Our files have several common characteristics built in. Each file is made up of data, but also metadata is embedded into the file to help the operating system (OS) manage how the file works and how it is stored. Metadata records file information such as the author, file creation date, modified date, and file size.

File management is a process of maintaining any kind of records in a proper manner like your work document or your money records this is the process to divide things in different stages and in writing from so that in future when needed it will be easy to get that particular record.

In the 20th century, vertical filing cabinets were introduced to store a different kind of files. Then the computer was used to store a different kind of file in the system with the help of the LAN/wan network. Then portable flash drive was introduced to store files and to transfer data from one system to another. Then cloud storage was introduced this cloud storage made easy to store files from anywhere and from any computer this prevent the user from losing the data or from any data threat with their high-security methods.

INTRODUCTION

Computer users spend time every day interacting with digital files and folders, including creating, downloading, naming, moving, saving, copying, reviewing, navigating, searching for, sharing, and deleting them. This activity, called *file management* (FM).

File management is an art of storing, naming, sorting and handling documents files in a systematic manner. So that in future it will easy to retrieve data.

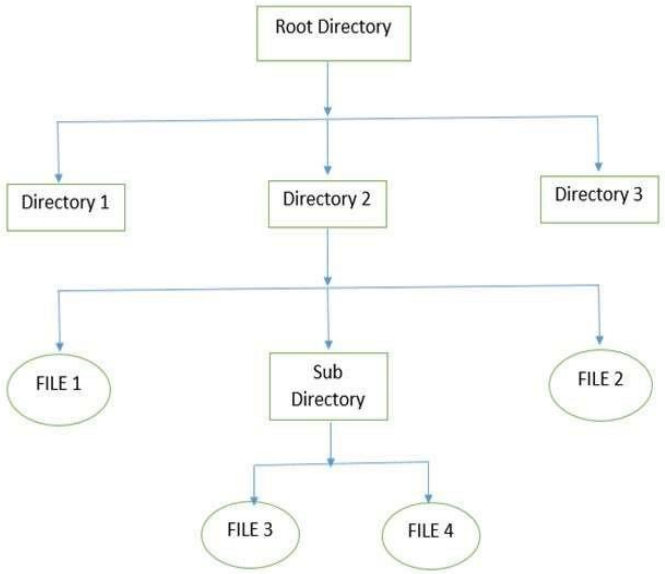
A ***file management system*** is a type of software that manages data files in a computer system. It has limited capabilities and is designed to manage individual or group files, such as special office documents and records.

The following are some of the tasks performed by file management of operating system of any computer system:

1. It helps to create new files in computer system and placing them at the specific locations.
2. It helps in easily and quickly locating these files in computer system.
3. It helps to stores the files in separate folders known as directories. These directories help users to search file quickly or to manage the files according to their types or uses.
4. It helps the user to modify the data of files or to modify the name of the file in the directories etc.
5. File management helps users to organize their valuable documents in a systematic manner for better and efficient use of it.

PROJECT PARADIGM

The file is actually the collection of associated information. This file-system prearranged into directory for efficient usage. Every directory has a number of files and other directories. The directory is defined as a bit which distinguish the entries that explained file and subdirectories in the recent directory. By theoretically we may change the file into a directory by changing its bit. A file system is considered as an element of an operating system that manage the storage space and operation of files on media like disks.



The above figure shows the general hierarchy of the storage in an operating system. In this figure the root directory is present at the highest level in the hierarchical structure. It includes all the subdirectories in which the files are stored. Subdirectory is a directory present inside another directory in the file storage system. The directory base storage system ensures better organization of files in the memory of the computer system.

