

1. Title : File Explorer Application

Objective: Develop a console-based file explorer application in C++ that interfaces with the Linux operating system to manage files and directories.

2. Codes

```
#include <iostream>
#include <filesystem>
#include <string>
#include <chrono>
#include <iomanip>
#include <fstream>

namespace fs = std::filesystem;

// ----- Function to show all menu options -----
void show_menu() {
    std::cout << "\n==== Console File Explorer ====\n";
    std::cout << "1. List files\n";
    std::cout << "2. Change directory\n";
    std::cout << "3. Go up (parent)\n";
    std::cout << "4. Show file info\n";
    std::cout << "5. Create file / directory\n";
    std::cout << "6. Delete file / directory\n";
    std::cout << "7. Copy file\n";
    std::cout << "8. Move/Rename file\n";
    std::cout << "9. Search files (recursive)\n";
    std::cout << "10. View permissions\n";
    std::cout << "11. Change permissions\n";
    std::cout << "0. Quit\n";
    std::cout << "Choose an option: ";
}

// ----- List directory contents -----
void list_directory(const fs::path& p) {
    try {
        std::cout << "Listing: " << p << "\n";
        for (auto &entry : fs::directory_iterator(p)) {
            auto name = entry.path().filename().string();
            std::string type = entry.is_directory() ? "[D]" : "[F]";
            std::uintmax_t size = 0;
            if (entry.is_regular_file()) size = fs::file_size(entry.path());
        }
    }
}
```

```

        std::cout << type << " " << std::setw(10) << size << " bytes " << name << "\n";
    }
} catch (const fs::filesystem_error& e) {
    std::cout << "Error: " << e.what() << "\n";
}
}

// ----- Show info about one file -----
void show_file_info(const fs::path& base) {
    std::string name;
    std::cout << "Enter file or directory name: ";
    std::getline(std::cin, name);
    fs::path p = base / name;

    try {
        if (!fs::exists(p)) { std::cout << "Not found!\n"; return; }

        std::cout << "\nPath: " << fs::canonical(p) << "\n";
        std::cout << "Type: " << (fs::is_directory(p) ? "Directory" : "File") << "\n";
        if (fs::is_regular_file(p))
            std::cout << "Size: " << fs::file_size(p) << " bytes\n";

        auto ftime = fs::last_write_time(p);
        auto sctp = std::chrono::time_point_cast<std::chrono::system_clock::duration>(
            ftime - fs::file_time_type::clock::now() + std::chrono::system_clock::now());
        std::time_t cftime = std::chrono::system_clock::to_time_t(sctp);
        std::cout << "Last modified: " << std::put_time(std::localtime(&cftime), "%F %T") <<
"\n";
    } catch (const fs::filesystem_error& e) {
        std::cout << "Error: " << e.what() << "\n";
    }
}

// ----- Create file or directory -----
void create_item(const fs::path& base) {
    std::string name;
    std::cout << "Enter name: ";
    std::getline(std::cin, name);
    std::cout << "Create (f)ile or (d)irectory? ";
    char type; std::cin >> type;
    std::cin.ignore(std::numeric_limits<std::streamsize>::max(), '\n');

    fs::path p = base / name;
}

```

```

if (fs::exists(p)) { std::cout << "Already exists!\n"; return; }

try {
    if (type == 'f') {
        std::ofstream ofs(p.string());
        ofs.close();
        std::cout << "File created.\n";
    } else if (type == 'd') {
        fs::create_directory(p);
        std::cout << "Directory created.\n";
    } else {
        std::cout << "Invalid type.\n";
    }
} catch (...) {
    std::cout << "Error creating item.\n";
}

// ----- Delete file or directory -----
void delete_item(const fs::path& base) {
    std::string name;
    std::cout << "Enter name to delete: ";
    std::getline(std::cin, name);
    fs::path p = base / name;

    if (!fs::exists(p)) { std::cout << "Not found.\n"; return; }

    std::cout << "Are you sure you want to delete " << name << "? (y/n): ";
    char ans; std::cin >> ans;
    std::cin.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
    if (ans != 'y' && ans != 'Y') { std::cout << "Aborted.\n"; return; }

    try {
        if (fs::is_directory(p)) fs::remove_all(p);
        else fs::remove(p);
        std::cout << "Deleted successfully.\n";
    } catch (...) {
        std::cout << "Error deleting item.\n";
    }
}

// ----- Copy File -----
void copy_file_item(const fs::path& base) {
    std::string srcName, dstName;
    std::cout << "Enter source file name: ";

