

CSE321 Term Project 1

Introduction

In this assignment you have to implement a UNIX shell using C. Your shell will be able to run basic linux commands, I/O redirections and handle errors.

Specifications

The shell must implement the following core features:

1. Display a command prompt (e.g., `sh>`) and read user input.
2. Parse and execute system commands.
For example, running “`pwd`” will output the absolute path of the directory that your shell is working on.
Hint: Use “`fork`” and “`exec`” system call
3. Support input (`<`) and output (`>` and `>>`) redirection.
Hint: Use “`dup`” and “`dup2`”
4. Support command piping (`|`). Your shell should support any number of piping.
For example, “`command1 | command2 | command3 | command4`” should work
5. Support multiple commands in-line separated by semicolon (`;`)
6. Support multiple command in sequence using (`&&`)
7. Support history of executed commands
8. Support signal handling. Pressing `CTRL+C` should terminate the currently running command inside your shell, not your shell.
Hint: Use “`signal`” and “`sigaction`”

Mark Distribution

Features	Marks
Basic shell functionality & built-in command support	40
Redirection (<, >, >>)	15
Piping ()	15
Signal handling	15
Logical opt. in terminal	10
History	5
Total	100

Submission Guideline

- Submission guidelines can be found in the submission form.

Collaboration Policy

- This project is a group assignment. A group can consist of at most 3 people. The difficulty of the project will be adjusted according to the number of people in the group. Discussions are encouraged, but direct code sharing is prohibited.
- Plagiarism will result in penalties according to university policies.