Quiz Assignment#1

Please read ALL of the instructions carefully!

Due:

October 21st, 00:00 am

Goal:

In this assignment you are expected to simulate process creation and understand the multiprocess structure and the usage of fork() function. Below is the brief explanation the scenario.

Requirements:

- You have one parent process (P1).
- It has four child process (three processes are child, the other one is grandson) and they do following items, respectively.
    - The first child (C1) process job is to create a file; its name is opSys.txt in working directory.
    - The fourth child (C4) process (the grandson) ask to its parent process that the grandparent process's id, we called as password. Its parent process (C2) is child for the parent process (P1) in this system.
    - The second child (C2) process take an input as password from user and write this input to opSys.txt file.
    - The third child (C3) process compare the parent process (P1) id with the input. If it is matched, write "matched" to screen, else "not matched";
- In each process, write running process id and its parent id.

General Requirements for Implementation:

- You can include the following header libraries to your code.
    - sys/types.h > primitive system data types
    - errno.h > errors
    - sys/wait.h > wait for process termination
    - stdio.h > input/output
    - unistd.h > symbolic constants
    - stdlib.h > general utilities

- fopen function is used to open file for given mode.

```
FILE * fp;

fp = fopen ("file.txt", "w+"); //modes are: r, w, a, r+, w+, a+
```

- fprintf function is used to write to file.

```
fprintf(fp, "%d", my_int_value);
```
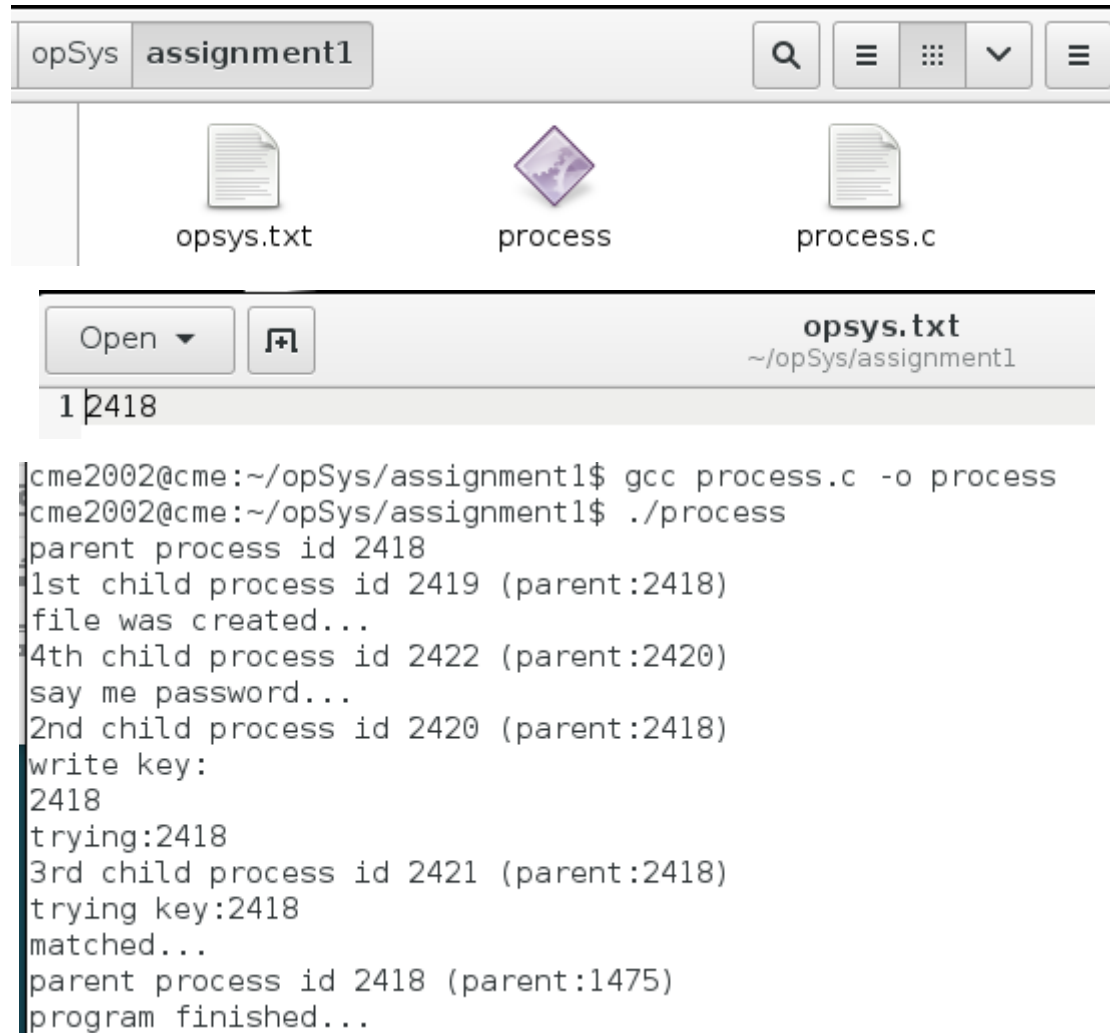
- fscanf function is used to read from file.

```
fscanf(fp, "%d", &my_int_value);
```

- sleep function is used to sleep for the specified number of seconds.

```
sleep(10); //sleep 10 seconds
```

Output:


```
opSys  assignment1                                    Q  ≡  ⋮⋮  ⌄  ≡

           opsys.txt              process              process.c
```

```
Open ▾      🔲                          opsys.txt
                                        ~/opSys/assignment1

 1 2418
```

```
cme2002@cme:~/opSys/assignment1$ gcc process.c -o process
cme2002@cme:~/opSys/assignment1$ ./process
parent process id 2418
1st child process id 2419 (parent:2418)
file was created...
4th child process id 2422 (parent:2420)
say me password...
2nd child process id 2420 (parent:2418)
write key:
2418
trying:2418
3rd child process id 2421 (parent:2418)
trying key:2418
matched...
parent process id 2418 (parent:1475)
program finished...
```

Submission:
- Send your .c file via uploading to classroom.
- Your file name must be your student_number.c.
- Deadline is October 21st, Sunday 00:00 am.

Grading:
- This assignment gives you +3 points to your total grading.