# Simple Shell report

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## Program description:

The program mainly consists of 4 function

1) ### *Main*

   The main function. It includes the core of the program and the main loop

2) ### *Parser*

   This function parses the input line into the arguments in the proper way to be executed.

3) ### *Executer*

   This method takes the arguments as n input, and executes them in the proper way. first , fork() is called. next exevp() is called with the arguments. After that if the process will not run in the background, the program waits until it returns.

4) ### *signalHandle*r

   This method is used to handle signals coming from background programs when they terminate. When a child program terminates, it send SIGCHLD signal. And this method is called. This method is responsible for writing logs for the program.

**Example**:

### 1) exit

```
ahmed@ahmedKhaled:~/Downloads/acmProblems/Shell/bin$ ./Release/Shell
Shell :& exit

ahmed@ahmedKhaled:~/Downloads/acmProblems/Shell/bin$ █
```

## 2) Command with no arguments

```
●●● ahmed@ahmedKhaled: ~
ahmed@ahmedKhaled:~$ ./Downloads/acmProblems/Shell/bin/Release/Shell
Shell :& cd Desktop

Shell :& ls

doc.csv                       hive-site2.xml  input.txt        main.cpp     review.odt
example.txt                   hive-site.xml   log4j-slf4j-impl pom.xml      sample.txt
FoxitReader.desktop           inputFile.csv   log4j-to-slf4j   project
hive-jdbc-uber-2.6.5.0-292.jar inputFile.txt  logs.log         Records.csv
Shell :& █
```
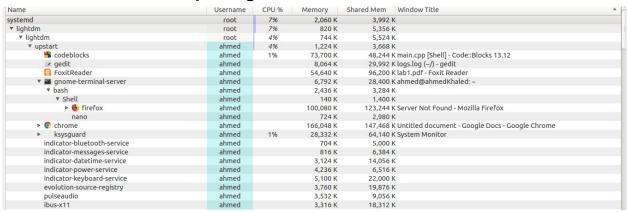
## 3) Command with arguments

```
ahmed@ahmedKhaled: ~
Shell :& cd Desktop

Shell :& ls -l

total 153496
-rw-rw-r-- 1 ahmed ahmed 20938819 Aug 13 11:43 doc.csv
-rw-rw-r-- 1 ahmed ahmed    61598 Sep 25 19:31 example.txt
-rwxrwxrwx 1 ahmed ahmed      374 Oct  2 01:23 FoxitReader.desktop
-rw-rw-r-- 1 ahmed ahmed 18522029 Sep  3 13:37 hive-jdbc-uber-2.6.5.0-292.jar
-rwxrwxrwx 1 ahmed ahmed     4779 Sep 10 19:10 hive-site2.xml
-rwxrwxrwx 1 ahmed ahmed     5586 Sep 12 10:22 hive-site.xml
-rw-r--r-- 1 ahmed ahmed 30550000 Aug  7 14:45 inputFile.csv
-rw-rw-rw- 1 ahmed ahmed 25662000 Aug 14 13:51 inputFile.txt
-rw-r--r-- 1 ahmed ahmed      339 Aug  6 15:18 input.txt
drwxrwxr-x 6 ahmed ahmed     4096 Sep  9 15:29 log4j-slf4j-impl
drwxrwxr-x 3 ahmed ahmed     4096 Aug 26 15:03 log4j-to-slf4j
-rw-rw-r-- 1 ahmed ahmed      128 Oct 13 04:42 logs.log
-rw-rw-r-- 1 ahmed ahmed      334 Oct  5 03:17 main.cpp
-rw-rw-r-- 1 ahmed ahmed    11681 Sep 12 11:14 pom.xml
drwxrwxr-x 5 ahmed ahmed     4096 Sep 26 13:33 project
-rw-rw-r-- 1 ahmed ahmed 61344002 Aug  1 19:12 Records.csv
-rw-rw-r-- 1 ahmed ahmed    17624 Sep 18 11:02 review.odt
-rw-rw-r-- 1 ahmed ahmed      201 Aug  4 11:30 sample.txt
Shell :&
```

## 4) a command executed in the background using &

```
ahmed@ahmedKhaled: ~
ahmed@ahmedKhaled:~$ ./Downloads/acmProblems/Shell/bin/Release/Shell
Shell :& firefox &

Shell :& cd Desktop

Shell :& ls

doc.csv                        hive-site2.xml  input.txt        main.cpp      review.odt
example.txt                    hive-site.xml   log4j-slf4j-impl pom.xml       sample.txt
FoxitReader.desktop            inputFile.csv   log4j-to-slf4j   project
hive-jdbc-uber-2.6.5.0-292.jar inputFile.txt   logs.log         Records.csv
```

## 5) logs after closing firefox

```
2018-9-13 4:49:38 INFO         - Interrupt signal (17) received from firefox.
```

# Processes tree after opening firefox and nano from the shell

| Name | Username | CPU % | Memory | Shared Mem | Window Title |
|---|---|---|---|---|---|
| systemd | root | 7% | 2,060 K | 3,992 K | |
| ▼ lightdm | root | 7% | 820 K | 5,356 K | |
| ▼ lightdm | root | 4% | 744 K | 5,524 K | |
| ▼ upstart | ahmed | 4% | 1,224 K | 3,668 K | |
| codeblocks | ahmed | 1% | 73,700 K | 48,244 K main.cpp [Shell] - Code::Blocks 13.12 | |
| gedit | ahmed | | 8,064 K | 29,992 K logs.log (~/) - gedit | |
| FoxitReader | ahmed | | 54,640 K | 96,200 K lab1.pdf - Foxit Reader | |
| ▼ gnome-terminal-server | ahmed | | 6,792 K | 28,400 K ahmed@ahmedKhaled: ~ | |
| ▼ bash | ahmed | | 2,436 K | 3,284 K | |
| ▼ Shell | ahmed | | 140 K | 1,400 K | |
| ▶ firefox | ahmed | | 100,080 K | 123,244 K Server Not Found - Mozilla Firefox | |
| nano | ahmed | | 724 K | 2,980 K | |
| ▶ chrome | ahmed | | 166,048 K | 147,468 K Untitled document - Google Docs - Google Chrome | |
| ▶ ksysguard | ahmed | 1% | 28,332 K | 64,140 K System Monitor | |
| indicator-bluetooth-service | ahmed | | 704 K | 5,000 K | |
| indicator-messages-service | ahmed | | 816 K | 6,384 K | |
| indicator-datetime-service | ahmed | | 3,124 K | 14,056 K | |
| indicator-power-service | ahmed | | 4,236 K | 6,516 K | |
| indicator-keyboard-service | ahmed | | 5,100 K | 22,000 K | |
| evolution-source-registry | ahmed | | 3,760 K | 19,876 K | |
| pulseaudio | ahmed | | 3,532 K | 9,056 K | |
| ibus-x11 | ahmed | | 3,316 K | 18,312 K | |

# And the shell commands

```
ahmed@ahmedKhaled: ~
ahmed@ahmedKhaled:~$ ./Downloads/acmProblems/Shell/bin/Release/Shell
Shell :& firefox &

Shell :& nano logs.log
```