```

```

    std::getline(std::cin, srcName);
    std::cout << "Enter destination file name: ";
    std::getline(std::cin, dstName);

    fs::path src = base / srcName;
    fs::path dst = base / dstName;

    try {
        if (!fs::exists(src)) {
            std::cout << "Source file not found.\n";
            return;
        }
        fs::copy_file(src, dst, fs::copy_options::overwrite_existing);
        std::cout << "Copied successfully to: " << dst << "\n";
    } catch (const fs::filesystem_error& e) {
        std::cout << "Error: " << e.what() << "\n";
    }
}

// ----- Move or Rename File -----
void move_or_rename_item(const fs::path& base) {
    std::string srcName, dstName;
    std::cout << "Enter current file name: ";
    std::getline(std::cin, srcName);
    std::cout << "Enter new name or destination: ";
    std::getline(std::cin, dstName);

    fs::path src = base / srcName;
    fs::path dst = base / dstName;

    try {
        if (!fs::exists(src)) {
            std::cout << "File not found.\n";
            return;
        }
        fs::rename(src, dst);
        std::cout << "Moved/Renamed successfully to: " << dst << "\n";
    } catch (const fs::filesystem_error& e) {
        std::cout << "Error: " << e.what() << "\n";
    }
}

// ----- Search Files Recursively -----
void search_files_recursive(const fs::path& base) {
    std::string query;

```

```

std::cout << "Enter search keyword: ";
std::getline(std::cin, query);

bool found = false;
try {
    for (auto& entry : fs::recursive_directory_iterator(base)) {
        auto name = entry.path().filename().string();
        if (name.find(query) != std::string::npos) {
            std::cout << entry.path() << "\n";
            found = true;
        }
    }
    if (!found) std::cout << "No matches found.\n";
} catch (const fs::filesystem_error& e) {
    std::cout << "Error: " << e.what() << "\n";
}
}

// ----- View File Permissions -----
std::string perms_to_string(fs::perms p) {
    std::string s;
    s += ((p & fs::perms::owner_read) != fs::perms::none) ? "r" : "-";
    s += ((p & fs::perms::owner_write) != fs::perms::none) ? "w" : "-";
    s += ((p & fs::perms::owner_exec) != fs::perms::none) ? "x" : "-";
    return s;
}

void view_permissions(const fs::path& base) {
    std::string name;
    std::cout << "Enter file or directory name: ";
    std::getline(std::cin, name);
    fs::path p = base / name;

    try {
        if (!fs::exists(p)) {
            std::cout << "Not found.\n";
            return;
        }
        auto st = fs::status(p).permissions();
        std::cout << "Owner Permissions: " << perms_to_string(st) << " (r=read, w=write,
x=execute)\n";
    } catch (const fs::filesystem_error& e) {
        std::cout << "Error: " << e.what() << "\n";
    }
}