MECHANISH AND WORKING

Code:

```
#!/bin/bash


while true; do
    clear
    echo
"=================================================
======================"
    echo "----------------------File Management Project-----------------------
"
    echo
"=================================================
======================"
    echo "Welcome! The Main Menu is given below:"
    echo "1- List all Files and Directories"
    echo "2- Create New Files"
    echo "3- Delete Existing Files"
    echo "4- Rename Files"
    echo "5- Edit File Content"
    echo "6- Search Files"
    echo "7- Details of Particular File"
    echo "8- View Content of File"
    echo "9- Sort File Content"
    echo "10- List only Directories(Folders)"
```

```
    echo "11- List Files of Particular Extension"
    echo "12- Count Number of Directories"
    echo "13- Count Number of Files"
    echo "14- Sort Files in a Directory"
    echo "0- Exit"
    echo ""
    read -p "What action would you like to perform? (Enter 1-14 or 0 to exit):
" opt1

    case $opt1 in
        1)
            echo "List all files and directories here.."
            echo "Showing all files and directories...."
            sleep 3
            echo "Loading.."
            sleep 3
            echo "------------------------------OutPut-------------------------"
            ls
            echo ""
            ;;
        2)
            echo "Create New Files here.."
            echo "Which type of file would you like to create?"
            echo "1- .c"
            echo "2- .sh"
```

```
echo "3- .txt"
read -p "Enter your choice from 1-3: " filechoice

case $filechoice in
  1)
    read -p "Enter File Name without .c Extension: " filename
    touch "$filename.c"
    echo "------------------------------OutPut-------------------------
"
    echo "File Created Successfully"
    echo ""
    sleep 10;
    ;;
  2)
    read -p "Enter File Name without .sh Extension: " filename2
    touch "$filename2.sh"
    echo "------------------------------OutPut-------------------------
"
    echo "File Created Successfully"
    echo ""
    sleep 10;
    ;;
  3)
    read -p "Enter File Name without .txt Extension: " filename3
    touch "$filename3.txt"
```

```
            echo "------------------------------OutPut--------------------------
"
            echo "File Created Successfully"
            echo ""
            sleep 10;
            ;;
        *)
            echo "Invalid input. Please enter a number from 1 to 3."
            ;;
    esac
    ;;
3)
    echo "Delete existing files here.."
    read -p "Enter the name of the file you want to delete (including extension): " delfile
    echo "------------------------------OutPut--------------------------"

    if [ -f "$delfile" ]; then
        rm "$delfile"
        echo "Successfully Deleted."
        sleep 5;
    else
        echo "File does not exist. Try again."
    fi
    echo ""
```

```
        ;;
    4)
        echo "Rename files here.."
        read -p "Enter the old name of the file (including extension): " old
        echo "Checking for file..."
        sleep 3

        if [ -f "$old" ]; then
            echo "File exists."
            read -p "Enter the new name for the file (including extension): "
new
            mv "$old" "$new"
            echo "Successfully Renamed. The file now exists with the name:
$new"
        else
            echo "$old does not exist. Try again with the correct filename."
        fi
        echo ""
        ;;
    5)
        echo "Edit file content here.."
        read -p "Enter the name of the file to edit (including extension): "
edit
        echo "-------------------------------OutPut--------------------------"
        echo "Checking for file..."
        sleep 3
```

```
        if [ -f "$edit" ]; then
            echo "Opening the file..."
            sleep 3
            nano "$edit"
        else
            echo "$edit does not exist. Try again."
        fi
        echo ""
        sleep 1;
        ;;
    6)
        echo "Search files here.."
        read -p "Enter the name of the file to search for (including extension): " f
        echo "-------------------------------OutPut--------------------------"

        if [ -f "$f" ]; then
            echo "Searching for $f..."
            echo "File Found."
            find /home -name "$f"
        else
            echo "File does not exist. Try again."
        fi
        echo ""
```

```
        sleep 5;
        ;;
    7)
        echo "Details of a file here.."
        read -p "Enter the name of the file to see details (including extension): " detail
        echo "------------------------------OutPut--------------------------"
        echo "Checking for file..."
        sleep 4

        if [ -f "$detail" ]; then
            echo "Loading properties..."
            stat "$detail"
        else
            echo "$detail does not exist. Try again."
        fi
        echo ""
        ;;
    8)
        echo "View content of a file here.."
        read -p "Enter the name of the file to view (including extension): " readfile
        echo "------------------------------OutPut--------------------------"

        if [ -f "$readfile" ]; then
```

```
            echo "Showing the content of the file..."
            sleep 3
            cat "$readfile"
        else
            echo "$readfile does not exist."
        fi
        echo ""
        sleep 10;
        ;;
    9)
        echo "Sort file content here.."
        read -p "Enter the name of the file to sort (including extension): " sortfile
        echo "--------------------------------OutPut----------------------------"

        if [ -f "$sortfile" ]; then
            echo "Sorting file content..."
            sleep 3
            sort "$sortfile"
        else
            echo "$sortfile does not exist. Try again."
        fi
        echo ""
        sleep 10;
        ;;
```

```
10)
    echo "------------------------------OutPut-------------------------"
    echo "List of all directories here.."
    echo "Showing all directories..."
    echo "Loading.."
    sleep 3
    ls -d */
    echo ""
    sleep 10;
    ;;
11)
    echo "List of files with particular extensions here.."
    echo "Which type of file list would you like to see?"
    echo "1- .c"
    echo "2- .sh"
    echo "3- .txt"
    read -p "Enter your choice from 1-3: " extopt
    echo "------------------------------OutPut-------------------------"

    case $extopt in
        1)
            echo "List of .c files shown below."
            echo "Loading.."
            sleep 3
            ls *.c
```

```
        ;;
    2)
        echo "List of .sh files shown below."
        echo "Loading.."
        sleep 3
        ls *.sh
        ;;
    3)
        echo "List of .txt files shown below."
        echo "Loading.."
        sleep 3
        ls *.txt
        ;;
    *)
        echo "Invalid input. Try again."
        ;;
esac
echo ""
sleep 10;
;;
12)
echo "-------------------------------OutPut--------------------------"
echo "Total number of directories here.."
echo "Loading all directories..."
echo "Counting.."
```

