# Name: Hun Ravit

# ID: e20180328

# Problem 2.

The following three processes are run on a shared processor. They can coordinate their execution via shared semaphores that respond to the standard signal(S) and wait(S) procedures. Their intent is to print the word HELLO. Assume that execution may switch between any of the three processes at any point in time.

|  |  |  |
| --- | --- | --- |
| Process 1 | Process 2 | Process 3 |
| Loop1: print(“H”) | Loop2: print(“L”) | Loop3: print(“O”) |
| print(“E”)  goto Loop1 | goto Loop2 | goto Loop3 |

1. Assuming that no semaphores are being used, for each of the following sequences of characters, specify whether or not this system could produce that output.

# LEHO (YES/NO): No HLOE (YES/NO): Yes LOL (YES/NO): Yes

1. You would like to ensure that only the sequence HELLO can be printed and that it will be printed exactly once. Add any missing wait(S) and signal(S) calls to the code below (where S is one of a, b or c) to ensure that the three processes can only print HELLO exactly once. Remember to specify the **initial value** for each of your semaphores. *Recall that semaphores cannot be initialized to negative numbers.*

Semaphores: a = 1; b = 0; c = 0;

**Process 1 Process 2 Process 3**



Loop1:

Loop2:

Loop3:

wait(a)

wait(b)

wait(c)

wait(c)

print(“H”)

print(“L”)

signal(c)

print(“O”)

print(“E”) signal(b)

signal(b)

goto Loop1

goto Loop2

goto loop3

# Name: Khoeung Sokhai

# ID: e20180408

# Group: I4-GIC-B

# Problem 2.

The following three processes are run on a shared processor. They can coordinate their execution via shared semaphores that respond to the standard signal(S) and wait(S) procedures. Their intent is to print the word HELLO. Assume that execution may switch between any of the three processes at any point in time.

|  |  |  |
| --- | --- | --- |
| Process 1 | Process 2 | Process 3 |
| Loop1: print(“H”) | Loop2: print(“L”) | Loop3: print(“O”) |
| print(“E”)  goto Loop1 | goto Loop2 | goto Loop3 |

1. Assuming that no semaphores are being used, for each of the following sequences of characters, specify whether or not this system could produce that output.

# LEHO (YES/NO): No HLOE (YES/NO): Yes LOL (YES/NO): Yes

1. You would like to ensure that only the sequence HELLO can be printed and that it will be printed exactly once. Add any missing wait(S) and signal(S) calls to the code below (where S is one of a, b or c) to ensure that the three processes can only print HELLO exactly once. Remember to specify the **initial value** for each of your semaphores. *Recall that semaphores cannot be initialized to negative numbers.*

Semaphores: a = 1 ; b = 0 ; c = 0 ;

**Process 1 Process 2 Process 3**



Loop1:

Loop2:

Loop3:

wait(a)

wait(b)

wait(c)

wait(c)

print(“H”)

print(“L”)

signal(c)

print(“O”)

print(“E”) signal(b)

signal(b)

goto Loop1

goto Loop2

goto Loop3