```

```

// ----- Change File Permissions (Owner Only) -----
void change_permissions(const fs::path& base) {
    std::string name;
    std::cout << "Enter file or directory name: ";
    std::getline(std::cin, name);
    fs::path p = base / name;

    try {
        if (!fs::exists(p)) {
            std::cout << "Not found.\n";
            return;
        }

        std::cout << "\nChoose an option:\n";
        std::cout << "1. Add read permission\n";
        std::cout << "2. Remove read permission\n";
        std::cout << "3. Add write permission\n";
        std::cout << "4. Remove write permission\n";
        std::cout << "5. Add execute permission\n";
        std::cout << "6. Remove execute permission\n";
        std::cout << "Enter choice: ";

        int choice;
        std::cin >> choice;
        std::cin.ignore(std::numeric_limits<std::streamsize>::max(), '\n');

        switch (choice) {
            case 1: fs::permissions(p, fs::perms::owner_read, fs::perm_options::add); break;
            case 2: fs::permissions(p, fs::perms::owner_read, fs::perm_options::remove);
        break;
            case 3: fs::permissions(p, fs::perms::owner_write, fs::perm_options::add); break;
            case 4: fs::permissions(p, fs::perms::owner_write, fs::perm_options::remove);
        break;
            case 5: fs::permissions(p, fs::perms::owner_exec, fs::perm_options::add); break;
            case 6: fs::permissions(p, fs::perms::owner_exec, fs::perm_options::remove);
        break;
            default: std::cout << "Invalid choice.\n"; return;
        }
        std::cout << "Permissions updated successfully.\n";
    } catch (const fs::filesystem_error& e) {
        std::cout << "Error: " << e.what() << "\n";
    }
}

```

```

// ----- Main Program Loop -----
int main() {
    fs::path current = fs::current_path();

    while (true) {
        std::cout << "\nCurrent Directory: " << current << "\n";
        show_menu();

        int choice;
        if (!(std::cin >> choice)) break;
        std::cin.ignore(std::numeric_limits<std::streamsize>::max(), '\n');

        if (choice == 0) break;
        else if (choice == 1) list_directory(current);
        else if (choice == 2) {
            std::string dir;
            std::cout << "Enter directory name: ";
            std::getline(std::cin, dir);
            fs::path next = current / dir;
            if (fs::exists(next) && fs::is_directory(next))
                current = fs::canonical(next);
            else
                std::cout << "Directory not found.\n";
        }
        else if (choice == 3) {
            if (current.has_parent_path()) current = current.parent_path();
        }
        else if (choice == 4) show_file_info(current);
        else if (choice == 5) create_item(current);
        else if (choice == 6) delete_item(current);
        else if (choice == 7) copy_file_item(current);
        else if (choice == 8) move_or_rename_item(current);
        else if (choice == 9) search_files_recursive(current);
        else if (choice == 10) view_permissions(current);
        else if (choice == 11) change_permissions(current);
        else std::cout << "Invalid option.\n";
    }

    std::cout << "Goodbye!\n";
    return 0;
}

```

3. Screenshots :

```
user2004@DESKTOP-7AD8A07:/mnt/c/Users/user$ sudo apt install build-essential
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libl1vm19
Preconfiguring packages that depend on libl1vm19...
user2004@DESKTOP-7AD8A07:/mnt/c/Users/user$ mkdir ~/file_explorer
user2004@DESKTOP-7AD8A07:/mnt/c/Users/user$ cd ~/file_explorer
user2004@DESKTOP-7AD8A07:~/file_explorer$ mkdir src build
user2004@DESKTOP-7AD8A07:~/file_explorer$ ls
build  src
user2004@DESKTOP-7AD8A07:~/file_explorer$ nano src/main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer$ g++ -std=c++17 -o build/file_explorer src/main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file_explorer

Current: "/home/user2004/file_explorer"
Commands: l=list, c <dir>=cd, u=up, q=quit
> l
Listing: "/home/user2004/file_explorer"
[D] build
[D] src

Current: "/home/user2004/file_explorer"
Commands: l=list, c <dir>=cd, u=up, q=quit
> c src

Current: "/home/user2004/file_explorer/src"
Commands: l=list, c <dir>=cd, u=up, q=quit
> u

Current: "/home/user2004/file_explorer"
Commands: l=list, c <dir>=cd, u=up, q=quit
> q
```

```
user2004@DESKTOP-7AD8A07:~/file_explorer$ mkdir testdir
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd testdir
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir$ mkdir subdir
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir$ echo "hello" > file1.txt
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir$ echo "sample" > file2.txt
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir$ cd ..
cd..: command not found
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir$ cd ..
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file_explorer

Current: "/home/user2004/file_explorer"
Commands: l=list, c <dir>=cd, u=up, q=quit
> c testdir

Current: "/home/user2004/file_explorer/testdir"
Commands: l=list, c <dir>=cd, u=up, q=quit
> l
Listing: "/home/user2004/file_explorer/testdir"
[D] subdir
[F] file1.txt
[F] file2.txt

Current: "/home/user2004/file_explorer/testdir"
Commands: l=list, c <dir>=cd, u=up, q=quit
> c subdir

Current: "/home/user2004/file_explorer/testdir/subdir"
Commands: l=list, c <dir>=cd, u=up, q=quit
> u

Current: "/home/user2004/file_explorer/testdir"
Commands: l=list, c <dir>=cd, u=up, q=quit
> q
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ~/file_explorer
user2004@DESKTOP-7AD8A07:~/file_explorer$ ls
build src testdir
user2004@DESKTOP-7AD8A07:~/file_explorer$ nano src/main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer$ g++ -std=c++17 -o build/file_explorer src/main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file_explorer
```

```
Current Directory: "/home/user2004/file_explorer"
```

```
==== Console File Explorer ===
```

