Semaphores

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Exercise templates

- Download the templates of the exercises

```
git clone https://github.com/SamueleGerminiani/ex_semaphores_templates
```

Exercise 1

Specifications

- "Create a program that generates four child processes. The first child prints the string "Operativi.\n" to the screen. The second child prints the string "Sistemi ". The third child prints the string " di ". The fourth child prints the string "Corso".

- Using semaphores, synchronize the child processes in such a way that the string "Corso di Sistemi Operativi" is printed to the screen N times (a natural number read from the command line).

- Note: It is reminded that semaphores need to be created, initialized, and finally removed from the system."
- Note 2 : There are two files to be completed: main.c and semaphore.c

Hints (not ordered)

```
semget(…, …, …)
IPC_PRIVATE, S_IRUSR, S_IWUSR

semctl(…, …,…, …)
SETALL

semOp(…, …, …);

IPC_RMID

semop(…, …, …)
```

Exercise 2

Specifications

- "Create a program that generates three child processes:

1. First child: printf("C\n"); printf("done");
2. Second child: printf("B\n"); printf("done\n");
3. Third child: printf("A\n"); printf("done\n");

- Using semaphores, synchronize the child processes in such a way that the string "A B C done done done" is printed to the screen. Display the state of the semaphores before and after the requested string. Note: It is reminded that semaphores need to be created, initialized, and finally removed from the system."

Hints

```
semget(…, …, …)
IPC_PRIVATE, S_IRUSR,
S_IWUSR

semctl(…, …,…, …)
SETALL

semOp(…, …, …);

wait(…)

IPC_RMID
```