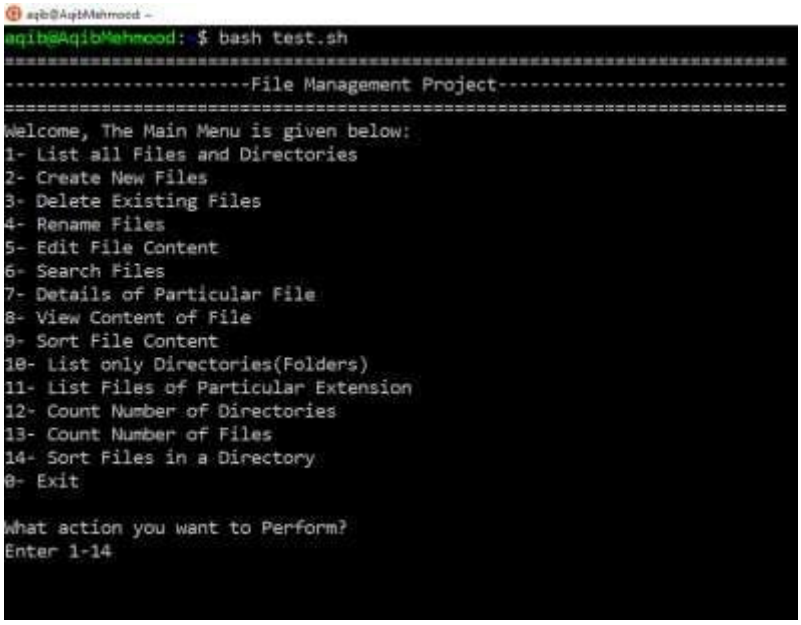
```
    sleep 3
    echo "Number of directories: "
    echo $(ls -d */ | wc -w)
    echo ""
    sleep 10;
    ;;
13)
    echo "------------------------------OutPut--------------------------"
    echo "Total number of files in the current directory here.."
    echo "Loading all files..."
    echo "Number of files: "
    echo $(ls -l | grep -v 'total' | grep -v '^d' | wc -l)
    echo ""
    sleep 10;
    ;;
14)
    echo "------------------------------OutPut--------------------------"
    echo "Sort files here.."
    echo "Your request to sort files is being processed."
    echo "Sorting.."
    sleep 3
    ls | sort
    echo ""
    sleep 10;
    ;;
```

```
        0)
            echo "Goodbye!"
            exit 0
            ;;
        *)
            echo "Invalid choice. Please enter a number from 1 to 14, or 0 to exit."
            ;;
    esac
done
```

OUTPUT SCREENSHOTS

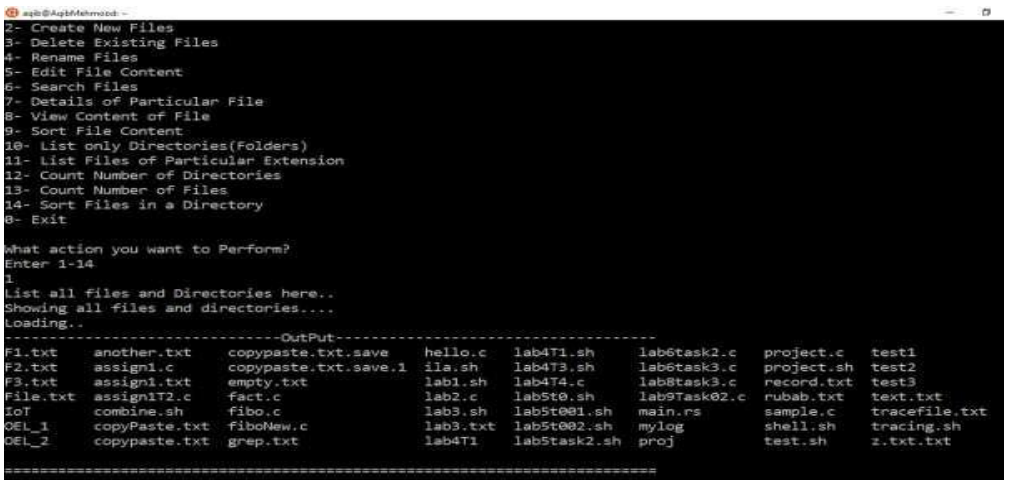
Main Menu:

Main menu of Project that display all the available option to the users. The users need to choose one out of 14 and the particular command will be executed according to the user input.



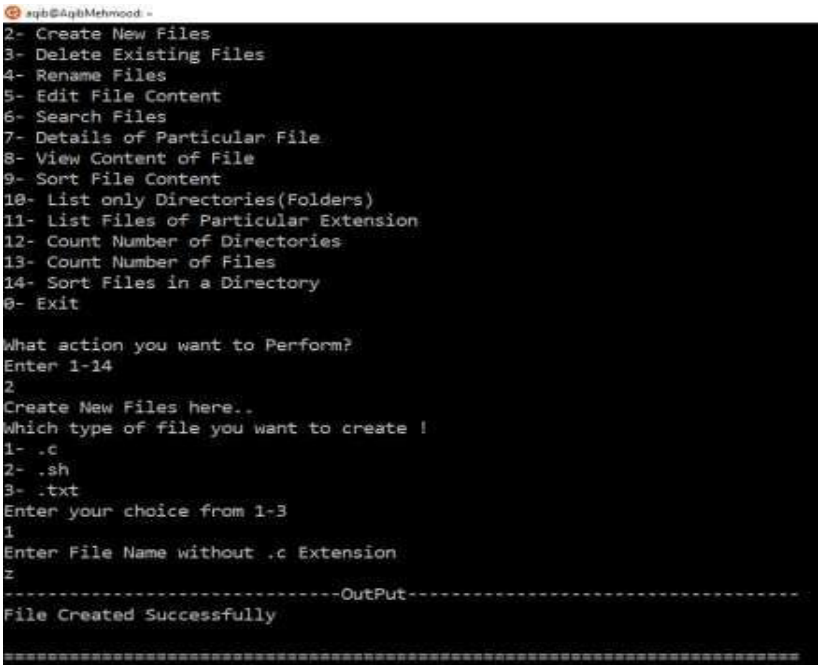
Choice 01 Output:

