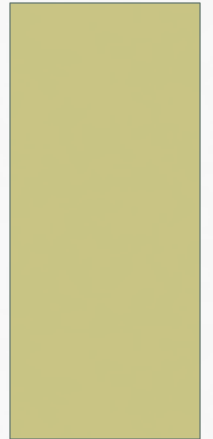


TP 4

SYSTEMS D'EXPLOITATION



DÉLIVRABLES

- Date de reddition : 12 Novembre 2021 à 20:00
- Vos réponses dans un rapport PDF
- Code source commenté et fonctionnel
- Dossier à rendre : <Prenom>.<Nom>.TP4.zip(ou tar.gz)

INFORMATIONS GÉNÉRALES

- Références au cours :
 - 7. Entrées / Sorties (I/O)
- Objectifs :
 - poser un verrou et l'enlever sur une partie d'un fichier;
 - comprendre les différents types de verrous

FLOCK

- Poser un verrou sur un fichier

Utilisation:

- `flock(fd, cmd, ... args ...)`
 - `fd`
 - `cmd`: `LOCK_SH`, `LOCK_EX`, `LOCK_UN`

FCNTL

- Poser un verrou sur une partie d'un fichier

Utilisation:

`fcntl(fd, cmd, &flock)`

- `fd`
- `cmd`: `F_GETLK`, `F_SETLK`, `F_SETLKW`

```
struct flock {  
    ...  
    short l_type; /* Type of lock: F_RDLCK,  
                  F_WRLCK, F_UNLCK */  
    short l_whence; /* How to interpret l_start:  
                   SEEK_SET, SEEK_CUR, SEEK_END */  
    off_t l_start; /* Starting offset for lock */  
    off_t l_len; /* Number of bytes to lock */  
    pid_t l_pid; /* PID of process blocking our lock  
                (set by F_GETLK and F_OFD_GETLK) */  
    ...  
};
```

EXEMPLE D'UTILISATION

```
$ ./your-programme bla.txt
```

```
Enter ? for help
```

```
PID=258> ?
```

Format: cmd l_type start length [whence(optional)]

'cmd' --- 'g' (F_GETLK), 's' (F_SETLK), or 'w' (F_SETLKW)

'l_type' --- 'r' (F_RDLCK), 'w' (F_WRLCK), or 'u' (F_UNLCK)

'start' --- lock starting offset

'length' --- number of bytes to lock

'whence' --- 's' (SEEK_SET, default), 'c' (SEEK_CUR), or 'e' (SEEK_END)

```
PID=258> s w 0 5
```

```
[PID=258] got lock
```

EXTRAIT DE CODE

```
for (;;) {      /* Prompt for locking command and carry it out */
    printf("PID=%ld> ", (long) getpid());
    fflush(stdout);

    // use fgets to read user input and then handle it

    // process user input into the 'cmd' variable and the various elements of 'fl' struct

    status = fcntl(fd, cmd, &fl);      /* Perform request... */

    // interpret results of request and inform user
    if (cmd == F_GETLK) {                /* F_GETLK */
        // check status and handle errors (look at manual for possible errors)
        if (status == 0){
            // process results and print informative text
        }else if (errno == SOME_ERROR){
            // process results and print informative text
        }
    } else {      /* F_SETLK, F_SETLKW */
        // check status and handle errors (look at manual for possible errors)
        if (status == 0){
            // process results and print informative text
        }else if (errno == SOME_ERROR){
            // process results and print informative text
        }
    }
}
```