

OPERATING SYSTEMS

Lab 1 Report

Simple Shell

Name: Makrm William Makrm .

Old ID: 64.

New ID: 63.

• **Problem Statement:**

It is required to implement a Unix shell program. A shell is simply a program that conveniently allows you to run other programs.

• **Major Functions:**

-ReadAndProcess:

First reads the command , Then splits the line into words , Last check if command contain ‘&’ or not.

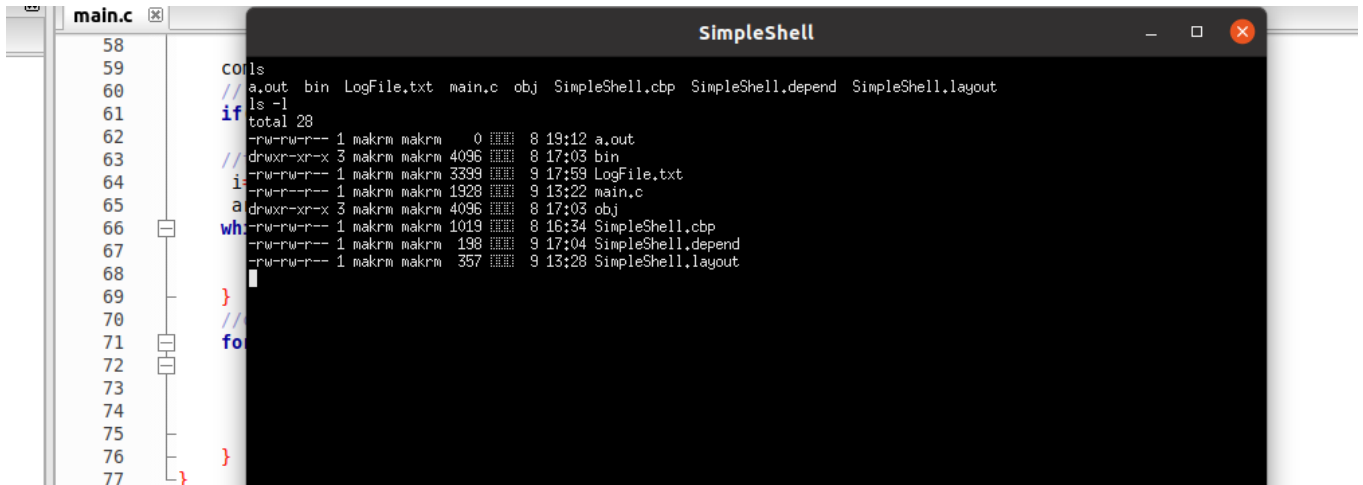
-HandlerSignal:

this function is override on the interrupt handler to see when child terminated by LogFile.

-LogFile:

it takes the log string and writes it in the LogFile to see child's behavior.

Sample Runs:

