

FILE EXPLORER APPLICATION WITH ENHANCED FILE HISTORY & LOG TRACKING

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/*

SIMPLE CONSOLE FILE EXPLORER (WITH ACTIVITY LOG)

Purpose : A small command-line file explorer that allows

users to perform common file operations such as

create, delete, copy, move, list, and search.

It also keeps a log of all performed actions.

*/

#include <iostream>

#include <fstream>

#include <string>

#include <vector>

#include <sstream>

#include <dirent.h>

#include <sys/stat.h>

#include <cstdio>

#include <cstring>

#include <cstdlib>

#include <ctime>

#include <unistd.h>

```

#ifdef _WIN32
#include <windows.h>
#define PATH_SEP '\\
#else
#define PATH_SEP '/'
#endif

using namespace std;

/*-----
   Write each action performed by user to a log file
   -----*/
void logAction(const string &action) {
    ofstream log("activity_log.txt", ios::app);
    if (!log) return;

    time_t now = time(NULL);
    tm *t = localtime(&now);

    char timeStr[64];
    strftime(timeStr, sizeof(timeStr), "%Y-%m-%d %H:%M:%S", t);

    log << "[" << timeStr << "]" << action << endl;
    log.close();
}

/*-----
   Split input line into words
   -----*/
vector<string> split(const string &line) {

```

```

    stringstream ss(line);
    string word;
    vector<string> parts;
    while (ss >> word)
        parts.push_back(word);
    return parts;
}

/*-----
    Check if path refers to a directory
-----*/

bool isDirectory(const string &path) {
    struct stat st;
    if (stat(path.c_str(), &st) == 0)
        return (st.st_mode & S_IFDIR);
    return false;
}

/*-----
    List all files and folders in a directory
-----*/

void listFiles(const string &path = ".") {
    DIR *dir = opendir(path.c_str());
    if (!dir) {
        perror("ls");
        return;
    }

    cout << "Contents of " << path << ":\n";

```

```

struct dirent *entry;
while ((entry = readdir(dir)) != NULL) {
    string name = entry->d_name;
    if (name == "." || name == "..") continue;

    string fullPath = path + PATH_SEP + name;
    struct stat st;
    if (stat(fullPath.c_str(), &st) == 0) {
        if (isDirectory(fullPath))
            cout << "[DIR] ";
        else
            cout << "    ";
        cout << name << "\t(" << st.st_size << " bytes)\n";
    }
}
closedir(dir);
logAction("Listed contents of: " + path);
}

```

```

/*-----
Change current working directory
-----*/

```

```

void changeDir(const string &path) {
    if (chdir(path.c_str()) == 0) {
        cout << "Changed directory to: " << path << endl;
        logAction("Changed directory to: " + path);
    } else {
        perror("cd");
    }
}

```

```
/*-----  
    Print current working directory path  
-----*/
```

```
void printPwd() {  
    char cwd[1024];  
    if (getcwd(cwd, sizeof(cwd)))  
        cout << cwd << endl;  
    else  
        perror("pwd");  
  
    logAction("Checked current directory.");  
}
```

```
/*-----  
    Copy a file from one location to another  
-----*/
```

```
bool copyFile(const string &src, const string &dest) {  
    FILE *in = fopen(src.c_str(), "rb");  
    if (!in) return false;  
  
    FILE *out = fopen(dest.c_str(), "wb");  
    if (!out) {  
        fclose(in);  
        return false;  
    }  
}
```

```
char buffer[4096];  
size_t n;  
while ((n = fread(buffer, 1, sizeof(buffer), in)) > 0)  
    fwrite(buffer, 1, n, out);
```

```

fclose(in);

fclose(out);

logAction("Copied file: " + src + " -> " + dest);

return true;
}

/*-----
Delete a file or folder (recursively)
-----*/

void removeRecursive(const string &path) {
    if (isDirectory(path)) {
        DIR *dir = opendir(path.c_str());
        if (!dir) return;
        struct dirent *entry;

        while ((entry = readdir(dir)) != NULL) {
            string name = entry->d_name;
            if (name == "." || name == "..") continue;
            string subPath = path + PATH_SEP + name;
            removeRecursive(subPath);
        }
        closedir(dir);
    }

#ifdef _WIN32
    _rmdir(path.c_str());
#else
    rmdir(path.c_str());
#endif
} else {
    remove(path.c_str());
}

```

```

    logAction("Removed: " + path);
}

/*-----
   Search for a file by name (recursive)
   -----*/

void searchFile(const string &pattern, const string &path = ".") {
    DIR *dir = opendir(path.c_str());
    if (!dir) return;

    struct dirent *entry;
    while ((entry = readdir(dir)) != NULL) {
        string name = entry->d_name;
        if (name == "." || name == "..") continue;

        string fullPath = path + PATH_SEP + name;

        if (name.find(pattern) != string::npos)
            cout << fullPath << endl;

        if (isDirectory(fullPath))
            searchFile(pattern, fullPath);
    }
    closedir(dir);
    logAction("Searched for: " + pattern + " in " + path);
}