If user enter 1 then the List of all Files and Directories will be displayed.



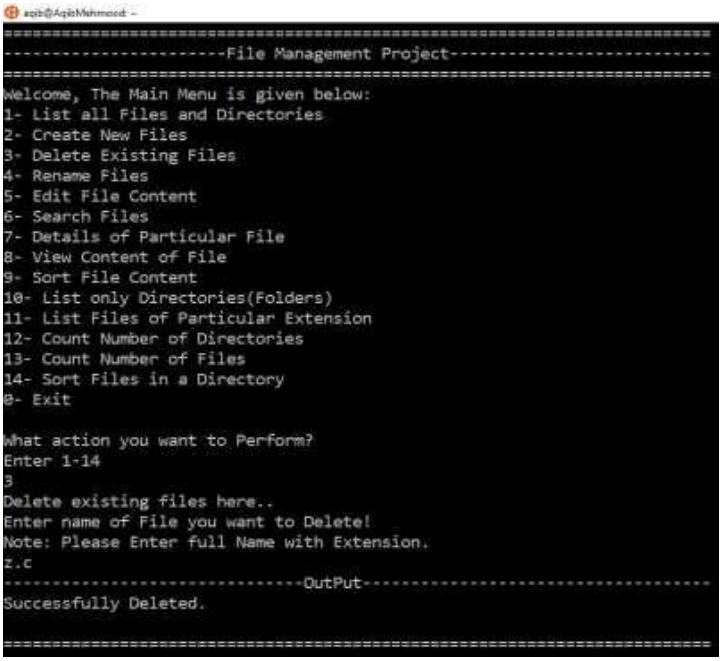
Choice 02 Output:

If user wants to create new file, then he needs to enter 2.



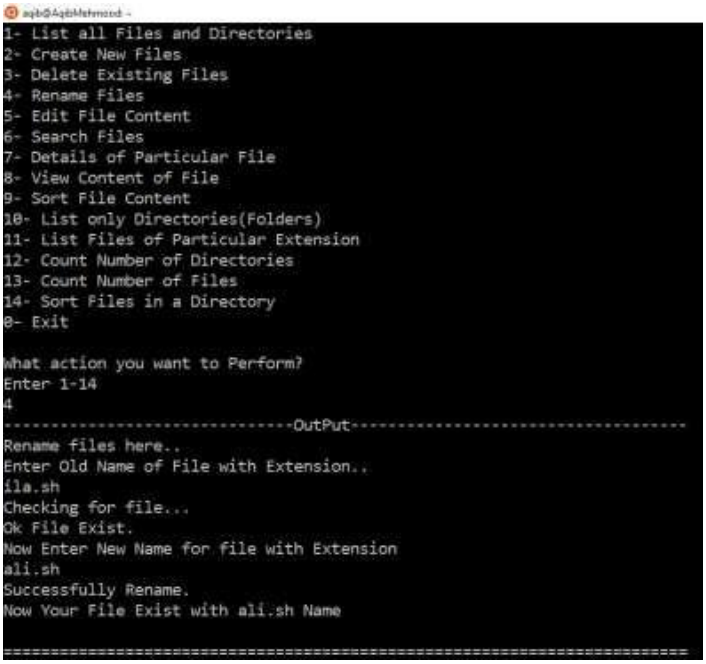
Choice 03 Output:

If user wants to delete existing file, then he needs to enter 3.



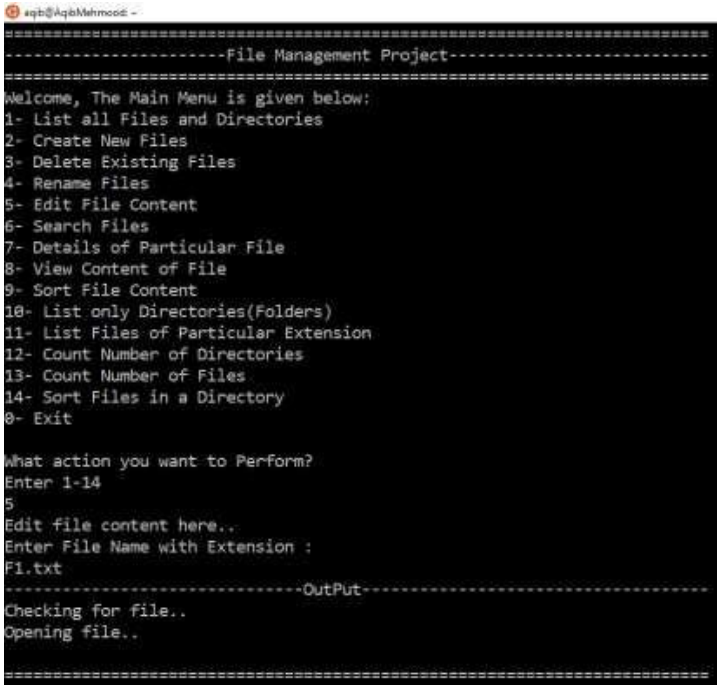
Choice 04 Output:

If user wants to rename an existing file, then he needs to enter 4.



