

# **O.S. ASSIGNMENT**

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# Code

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>
#include <signal.h>

char input [256];
char *args [16] ;
pid_t pid ;
int flag = 0 ;

// Functions
void get_input () ;
void split_input() ;
void log_handle(int sig) ;

int main(){

    //signal(SIGCHLD, log_handle);
    char path [100];
    do{
        get_input();
        split_input();
        pid = fork();
        if(pid == -1 ){
            printf ("Error");
        } else if (pid == 0){
            if (!strcmp(args[0], "cd")){
```

```

        chdir(args[1]);
    } else if (!strcmp(args[0], "pwd")) {
        getcwd(path, 100);
        printf("%s\n", path);

    } else {
        execvp(args[0], args);
    }
} else { // parent
    if( flag == 1 ) { // background
        waitpid(pid, NULL, 0);
    }
}

} while (strcmp(args[0], "exit"));

return 0 ;
}

void get_input() {
    do{
        printf("my shell : ");
        fgets(input , 256 , stdin);

    } while (strlen(input) == 1);

    if( ( strlen(input) > 0 ) &&
input[strlen(input)-1] == '\n' )
        input[strlen(input)-1] = '\0';
}

void split_input() {

```

```

char *mytoken ;
int i = 0 ;
mytoken = strtok(input , " ");

while(mytoken != NULL) {
    args[i++] = mytoken ;
    mytoken = strtok(NULL , " ");
}

if(!strcmp(args[i-1], "&")) {
    args[i-1]=NULL;
    flag = 1 ;
}
}

void log_handle(int sig) {
    FILE *pfile ;
    pfile = fopen("log.txt", "a");
    if(pfile == NULL) perror("Error opening file");
    else fprintf(pfile , "log >> child process terminated
\n");
    fclose(pfile);
}

```

# Outputs

## “exit”

```
hawas@hawas: ~/Tech/shell
File Edit View Search Terminal Help
hawas@hawas:~$ cd Tech/shell/
hawas@hawas:~/Tech/shell$ ./run.sh
my shell : ls
k linux-commands-handbook.pdf main main.c Report.pdf run.sh
my shell : exit
hawas@hawas:~/Tech/shell$
```

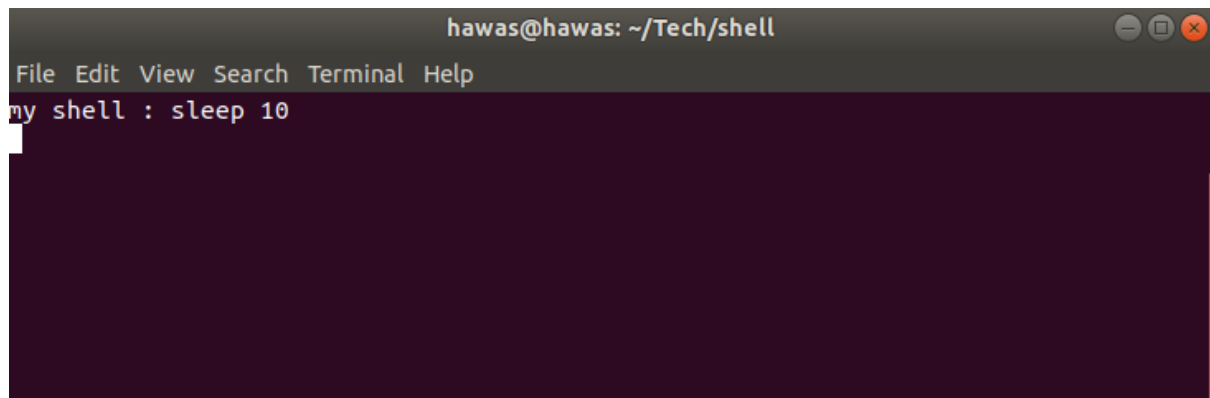
## “ls and its parameters”

```
hawas@hawas: ~/Tech/shell
File Edit View Search Terminal Help
my shell : ls
k linux-commands-handbook.pdf main main.c Report.pdf run.sh
my shell : ls -a
. .. k linux-commands-handbook.pdf main main.c Report.pdf run.sh
my shell : ls -l
total 15492
drwxrwxr-x 3 hawas hawas 4096 Mar 12 01:17 k
-rw-rw-r-- 1 hawas hawas 14824851 Mar 7 09:04 linux-commands-handbook.pdf
-rwxrwxr-x 1 hawas hawas 13320 Mar 12 04:44 main
-rw-rw-r-- 1 hawas hawas 1663 Mar 12 04:41 main.c
-rw-rw-r-- 1 hawas hawas 1007328 Mar 10 15:30 Report.pdf
-rwxrwxr-x 1 hawas hawas 26 Mar 9 21:55 run.sh
my shell : ls -s
total 15492
    4 k                16 main          984 Report.pdf
14480 linux-commands-handbook.pdf    4 main.c        4 run.sh
my shell : exit
hawas@hawas:~/Tech/shell$
```

## “cd and pwd”

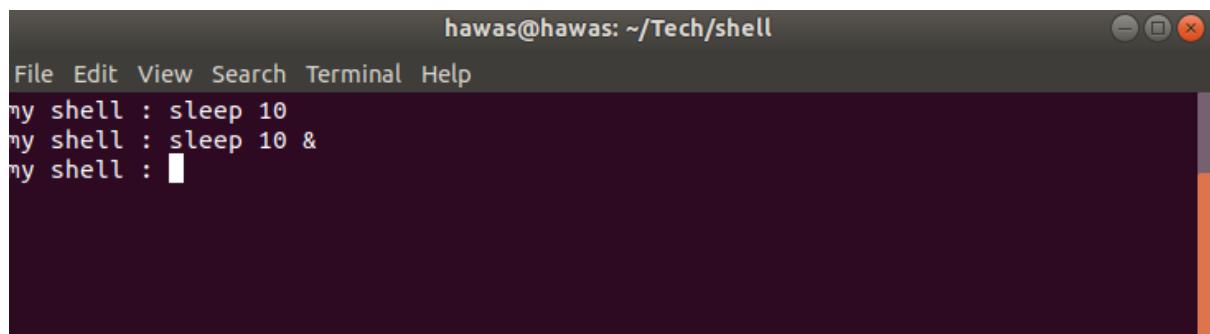
```
hawas@hawas: ~/Tech/shell
File Edit View Search Terminal Help
my shell : pwd
/home/hawas/Tech/shell
my shell : cd ..
my shell : pwd
/home/hawas/Tech
my shell : cd shell
my shell : pwd
/home/hawas/Tech/shell
```

## “& operator”



A terminal window titled "hawas@hawas: ~/Tech/shell" with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is "my shell :". The command "sleep 10" has been entered and is followed by a cursor.

```
hawas@hawas: ~/Tech/shell
File Edit View Search Terminal Help
my shell : sleep 10
```



A terminal window titled "hawas@hawas: ~/Tech/shell" with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is "my shell :". Three commands have been entered: "sleep 10", "sleep 10 &", and a new line with a cursor.

```
hawas@hawas: ~/Tech/shell
File Edit View Search Terminal Help
my shell : sleep 10
my shell : sleep 10 &
my shell :
```