CREATING ANOTHER PROCESS AND ASK IT TO DO A TASK

1. INTRODUCTION

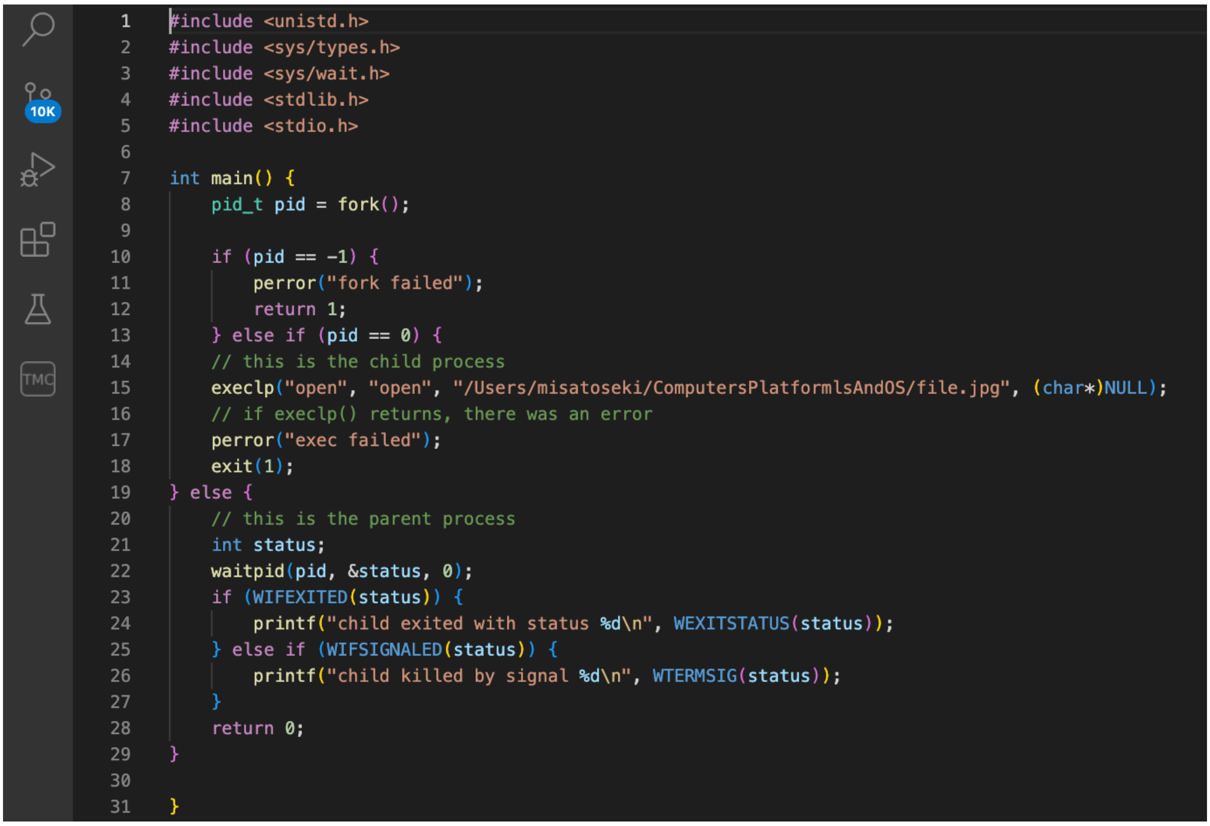
In this report, I will focus on the "CREATE A NEW PROCESS USING EXECL UNDER UNIX/ LINUX" code. I explain how it works, why it written that way and what it does.

2. "CREATE A NEW PROCESS USING EXECL UNDER UNIX/ LINUX"

In this program, child process opens a specified file and the parent process checks its exit status.

First, the child process is created by using "fork()" function. If pid is 0, in other words, if it is the child process, the child process opens the specified file using "execlp()" function.The parent process then uses "waitpid()" function to receive the exit status of the child process. If it's done successfully, 0 is returned; otherwise, 1 or higher is returned.

The following picture is the code of this program.