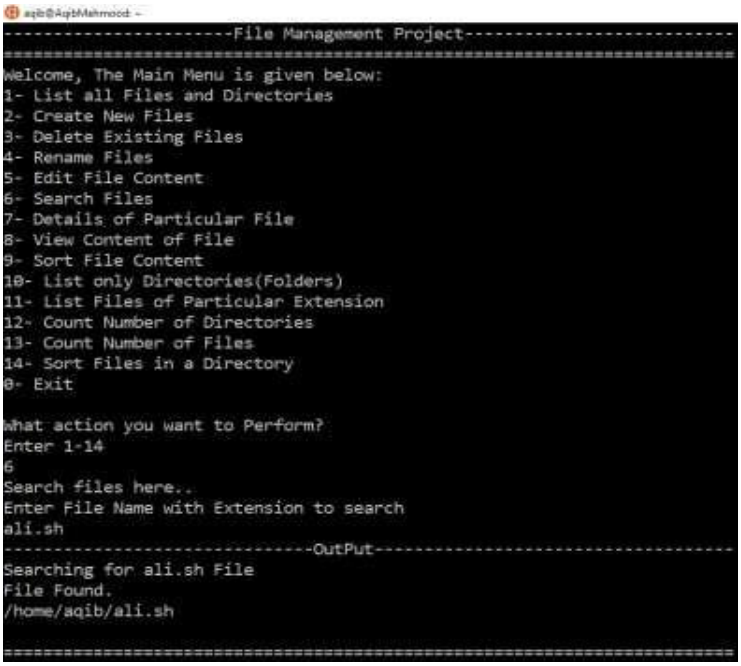
Choice 05 Output:

If user wants to edit file content, then he needs to enter 5.



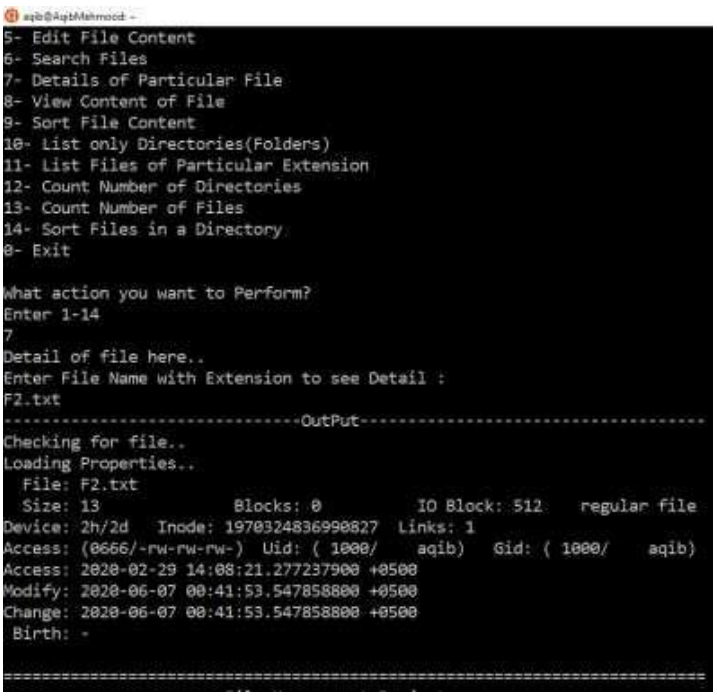
Choice 06 Output:

If user wants to search for a file, then he needs to enter 6.



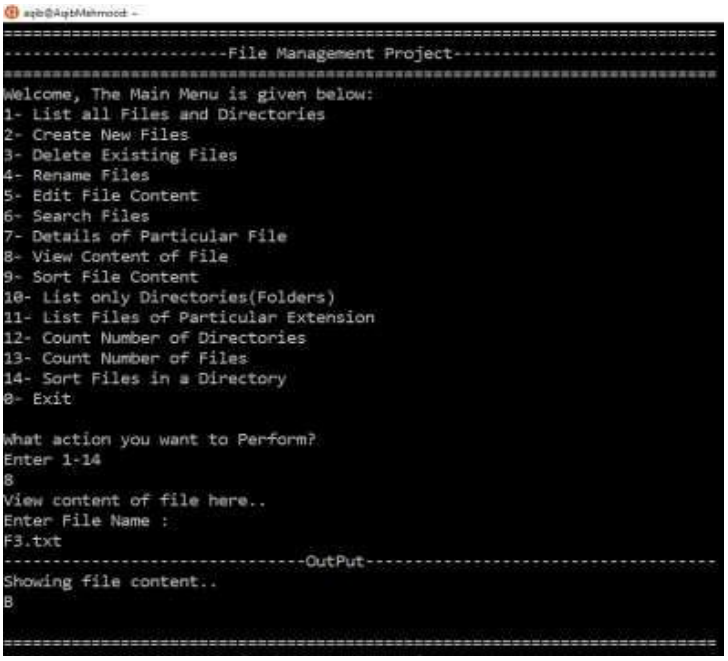
Choice 07 Output:

If user wants to see the details of file, then he needs to enter 7.