1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
0. Quit

```
Choose an option: 1
```

```
Listing: "/home/user2004/file_explorer"
```

```
[D]          0 bytes  build
[D]          0 bytes  src
[D]          0 bytes  testdir
```

```
Current Directory: "/home/user2004/file_explorer"
```

```
==== Console File Explorer ===
```

1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
0. Quit

```
Choose an option: 2
```

```
Enter directory name: src
```

```
Current Directory: "/home/user2004/file_explorer/src"
```

```
==== Console File Explorer ===
```

1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
0. Quit

```
Choose an option: 3
```

```
Current Directory: "/home/user2004/file_explorer"
```

```
==== Console File Explorer ====
```

1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
0. Quit

```
Choose an option: 4
```

```
Enter file or directory name: main.cpp
```

```
Not found!
```

```
Current Directory: "/home/user2004/file_explorer"
```

```
==== Console File Explorer ====
```

1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
0. Quit

```
Choose an option: 5
```

```
Enter name: adyasha
```

```
Create (f)ile or (d)irectory? f
```

```
File created.
```

```
Current Directory: "/home/user2004/file_explorer"
```

```
==== Console File Explorer ====
```

1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory

```
Choose an option: 6
Enter name to delete: adyasha
Are you sure you want to delete adyasha? (y/n): y
Deleted successfully.

Current Directory: "/home/user2004/file_explorer"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
0. Quit
Choose an option: 0
Goodbye!
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ~/file_explorer
user2004@DESKTOP-7AD8A07:~/file_explorer$ mkdir testdir
mkdir: cannot create directory 'testdir': File exists
user2004@DESKTOP-7AD8A07:~/file_explorer$ mkdir testdir1
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd testdir1
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir1$ echo "hello" > file1.txt
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir1$ mkdir subdir1
user2004@DESKTOP-7AD8A07:~/file_explorer/testdir1$ cd ..
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file_explorer

Current Directory: "/home/user2004/file_explorer"
```

```
user2004@DESKTOP-7AD8A07:~/file_explorer$ nano README.md
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ~/file_explorer
user2004@DESKTOP-7AD8A07:~/file_explorer$ ls -R
.:
README.md  build  src  testdir  testdir1

./build:
file_explorer

./src:
main.cpp

./testdir:
file1.txt  file2.txt  subdir

./testdir/subdir:

./testdir1:
file1.txt  newfile.txt  subdir1

./testdir1/subdir1:
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file explorer
bash: ./build/file: No such file or directory
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file explorer

Current Directory: "/home/user2004/file_explorer"

==== Console File Explorer ===
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
0. Quit
Choose an option: 0
Goodbye!
```

```
user2004@DESKTOP-7AD8A07:~/file_explorer$ zip -r file_explorer_assignment1.zip file_explorer
Command 'zip' not found, but can be installed with:
sudo apt install zip
user2004@DESKTOP-7AD8A07:~/file_explorer$ sudo apt install zip
[sudo] password for user2004:
Reading package lists... Done
Building dependency tree... Done

user2004@DESKTOP-7AD8A07:~/file_explorer$ zip -r file_explorer_assignment1.zip file_explorer