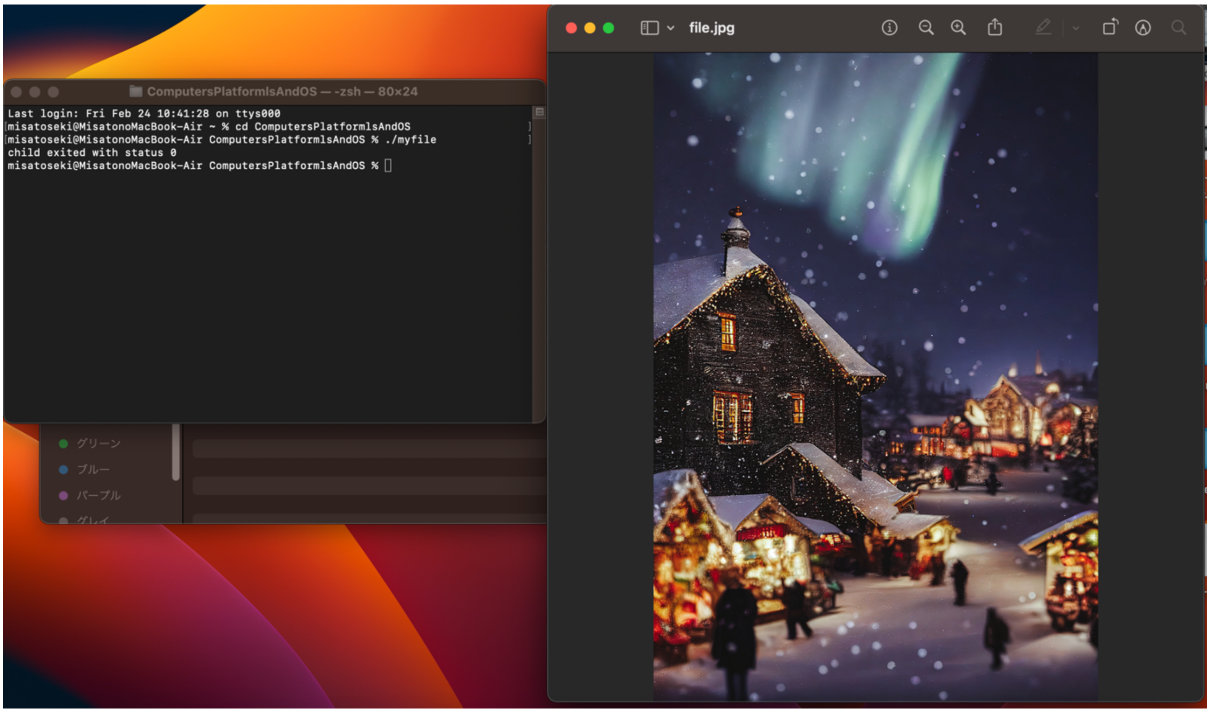
```
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>
#include <stdlib.h>
#include <stdio.h>

int main() {
    pid_t pid = fork();

    if (pid == -1) {
        perror("fork failed");
        return 1;
    } else if (pid == 0) {
    // this is the child process
    execlp("open", "open", "/Users/misatoseki/ComputersPlatformlsAndOS/file.jpg", (char*)NULL);
    // if execlp() returns, there was an error
    perror("exec failed");
    exit(1);
} else {
    // this is the parent process
    int status;
    waitpid(pid, &status, 0);
    if (WIFEXITED(status)) {
        printf("child exited with status %d\n", WEXITSTATUS(status));
    } else if (WIFSIGNALED(status)) {
        printf("child killed by signal %d\n", WTERMSIG(status));
    }
    return 0;
}

}
```

After running this program, a file named file.jpg and which is in /Users/misatoseki/ComputersPlatformlsAndOS/ was opened. In the terminal, "child exited with status 0" message appeared. This means that the exit status is 0, which means that the child process was done successfully.



```
Last login: Fri Feb 24 10:41:28 on ttys000
misatoseki@MisatonoMacBook-Air ~ % cd ComputersPlatformlsAndOS
misatoseki@MisatonoMacBook-Air ComputersPlatformlsAndOS % ./myfile
child exited with status 0
misatoseki@MisatonoMacBook-Air ComputersPlatformlsAndOS % 
```

3. WHAT I LEARNED

I found that “execlp()” function can create a new process by specifying a command name and arguments. In the itslearing material, the command was "xdg-open", but this command did not work on Mac, so I used "open”, and the program worked fine. Also, I found that the child process returns 0 as the exit status when the process was done successfully.