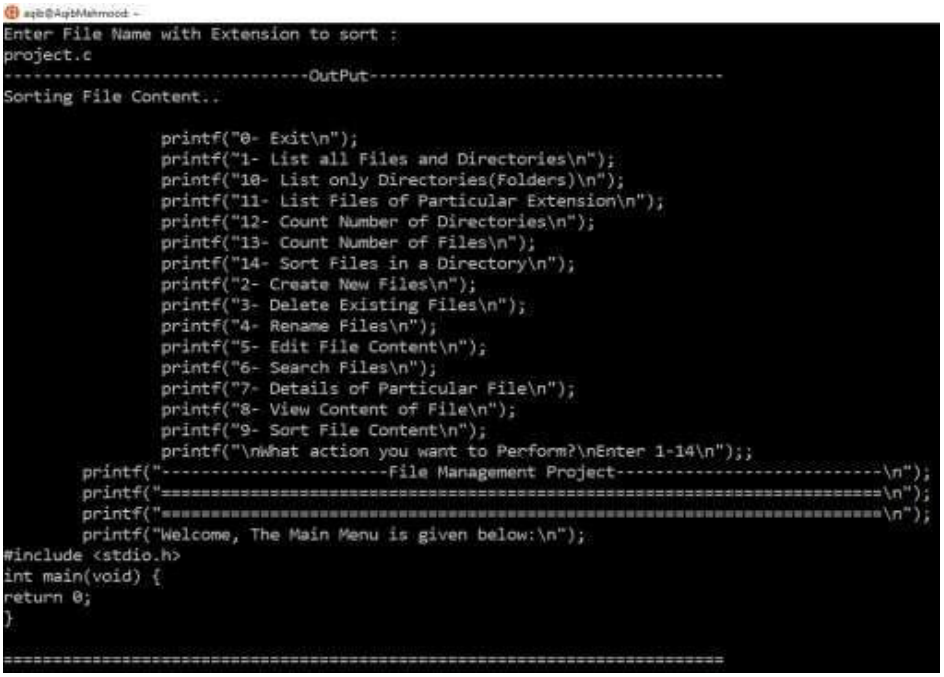
Choice 08 Output:

If user wants to view content of file, then he needs to enter 8.



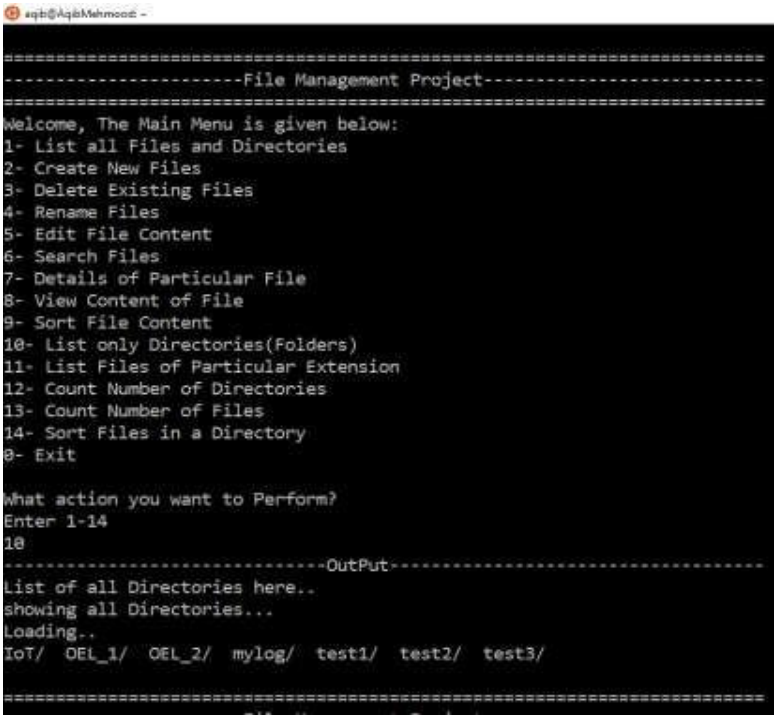
Choice 09 Output:

If user wants to sort the file content, then he needs to enter 9.



