

Programming Project

Team members and Responsibility:

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Environment

下載GCC:

1. sudo apt update (更新軟體包)
2. sudo apt install build-essential (安裝build-essential)
3. gcc --version(確認gcc安裝成功)

Ch4 Proj1 (Sudoku solution validator)

This project consists of designing a multithreaded application that determines whether the solution to a Sudoku puzzle is valid. The program uses 27 threads, 9 for the 9 columns, 9 for the 9 rows, and 9 for each 3x3 subsection.

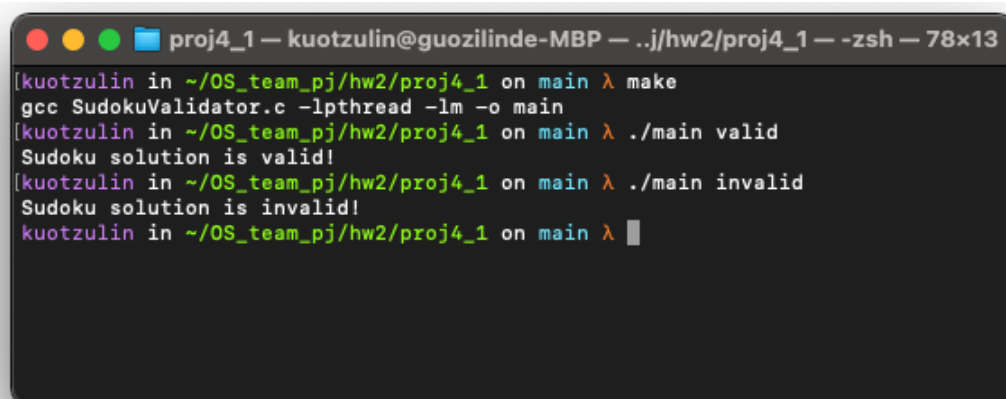
How to execute?

1. open terminal in this directory
2. enter `make` to compile
3. enter `make valid` or `./main valid` to validate a valid sudoku solution
4. enter `make invalid` or `./main invalid` to validate an invalid sudoku solution

Execution snapshot

Prints "Sudoku solution is valid!" when it reads a valid sudoku puzzle.

Prints "Sudoku solution is invalid!" when it reads an invalid sudoku puzzle.



```
proj4_1 — kuotzulin@guozilinde-MBP — ../hw2/proj4_1 — zsh — 78x13
[kuotzulin in ~/OS_team_pj/hw2/proj4_1 on main λ make
gcc SudokuValidator.c -lpthread -lm -o main
[kuotzulin in ~/OS_team_pj/hw2/proj4_1 on main λ ./main valid
Sudoku solution is valid!
[kuotzulin in ~/OS_team_pj/hw2/proj4_1 on main λ ./main invalid
Sudoku solution is invalid!
kuotzulin in ~/OS_team_pj/hw2/proj4_1 on main λ
```

Ch6 Proj2 The Dining Philosophers Problem

How to execute?

1. open terminal in this directory
2. enter `make` to compile
3. enter `make exec` or `./main` to execute
4. enter `make clean` to clean up (optional)

Execution snapshot

```
bo@bo-VirtualBox:~/Desktop/os_github/OS_team_pj/hw2/proj6_2$ make
gcc main.c -lpthread -lm -o main
bo@bo-VirtualBox:~/Desktop/os_github/OS_team_pj/hw2/proj6_2$ make exec
./main
Philosopher #1 starts dining.
Philosopher #2 starts dining.
Philosopher #1 is HUNGRY.
Philosopher #1 trying to pick up chopsticks.
Philosopher #1 starts EATING.
Philosopher #3 starts dining.
Philosopher #4 starts dining.
Philosopher #5 starts dining.
Philosopher #1 puts down chopsticks and returns to THINKING.
Philosopher #1 asks the neighbors if they are hungry.
Philosopher #3 is HUNGRY.
Philosopher #3 trying to pick up chopsticks.
Philosopher #3 starts EATING.
Philosopher #3 puts down chopsticks and returns to THINKING.
Philosopher #3 asks the neighbors if they are hungry.

Philosopher #4 is HUNGRY.
Philosopher #4 trying to pick up chopsticks.
Philosopher #4 starts EATING.
Philosopher #2 is HUNGRY.
Philosopher #2 trying to pick up chopsticks.
Philosopher #2 starts EATING.
Philosopher #2 puts down chopsticks and returns to THINKING.
Philosopher #2 asks the neighbors if they are hungry.
Philosopher #5 is HUNGRY.
Philosopher #5 trying to pick up chopsticks.
Philosopher #1 is HUNGRY.
Philosopher #1 trying to pick up chopsticks.
Philosopher #1 starts EATING.
Philosopher #1 puts down chopsticks and returns to THINKING.
Philosopher #1 asks the neighbors if they are hungry.
Philosopher #3 is HUNGRY.
Philosopher #3 trying to pick up chopsticks.
```

Philosopher #4 puts down chopsticks and returns to THINKING.
Philosopher #4 asks the neighbors if they are hungry.
Philosopher #3 starts EATING.
Philosopher #5 starts EATING.
Philosopher #2 is HUNGRY.
Philosopher #2 trying to pick up chopsticks.
Philosopher #5 puts down chopsticks and returns to THINKING.
Philosopher #5 asks the neighbors if they are hungry.
Philosopher #1 is HUNGRY.
Philosopher #1 trying to pick up chopsticks.
Philosopher #1 starts EATING.
Philosopher #1 puts down chopsticks and returns to THINKING.
Philosopher #1 asks the neighbors if they are hungry.
Philosopher #3 puts down chopsticks and returns to THINKING.
Philosopher #3 asks the neighbors if they are hungry.
Philosopher #2 starts EATING.
Philosopher #2 puts down chopsticks and returns to THINKING.
Philosopher #2 asks the neighbors if they are hungry.
Philosopher #4 is HUNGRY.
Philosopher #4 trying to pick up chopsticks.
Philosopher #4 starts EATING.
Philosopher #4 puts down chopsticks and returns to THINKING.
Philosopher #4 asks the neighbors if they are hungry.
Philosopher #5 is HUNGRY.
Philosopher #5 trying to pick up chopsticks.
Philosopher #5 starts EATING.
Philosopher #5 puts down chopsticks and returns to THINKING.
Philosopher #5 asks the neighbors if they are hungry.

Philosopher #1 is HUNGRY.
Philosopher #1 trying to pick up chopsticks.
Philosopher #1 starts EATING.
Philosopher #1 puts down chopsticks and returns to THINKING.
Philosopher #1 asks the neighbors if they are hungry.
Philosopher #3 is HUNGRY.
Philosopher #3 trying to pick up chopsticks.
Philosopher #3 starts EATING.
Philosopher #3 puts down chopsticks and returns to THINKING.
Philosopher #3 asks the neighbors if they are hungry.