      zip warning: name not matched: file_explorer

zip error: Nothing to do! (try: zip -r file_explorer_assignment1.zip . -i file_explorer)
user2004@DESKTOP-7AD8A07:~/file_explorer$ zip -r file_explorer_assignment1.zip . -i file_explorer
      zip warning: zip file empty
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ..
user2004@DESKTOP-7AD8A07:~$ ls
file_explorer
user2004@DESKTOP-7AD8A07:~$ zip -r file_explorer_assignment1.zip file_explorer
      adding: file_explorer/ (stored 0%)
      adding: file_explorer/build/ (stored 0%)
      adding: file_explorer/build/file_explorer (deflated 74%)
      adding: file_explorer/src/ (stored 0%)
      adding: file_explorer/src/main.cpp (deflated 72%)
      adding: file_explorer/README.md (deflated 29%)
      adding: file_explorer/testdir/ (stored 0%)
      adding: file_explorer/testdir/subdir/ (stored 0%)
      adding: file_explorer/testdir/file1.txt (stored 0%)
      adding: file_explorer/testdir/file2.txt (stored 0%)
      adding: file_explorer/file_explorer_assignment1.zip (stored 0%)
      adding: file_explorer/testdir1/ (stored 0%)
      adding: file_explorer/testdir1 subdir1/ (stored 0%)
      adding: file_explorer/testdir1/file1.txt (stored 0%)
      adding: file_explorer/testdir1/newfile.txt (stored 0%)
user2004@DESKTOP-7AD8A07:~$ ls
file_explorer  file_explorer_assignment1.zip
user2004@DESKTOP-7AD8A07:~$ unzip -l file_explorer_assignment1.zip
UnZip 6.00 of 20 April 2009, by Debian. Original by Info-ZIP.
```

```
user2004@DESKTOP-7AD8A07:~$ unzip -l file_explorer_assignment1.zip
Archive:  file_explorer_assignment1.zip
      Length      Date      Time    Name
----- -----
          0 2025-11-07 17:59  file_explorer/
          0 2025-11-07 15:09  file_explorer/build/
  74856 2025-11-07 15:09  file_explorer/build/file_explorer
          0 2025-11-07 15:07  file_explorer/src/
  5183 2025-11-07 15:07  file_explorer/src/main.cpp
         311 2025-11-07 17:51  file_explorer/README.md
          0 2025-11-07 14:50  file_explorer/testdir/
          0 2025-11-07 14:49  file_explorer/testdir/subdir/
          6 2025-11-07 14:49  file_explorer/testdir/file1.txt
          7 2025-11-07 14:50  file_explorer/testdir/file2.txt
         22 2025-11-07 17:59  file_explorer/file_explorer_assignment1.zip
          0 2025-11-07 17:47  file_explorer/testdir1/
          0 2025-11-07 17:45  file_explorer/testdir1/subdir1/
          6 2025-11-07 17:45  file_explorer/testdir1/file1.txt
          0 2025-11-07 17:47  file_explorer/testdir1/newfile.txt
-----
          80391                  15 files
user2004@DESKTOP-7AD8A07:~$ explorer.exe
user2004@DESKTOP-7AD8A07:~$ \\wsl.localhost\Ubuntu\home\user2004
\\wsl.localhostUbuntuhomeuser2004: command not found
user2004@DESKTOP-7AD8A07:~$ explorer.exe .
user2004@DESKTOP-7AD8A07:~$ \\wsl.localhost\Ubuntu\home\user2004
\\wsl.localhostUbuntuhomeuser2004: command not found
user2004@DESKTOP-7AD8A07:~$ \\wsl.localhost\Ubuntu\home\user2004
\\wsl.localhostUbuntuhomeuser2004: command not found
user2004@DESKTOP-7AD8A07:~$ explorer.exe .
user2004@DESKTOP-7AD8A07:~$ cd ~/file-explorer
bash: cd: /home/user2004/file-explorer: No such file or directory
user2004@DESKTOP-7AD8A07:~$ cd ~/file_explorer
user2004@DESKTOP-7AD8A07:~/file_explorer$ nano src/main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer$ std::cout << "7. Copy file\n";
> ^C
user2004@DESKTOP-7AD8A07:~/file_explorer$ nano src/main.cpp
