

# Signal Handling

Homework Assignment #5

ELEC462-003 System Programming

(Instructor: Prof. Suh, Young-Kyoon)

**Due: 01:59:59 pm, Thursday, April 13, 2023**

The assignment is to write a program that repeatedly outputs "HelloWorld!" and handles the SIGINT signal. If a SIGINT signal is sent by pressing the Ctrl-C key, the program should output the number of "HelloWorld!" statements that have been printed so far. If the number of "HelloWorld!" statements is *odd*, the program should output the current count and then terminate. If it is *even*, the program should output the current count and continue running.

## <Precautions!!>

- Name your source code like: hw5\_s<StudentID>.c.
- Zip the code and name it like hw5\_s<StudentID>.zip.  
Ex) If your student ID is 2022123456, your file name would be hw5\_s2022123456.zip.
- Upload your zip file into LMS assignments tab.

## Constraints

- Usage: ./HW5 [-n *positive integer*] (*positive integer*: Number of times printing HelloWorld!)
- You can limit the number of "HelloWorld!" statements that will be printed by using the -n option. If no option is given, the program will print "HelloWorld!" *indefinitely*, but if Ctrl-C is pressed, then you should print out the number of times of "HelloWorld!" that has been printed out so far. If the times is *even*, then you should not exit, but if odd, accept the signal and terminate the program.
- If there is a limit on the number of statements to be printed, the program should output not only the number of "HelloWorld!" statements that have been printed so far but also the remaining count of "HelloWorld!" statements to be printed.
- Please refer to the following examples for handling exceptions and various output results under different situations.

[Expected output including several examples]

// no option: when receiving Ctrl-C signal, if # of printing times is even, then *continue* with printing the times; otherwise (odd), *exit* after printing.

```
yksuh@macan:~/courses/ELEC462/homeworks/hw5$ ./HW5
HelloWorld!
HelloWorld!
^C
=====
Total number of printed HelloWorld!: 2
=====
HelloWorld!
HelloWorld!
^C
=====
Total number of printed HelloWorld!: 4
=====
HelloWorld!
HelloWorld!
HelloWorld!
HelloWorld!
HelloWorld!
HelloWorld!
^C
=====
Total number of printed HelloWorld!: 10
=====
HelloWorld!
^C
=====
Total number of printed HelloWorld!: 11
=====
yksuh@macan:~/courses/ELEC462/homeworks/hw5$ █
```

// with option: the same condition applies....

```
yksuh@macan:~/courses/ELEC462/homeworks/hw5$ ./HW5 -n 100
HelloWorld!
HelloWorld!
^C
=====
Total number of printed HelloWorld!: 2
Number of HelloWorld! prints remaining: 98
=====
HelloWorld!
HelloWorld!
^C
=====
Total number of printed HelloWorld!: 4
Number of HelloWorld! prints remaining: 96
=====
HelloWorld!
HelloWorld!
HelloWorld!
^C
=====
Total number of printed HelloWorld!: 7
Number of HelloWorld! prints remaining: 93
=====
yksuh@macan:~/courses/ELEC462/homeworks/hw5$ █
```

// wrong input argument

```
yksuh@macan:~/courses/ELEC462/homeworks/hw5$ ./HW5 -n -1
Invalid input. Please enter a positive integer.
yksuh@macan:~/courses/ELEC462/homeworks/hw5$
```

// missing input argument

```
yksuh@macan:~/courses/ELEC462/homeworks/hw5$ ./HW5 -n
Please specify the limit of HelloWorld! to print: 3
HelloWorld!
HelloWorld!
HelloWorld!
=====
Total number of printed HelloWorld!: 3
Number of HelloWorld! prints remaining: 0
=====
yksuh@macan:~/courses/ELEC462/homeworks/hw5$
```

---

## Q & A

If you have a question, then contact TA by email ([jtu6568@gmail.com](mailto:jtu6568@gmail.com)). Or, leave your messages on LMS Q&A board.

## Late Day Policy

All exercises are due at **01:59:59 pm** on the assigned due date. A grading penalty will be applied to late assignments. Any assignment turned in late will be penalized 50% per late day.

## Plagiarism

No plagiarism will be tolerated. Also, NEVER use ChatGPT. If the assignment is to be worked on your own, please respect it. If the instructor determines that there are substantial similarities exceeding the likelihood of such an event, he will call the two (or more) students to explain them and possibly to take an immediate test (or assignment, at the discretion of the instructor) to determine the student's abilities related to the offending work.