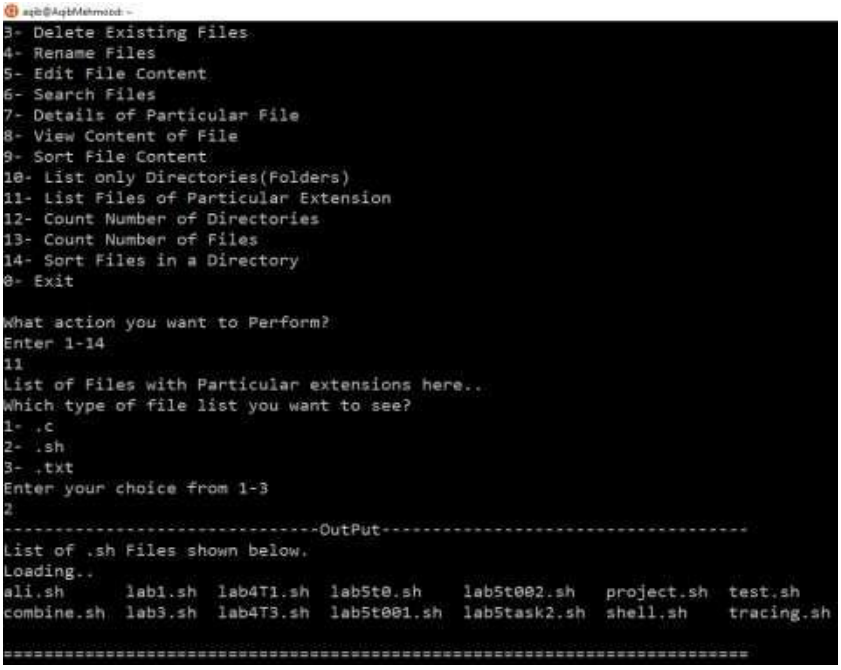
Choice 10 Output:

If user wants to list all directories, then he needs to enter 10.



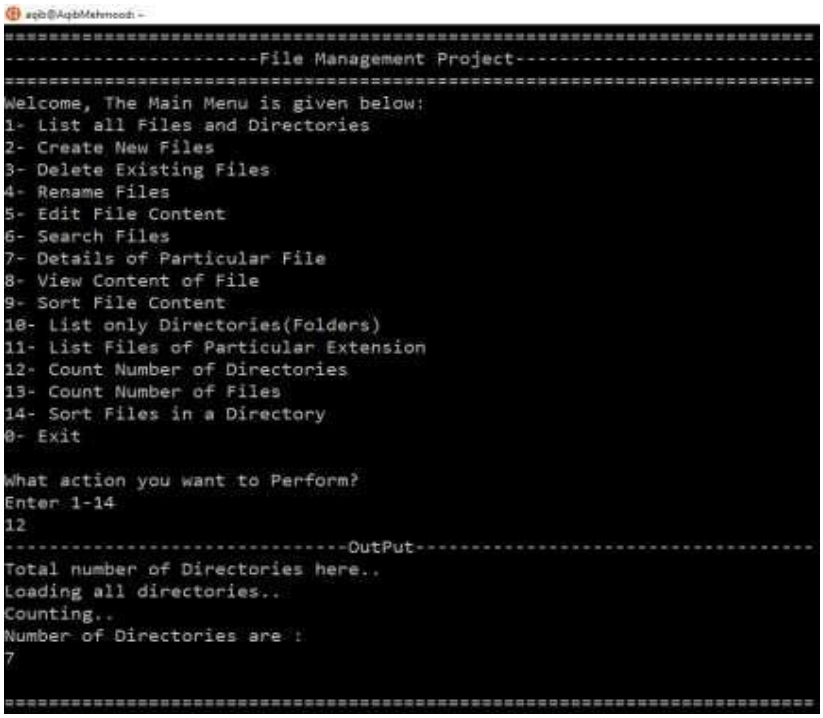
Choice 11 Output:

If user wants to list all files with the same extension, then he needs to enter 11.



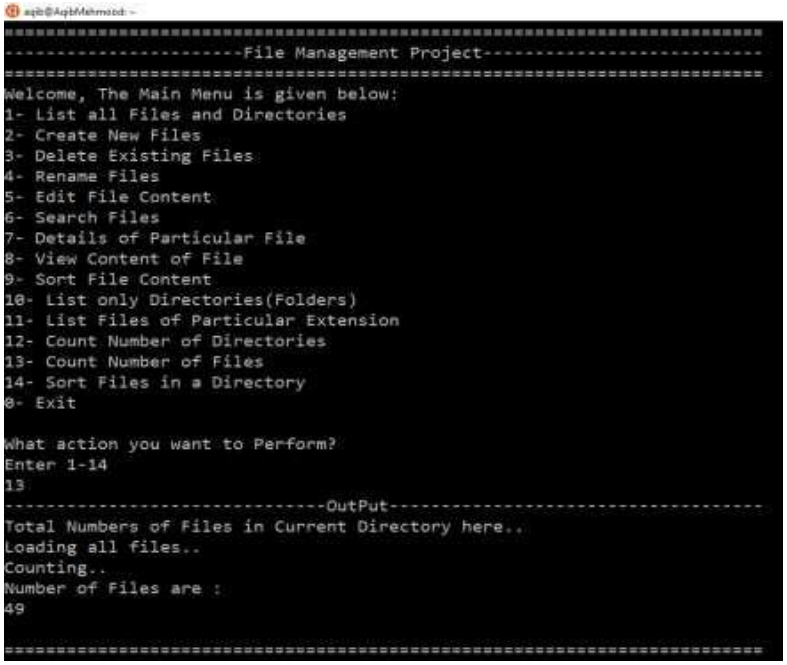
Choice 12 Output:

If user wants to number of directories, then he needs to enter 12.