```

```
user2004@DESKTOP-7AD8A07:~/file_explorer$ std::cout << "7. Copy file\n";
> ^C
user2004@DESKTOP-7AD8A07:~/file_explorer$ nano src/main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer$ g++ -std=c++17 -o build/file_explorer src/main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file_explorer

Current Directory: "/home/user2004/file_explorer"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
8. Move/Rename file
0. Quit
Choose an option: 7
Enter source file name: ^C
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ~/file_explorer
user2004@DESKTOP-7AD8A07:~/file_explorer$ mkdir testdir1
mkdir: cannot create directory 'testdir1': File exists
user2004@DESKTOP-7AD8A07:~/file_explorer$ mkdir testdir2
user2004@DESKTOP-7AD8A07:~/file_explorer$ echo "hello world" > testdir2/sample.txt
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file_explorer

Current Directory: "/home/user2004/file_explorer"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
```

```
Choose an option: 7
Enter source file name: sample.txt
Enter destination file name: copy.txt
Copied successfully to: "/home/user2004/file_explorer/testdir2/copy.txt"

Current Directory: "/home/user2004/file_explorer/testdir2"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
8. Move/Rename file
0. Quit
Choose an option: 1
Listing: "/home/user2004/file_explorer/testdir2"
[F]          12 bytes  sample.txt
[F]          12 bytes  copy.txt

Current Directory: "/home/user2004/file_explorer/testdir2"
```

```
Choose an option: 8
Enter current file name: copy.txt
Enter new name or destination: renamed.txt
Moved/Renamed successfully to: "/home/user2004/file_explorer/testdir2/renamed.txt"

Current Directory: "/home/user2004/file_explorer/testdir2"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
8. Move/Rename file
0. Quit
user2004@DESKTOP-7AD8A07:~/file_explorer/src$ 
Listing: "/home/user2004/file_explorer/testdir2"
[F]           12 bytes  renamed.txt
[F]           12 bytes  sample.txt

Current Directory: "/home/user2004/file_explorer/testdir2"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
8. Move/Rename file
0. Quit
Choose an option: 0
Goodbye!
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ~/file_explorer
```

```
user2004@DESKTOP-7AD8AO7:~/file_explorer$ cd ~/file_explorer
user2004@DESKTOP-7AD8AO7:~/file_explorer$ nano src/main.cpp
user2004@DESKTOP-7AD8AO7:~/file_explorer$ g++ -std=c++17 -o build/file_explorer src/main.cpp
user2004@DESKTOP-7AD8AO7:~/file_explorer$ ./build/file_explorer

user2004@DESKTOP-7AD8AO7:~/file_explorer/src$ 

    == Console File Explorer ==
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
8. Move/Rename file
9. Search files (recursive)
0. Quit
Choose an option: 9
Enter search keyword: txt
"/home/user2004/file_explorer/testdir2/renamed.txt"
"/home/user2004/file_explorer/testdir2/sample.txt"
"/home/user2004/file_explorer/testdir/file1.txt"
"/home/user2004/file_explorer/testdir/file2.txt"
"/home/user2004/file_explorer/testdir1/file1.txt"
"/home/user2004/file_explorer/testdir1/newfile.txt"

Current Directory: "/home/user2004/file_explorer"
```

```
user2004@DESKTOP-7AD8A07:~/file_explorer$ echo "test" > file1.txt
user2004@DESKTOP-7AD8A07:~/file_explorer$ ./build/file_explorer

Current Directory: "/home/user2004/file_explorer"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
8. Move/Rename file
