

A SimpleShell

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Commands Not Implemented

The commands not present in /usr/bin cannot and cannot be fetched by exec functions are not implemented in this file .

The commands like cd , mkdir etc are built-in commands in shells like bash . These commands are closely tied to the shell's functionality and are used to interact with the shell's environment.

Code Implementation

Temp of struct type shmmem is initialized .

And then the shell takes user input in an infinite loop until Ctrl + C is pressed .

The commands are separated by newline and then further the pipes are separated by the " | " delimiter .

The command is then passed to the `recurcomexec` function which checks the sequence at which the command is passed and forks a child process contingent to the parameters .

Pipes are also implemented using the pipe wrapper present in `glibc` and the `STDOUT_FILENO` and the `STDIN_FILENO` are duplicated to pass the contents to the next command if needed .

The shared memory component of type `shmmem` is used by various child processes to write to the corresponding details of that process . The shared memory component is essential as otherwise many process might try

to access it simultaneously which leads to the race condition .

CONTRIBUTION :

Kartik Prasad

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Implementation of pipes by :

1. System call wrappers like

execl , pipe , fork

Implementation of history by :

1 . Shared memory component

Using semaphores , signals , and various calls like sem_init , sem_wait , sem_post

2 . Making use of time struct timeval to keep track of start time ,end time of a process

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1 . Implemented the basic shell commands by :

Using the system call

1 . fork()

2 . exec family of system calls .

2. Error Handling

3. Documentation of the Entire project

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