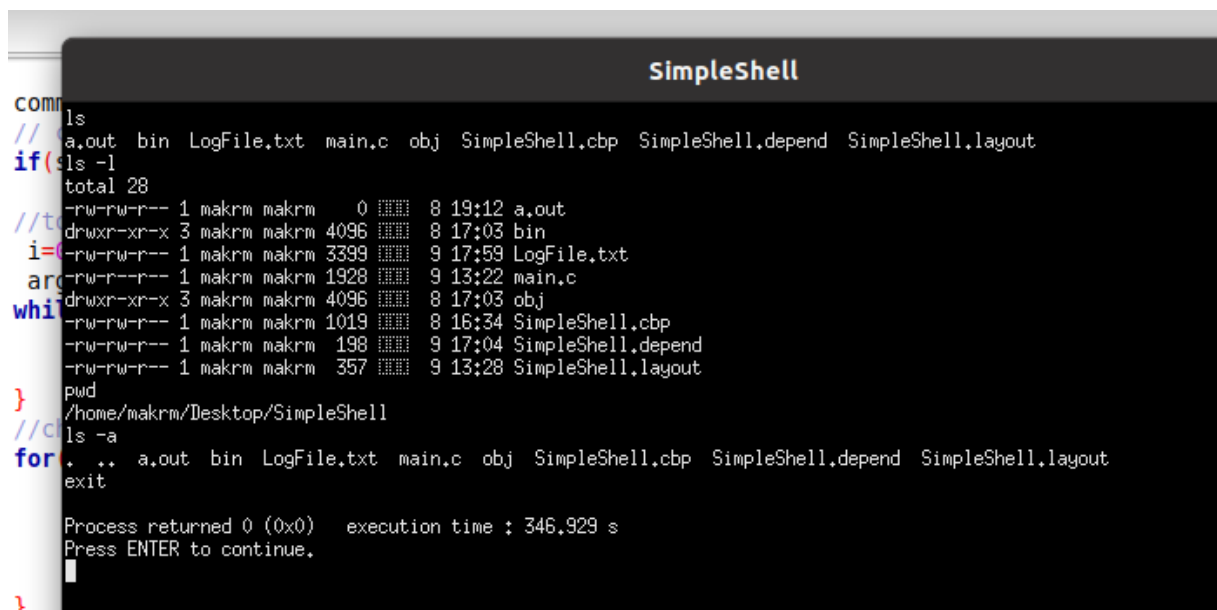


The screenshot shows a code editor with a file named `main.c` and a terminal window titled `SimpleShell`. The code in `main.c` is as follows:

```
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```

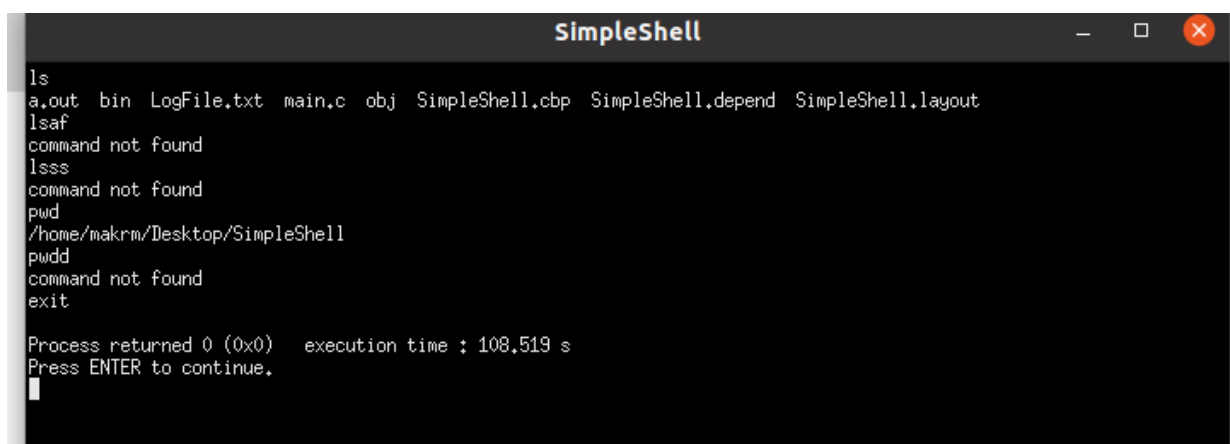
The terminal window displays the output of the program, which is a list of files and their permissions, similar to the output of the `ls -l` command:

```
SimpleShell  
comls  
// a.out bin LogFile.txt main.c obj SimpleShell.cbp SimpleShell.depend SimpleShell.layout  
ls -l  
total 28  
-rw-rw-r-- 1 makrm makrm 0 8 19:12 a.out  
drwxr-xr-x 3 makrm makrm 4096 8 17:03 bin  
-rw-rw-r-- 1 makrm makrm 3399 9 17:59 LogFile.txt  
-rw-rw-r-- 1 makrm makrm 1928 9 13:22 main.c  
a drwxr-xr-x 3 makrm makrm 4096 8 17:03 obj  
wh- rw-rw-r-- 1 makrm makrm 1019 8 16:34 SimpleShell.cbp  
-rw-rw-r-- 1 makrm makrm 198 9 17:04 SimpleShell.depend  
-rw-rw-r-- 1 makrm makrm 357 9 13:28 SimpleShell.layout
```



The screenshot shows a terminal window titled `SimpleShell` displaying the output of a program. The output is a list of files and their permissions, similar to the output of the `ls -l` command. The program also prints the current directory and the execution time.

```
SimpleShell  
comls  
// a.out bin LogFile.txt main.c obj SimpleShell.cbp SimpleShell.depend SimpleShell.layout  
if(  
ls -l  
total 28  
-rw-rw-r-- 1 makrm makrm 0 8 19:12 a.out  
//t drwxr-xr-x 3 makrm makrm 4096 8 17:03 bin  
i- rw-rw-r-- 1 makrm makrm 3399 9 17:59 LogFile.txt  
ar- rw-rw-r-- 1 makrm makrm 1928 9 13:22 main.c  
wh- rw-rw-r-- 1 makrm makrm 1019 8 16:34 SimpleShell.cbp  
-rw-rw-r-- 1 makrm makrm 198 9 17:04 SimpleShell.depend  
-rw-rw-r-- 1 makrm makrm 357 9 13:28 SimpleShell.layout  
pwd  
/home/makrm/Desktop/SimpleShell  
//c ls -a  
for . .. a.out bin LogFile.txt main.c obj SimpleShell.cbp SimpleShell.depend SimpleShell.layout  
exit  
Process returned 0 (0x0) execution time : 346.929 s  
Press ENTER to continue.
```



The screenshot shows a terminal window titled `SimpleShell` displaying the output of a program. The output is a list of files and their permissions, similar to the output of the `ls -l` command. The program also prints the current directory and the execution time.