9. Search files (recursive)
10. View permissions
11. Change permissions
0. Quit
Choose an option: 10
Enter file or directory name: file1.txt
Owner Permissions: rw- (r=read, w=write, x=execute)

Current Directory: "/home/user2004/file_explorer"

==== Console File Explorer ====
1. List files
2. Change directory
3. Go up (parent)
4. Show file info
5. Create file / directory
6. Delete file / directory
7. Copy file
8. Move/Rename file
9. Search files (recursive)
10. View permissions
11. Change permissions
0. Quit
Choose an option: 11
Enter file or directory name: file1.txt
```

```
Choose an option:  
1. Add read permission  
2. Remove read permission  
3. Add write permission  
4. Remove write permission  
5. Add execute permission  
6. Remove execute permission  
Enter choice: 5  
Permissions updated successfully.  
  
Current Directory: "/home/user2004/file_explorer"  
  
==== Console File Explorer ====  
1. List files  
2. Change directory  
3. Go up (parent)  
4. Show file info  
5. Create file / directory  
6. Delete file / directory  
7. Copy file  
8. Move/Rename file  
9. Search files (recursive)  
10. View permissions  
11. Change permissions  
0. Quit  
Choose an option: 10  
Enter file or directory name: file1.txt  
Owner Permissions: rwx (r=read, w=write, x=execute)  
  
Current Directory: "/home/user2004/file_explorer"  
  
==== Console File Explorer ====  
1. List files  
2. Change directory  
3. Go up (parent)  
4. Show file info  
5. Create file / directory  
6. Delete file / directory  
7. Copy file
```

```
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ~/file_explorer
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ..
user2004@DESKTOP-7AD8A07:~/file_explorer$ zip -r file_explorer_assignment1_final.zip file_explorer
    adding: file_explorer/ (stored 0%)
    adding: file_explorer/build/ (stored 0%)
    adding: file_explorer/build/file_explorer (deflated 74%)
    adding: file_explorer/src/ (stored 0%)
    adding: file_explorer/src/main.cpp (deflated 79%)
    adding: file_explorer/file1.txt (stored 0%)
    adding: file_explorer/testdir2/ (stored 0%)
    adding: file_explorer/testdir2/renamed.txt (stored 0%)
    adding: file_explorer/testdir2/sample.txt (stored 0%)
    adding: file_explorer/README.md (deflated 29%)
    adding: file_explorer/testdir/ (stored 0%)
    adding: file_explorer/testdir/subdir/ (stored 0%)
    adding: file_explorer/testdir/file1.txt (stored 0%)
    adding: file_explorer/testdir/file2.txt (stored 0%)
    adding: file_explorer/file_explorer_assignment1.zip (stored 0%)
    adding: file_explorer/testdir1/ (stored 0%)
    adding: file_explorer/testdir1/subdir1/ (stored 0%)
    adding: file_explorer/testdir1/file1.txt (stored 0%)
    adding: file_explorer/testdir1/newfile.txt (stored 0%)
user2004@DESKTOP-7AD8A07:~/file_explorer$ explorer.exe .
user2004@DESKTOP-7AD8A07:~/file_explorer$ cat src/main.cpp
cat: src/main.cpp: No such file or directory
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd ..
user2004@DESKTOP-7AD8A07:~/file_explorer$ ls
README.md  file1.txt          src      testdir1
build      file_explorer_assignment1_final.zip  testdir  testdir2
user2004@DESKTOP-7AD8A07:~/file_explorer$ cd src
user2004@DESKTOP-7AD8A07:~/file_explorer/src$ ls
main.cpp
user2004@DESKTOP-7AD8A07:~/file_explorer/src$ cat main.cpp
#include <iostream>
#include <filesystem>
#include <string>
#include <chrono>
#include <iomanip>
```