```

```

/*-----
   Create an empty file (similar to Linux 'touch')
   -----*/

```

```

void touchFile(const string &path) {
    FILE *f = fopen(path.c_str(), "ab");
    if (f) {
        fclose(f);
        cout << "File created/updated: " << path << endl;
        logAction("Created or updated file: " + path);
    } else {
        perror("touch");
    }
}

```

```

/*-----
    Create a new folder
-----*/

```

```

void makeDir(const string &path) {
#ifdef _WIN32
    if (CreateDirectoryA(path.c_str(), NULL))
        cout << "Directory created: " << path << endl;
    else
        perror("mkdir");
#else
    if (mkdir(path.c_str(), 0755) == 0)
        cout << "Directory created: " << path << endl;
    else
        perror("mkdir");
#endif
    logAction("Created directory: " + path);
}

```

```

/*-----
    Move or rename a file

```



```

-----*/
void moveFile(const string &src, const string &dest) {
    if (rename(src.c_str(), dest.c_str()) == 0) {
        cout << "Moved: " << src << " -> " << dest << endl;
        logAction("Moved/Renamed: " + src + " -> " + dest);
    } else {
        perror("mv");
    }
}

```

```

/*-----
    Show all previously logged activities
-----*/

```

```

void showHistory() {
    ifstream log("activity_log.txt");
    if (!log) {
        cout << "No activity history found yet.\n";
        return;
    }

```

```

    cout << "----- ACTIVITY LOG ----- \n";
    string line;
    while (getline(log, line))
        cout << line << endl;
    cout << "----- \n";
    log.close();
}

```

```

/*-----
    Display list of available commands
-----*/

```

```

void showHelp() {
    cout << "\nAvailable Commands:\n";
    cout << " ls [path]      - List files and folders\n";
    cout << " cd <dir>       - Change directory\n";
    cout << " pwd           - Print current directory\n";
    cout << " cp <src> <dest> - Copy file\n";
    cout << " mv <src> <dest> - Move or rename file\n";
    cout << " rm <path>       - Delete file/folder\n";
    cout << " touch <file>    - Create empty file\n";
    cout << " mkdir <dir>     - Create new folder\n";
    cout << " search <name>   - Search file by name\n";
    cout << " history        - Show activity log\n";
    cout << " help          - Show help menu\n";
    cout << " exit          - Exit explorer\n\n";
}

```

```

/*-----
MAIN PROGRAM
-----*/

```

```

int main() {
    cout << "-----\n";
    cout << "  SIMPLE CONSOLE FILE EXPLORER (C++ / GCC6)\n";
    cout << "-----\n";
    cout << "Type 'help' to see available commands.\n\n";

    string line;
    while (true) {
        char cwd[1024];
        getcwd(cwd, sizeof(cwd));
        cout << cwd << " $ ";
    }
}

```

```

if (!getline(cin, line)) break;

vector<string> args = split(line);

if (args.empty()) continue;

string cmd = args[0];

if (cmd == "exit" || cmd == "quit")
    break;

else if (cmd == "help")
    showHelp();

else if (cmd == "ls")
    listFiles(args.size() > 1 ? args[1] : ".");

else if (cmd == "cd") {
    if (args.size() > 1) changeDir(args[1]);
    else cout << "Usage: cd <dir>\n";
}

else if (cmd == "pwd")
    printPwd();

else if (cmd == "cp") {
    if (args.size() > 2) {
        if (copyFile(args[1], args[2]))
            cout << "Copied: " << args[1] << " -> " << args[2] << endl;
        else
            perror("cp");
    } else cout << "Usage: cp <src> <dest>\n";
}

else if (cmd == "mv") {
    if (args.size() > 2)
        moveFile(args[1], args[2]);
    else
        cout << "Usage: mv <src> <dest>\n";
}

```

```

}
else if (cmd == "rm") {
    if (args.size() > 1)
        removeRecursive(args[1]);
    else
        cout << "Usage: rm <path>\n";
}
else if (cmd == "touch") {
    if (args.size() > 1)
        touchFile(args[1]);
    else
        cout << "Usage: touch <file>\n";
}
else if (cmd == "mkdir") {
    if (args.size() > 1)
        makeDir(args[1]);
    else
        cout << "Usage: mkdir <dir>\n";
}
else if (cmd == "search") {
    if (args.size() > 1)
        searchFile(args[1]);
    else
        cout << "Usage: search <pattern>\n";
}
else if (cmd == "history")
    showHistory();
else
    cout << "Unknown command. Type 'help' for list.\n";
}

```

```
cout << "\nGoodbye! Have a nice day :)\n";  
return 0;  
}
```

SCREENSHOTS