```
SimpleShell  
ls  
a.out bin LogFile.txt main.c obj SimpleShell.cbp SimpleShell.depend SimpleShell.layout  
lsaf  
command not found  
lsas  
command not found  
pwd  
/home/makrm/Desktop/SimpleShell  
pwdd  
command not found  
exit  
Process returned 0 (0x0) execution time : 108.519 s  
Press ENTER to continue.
```

• Processes hierarchy in Ksysguard:

SimpleShell

Open Save

"/home/makrm/Desktop/SimpleShell" is a directory.
Please check that you typed the location correctly and try again.

System Monitor

File View Settings Help

Process Table System Load

End Process... Quick search All Processes, Tree Tools

Name	Username	CPU %	Memory	Shared Mem	Window Title
systemd	root	2%	3'202 K	8'276 K	
systemd	makrm	1%	2'480 K	8'284 K	
codeblocks	makrm		03'300 K	72'200 K	main.c [Sim...
xterm	makrm		8'000 K	7'440 K	
cb_console_runner	makrm		184 K	2'008 K	
sh	makrm		72 K	476 K	
SimpleShell	makrm		76 K	744 K	
firefox	makrm		13'772 K	102'276 K	Index of fil...
gedit	makrm		19'440 K	8'000 K	SimpleShell...
evince	makrm		148'176 K	84'492 K	livre
gnome-terminal-server	makrm	1%	13'872 K	39'816 K	makrm@M...
bash	makrm	1%	1'412 K	3'392 K	
ksysguard	makrm	1%	32'832 K	98'476 K	System Mo...
ksgrd_network_helper	makrm		272 K	3'472 K	
ksysguardd	makrm		272 K	3'440 K	
nautilus	makrm		29'816 K	47'900 K	Documents
gnome-screenshot	makrm		1'096 K	30'008 K	
gnome-shell	makrm	1%	180'720 K	110'176 K	
ibus-daemon	makrm		1'128 K	8'888 K	
ibus-extension-gtk3	makrm		13'716 K	19'376 K	
ibus-engine-simple	makrm		892 K	8'120 K	
ibus-memconf	makrm		792 K	7'924 K	
snap-store	makrm		108'704 K	47'820 K	
gsd-media-keys	makrm		1'096 K	22'076 K	

SimpleShell

Firefox &

exit

Process returned 0 (0x0) execution time : 95,090 s
Press ENTER to continue.

Name	Username	CPU %	Memory	Shared Mem	Window Title
systemd	root	1%	3'232 K	8'244 K	
systemd	makrm	1%	2'476 K	8'100 K	
codeblocks	makrm		03'300 K	72'200 K	main.c [Sim...
xterm	makrm		8'000 K	7'288 K	
cb_console_runner	makrm		188 K	2'000 K	
sh	makrm		76 K	036 K	
SimpleShell	makrm		76 K	744 K	
firefox	makrm		144'008 K	107'008 K	Index of fil...
firefox	makrm		24'200 K	111'224 K	
WebExtensions	makrm		20'676 K	89'176 K	
file://	makrm		21'796 K	114'388 K	
Web	makrm		17'100 K	77'800 K	
gnome-screenshot	makrm		14'724 K	30'988 K	
gnome-terminal-server	makrm		12'104 K	39'200 K	makrm@M...
bash	makrm		1'448 K	3'496 K	
ksysguard	makrm		32'800 K	98'880 K	System Mo...
ksysguardd	makrm		380 K	3'192 K	

SimpleShell

Firefox &

exit

Process returned 0 (0x0) execution time : 95,090 s
Press ENTER to continue.

Name	Username	CPU %	Memory	Shared Mem	Window Title
systemd	root	4%	3'232 K	8'244 K	
systemd	makrm	3%	2'476 K	8'100 K	
codeblocks	makrm		03'300 K	72'200 K	main.c [Sim...
xterm	makrm		8'000 K	7'288 K	
cb_console_runner	makrm		188 K	2'000 K	
firefox	makrm		143'104 K	112'800 K	Index of fil...
firefox	makrm		21'084 K	111'288 K	
WebExtensions	makrm		24'880 K	89'988 K	
file://	makrm		21'716 K	114'400 K	
Web	makrm		17'224 K	78'176 K	