Choice 13 Output:

If user wants to count number of files, then he needs to enter 13.

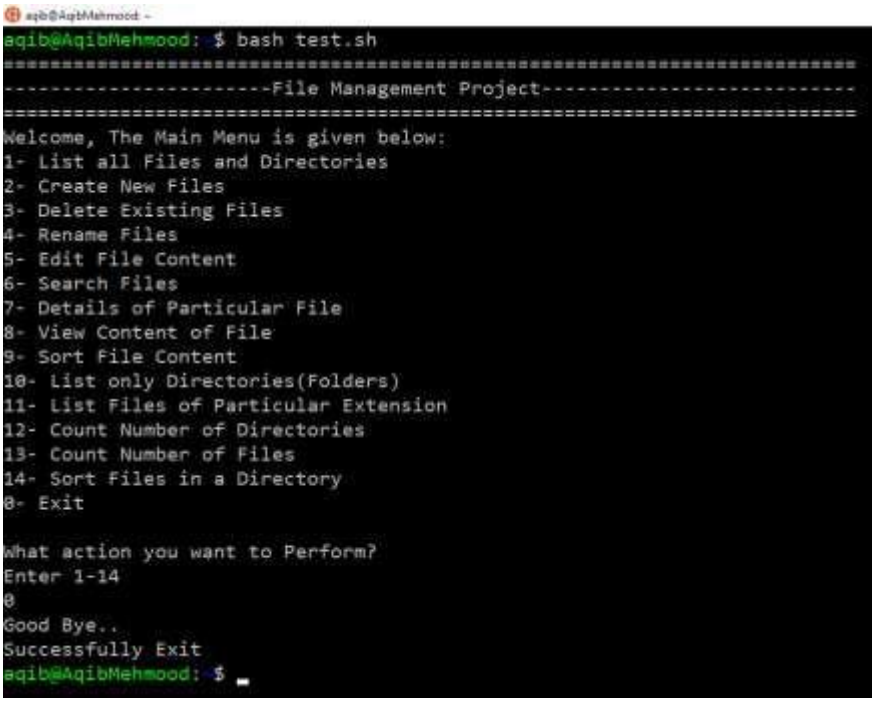


Choice 14 Output:

If user wants to sort all files in a directory, then he needs to enter 14.

Exit option:

If user wants to exit from Management system, then he needs to enter 0.



FUNCTIONALITIES

The following are some of the functionalities or tasks performed by file management system:

1. List all Files and Directories.
2. Create New Files.
3. Delete Existing Files.
4. Rename an Existing Files.
5. Edit Files Content.
6. Search for Files.
7. Details of Particular File.
8. View Content of File.
9. Sort Files Content.
10. List only Directories.
11. List Files of particular Extension.
12. Count Number of Directories.
13. Sort all Files in a Directories.

The details of all above functionalities is already explained under MECHANISM AND WORKING heading in the form of code of each function.

REMAINING CODE MODULES, API’s and APPLICATIONS

No other remaining side work apart from the displayed work above is used in this project. All the functionalities and code of each function is explained above. In this project we use Ubuntu subsystem terminal with C language and bash scripting. So, no others platform, API or plug ins used in this project.

FUTURE SCOPE

This is the most basic version of file management system. So, in future we can improve the current version's functionalities and can add more new functionalities to the system. In the current version of files management system there are 13 different options for a user to manage files and directories. In future we can add more choices for users by understanding the advanced concept about file management in Linux operating system. So, this will definitely help users to manage files in a more easy and comfortable manners.

CONCLUSION

The project contains some basic functionalities regarding file management like creating new files, delete existing files, rename files, edit files, read or write files and so on. All the functionalities are working on the basis of user's input from keyboard. There are different basic functions that users can perform on files. These functions are written in C language and bash scripting. All these functionalities are discussed above in the form of code as well as in simple natural language. So, everyone having the basic knowledge of computer can use this file management system to perform different functions on files.

REFERECES

- **Academic Papers and Journals:**
  - Research papers on file systems, distributed systems, and cloud computing.

- **Books:**
  - "Operating System Concepts" by Abraham Silberschatz, Peter B. Galvin, and Greg Gagne.
  - "Design and Implementation of the FreeBSD Operating System" by Marshall Kirk McKusick.

- **Online Tutorials and Courses:**
  - Online courses and tutorials on web development, cloud computing, and relevant technologies on platforms like Coursera, edX, and Udemy.

- **Online Forums and Q&A Sites:**
  - Community forums and Q&A sites like Stack Overflow, Reddit, and developer communities for asking questions and seeking advice.

- **Open-Source Code Repositories:**
  - GitHub and other code repositories to explore existing open-source projects for ideas and best practices.