

SYSTEM UTILITY – SIMPLE COMMAND RUNNER IN C++

Objective:

The objective of this task is to build a small system utility using the C++ programming language that demonstrates **process creation and command execution**. The program allows users to enter system commands, executes them, handles errors gracefully, and exits cleanly.

Description of the System Utility:

A system utility is a program designed to perform low-level system-related tasks.

In this project, a **Simple Command Runner** is implemented, which behaves like a basic shell.

The program continuously accepts user input, executes valid system commands using the operating system, and displays appropriate error messages for invalid commands. The utility terminates when the user enters the `exit` command.

Features Implemented:

The following features are implemented in the system utility:

- Execution of system commands
- Continuous command prompt
- Graceful handling of invalid commands
- Clean termination using exit command

Commands Used in the Program:

The following commands were tested and executed using the command runner:

Command	Description
dir	Displays files and folders in the current directory
echo Hello	Prints text to the console
invalidcommand	Demonstrates error handling
exit	Terminates the program

Error Handling and Edge Cases:

The program handles the following edge cases:

- Empty command input
- Invalid or unknown commands
- Command execution failure
- Safe program exit without crashing

For invalid commands, the program displays an appropriate error message instead of terminating unexpectedly.

Compile and Run Commands:

Compile (Using g++)

g++ main.cpp -o main

Run

.\main.exe

Sample Input and Output:

```
Error: Command execution failed.  
>> exit  
Exiting shell...  
PS C:\Users\Roshini\Documents\GitHub\Alfido-Tech-Inter  
nship-4\output> cd 'c:\Users\Roshini\Documents\GitHub\  
Alfido-Tech-Internship-4\output'  
PS C:\Users\Roshini\Documents\GitHub\Alfido-Tech-Inter  
nship-4\output> & .\main.exe  
Simple Command Runner (type 'exit' to quit)  
>> █
```

powershell
 C/C++ ... ✓
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Conclusion:

Thus, the Simple Command Runner system utility was successfully implemented in C++.

The program effectively demonstrates command execution, process creation, and error handling. It fulfills all the requirements of the system utility task.

