

Unix Command Line Interpreter in C

User Documentation

Installing & Running the Programs

1. Extract the *26898187_A2.zip*
2. Navigate to the extracted folder

Running the basic interpreter

1. Navigate to and open a terminal in the *Task_1/bin* folder
2. Enter *./task_1*
3. The task 1 program should now be running. You may now enter a single length of text to be permuted.

Running the advanced interpreter

1. Navigate to and open a terminal in the *Task_2/bin* folder
2. Type *./task_2.sh*
3. The task 2 program should now be running. You may now enter multiple words into the terminal to permute.

Task 2 – Displaying asynchronous/parallel features

Due to the nature of the algorithm (base factorial permutation generation), every individual permutation can be theoretically executed in parallel. Because of this, a thread pool has been implemented rather than forks and this may make it hard to observe parallel execution as all threads in the pool work on the first argument before moving onto the next. To better observe the parallel nature of the program, it is recommended to run the program with a large number of threads and small string sizes.

Python implementation

A Python program with the core parallel algorithm has been created for easy reading which can be located at “Bonus - Parallel Python Implementation\permute.py”. This exists only for easier understanding of how the task 2 C implementation runs.