

## Concurso 3

Leonardo Moreira 71512

### Exercício 1.

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <unistd.h>
4 #include <errno.h>
5 #include <sys/types.h>
6 #include <sys/wait.h>
7 #include <ctype.h>
8 #include <stdbool.h>
9
10 int main(){
11     int p1[2]; //Child => Parent
12     int p2[2]; //Parent => Child
13
14     while(true){
15         if(pipe(p1) < 0){return 1;}
16         if(pipe(p2) < 0){return 1;}
17
18         pid_t pid;
19         if ((pid = fork()) == -1){
20             perror("fork");
21             exit(1);
22         }
23
24         if(pid == 0){
25             //Child Process
26             close(p1[1]);
27             close(p2[0]);
28
29             char s[100];
30             read(p1[0], s, sizeof(s));
31             int i = 0;
32             //iterate loop until the end of the string
33             while( s[i] != '\0' ) {
34                 // if character is in lowercase then subtract 32
35                 if( s[i] >= 'a' && s[i] <= 'z' ){
36                     s[i] -= 32;
37                 }
38                 // if character is in upercase then add 32
39                 else if( s[i] >= 'A' && s[i] <= 'Z' ){
40                     s[i] += 32;
41                 }
42                 i++;
43             }
44             write(p2[1], s, sizeof(s));
45             close(p1[0]);
46             close(p2[1]);
47         }
48         else{
49             //Parent Process
50             char r[100];
51             while(true){
52                 scanf("%[^\n]", r);
53                 write(p1[1], r, sizeof(r));
54                 read(p2[0], r, sizeof(r));
55                 printf("In Upper Case is: '%s'\n", r);
56             }
57         }
58     }
59 }
60 }
61
62
63
```

kali@kali: ~/Desktop/Assignment3

File Actions Edit View Help

(kali@kali)~[~/Desktop/Assignment3]

\$ ./ex1

olaFJfJ13

In Upper Case is: 'OLAfJfJ13'

10824lansf

fmals

^C

(kali@kali)~[~/Desktop/Assignment3]

\$ gcc ex1.c -o ex1

(kali@kali)~[~/Desktop/Assignment3]

\$ ./ex1

lndfsa1

In Upper Case is: 'LNDFSa1'

laisnf

In Upper Case is: 'LAISNF'

123af

In Upper Case is: '123AF'

123asfln

In Upper Case is: '123ASFLN'

^C

(kali@kali)~[~/Desktop/Assignment3]

\$ gcc ex1.c -o ex1

(kali@kali)~[~/Desktop/Assignment3]

\$ ./ex1

leonardo MOREIRA

In Upper Case is: 'LEONARDO moreira'

12345 SIM

In Upper Case is: '12345 sim'

OK ok OK

In Upper Case is: 'ok OK ok'

^C

(kali@kali)~[~/Desktop/Assignment3]

\$