Program 1 Report

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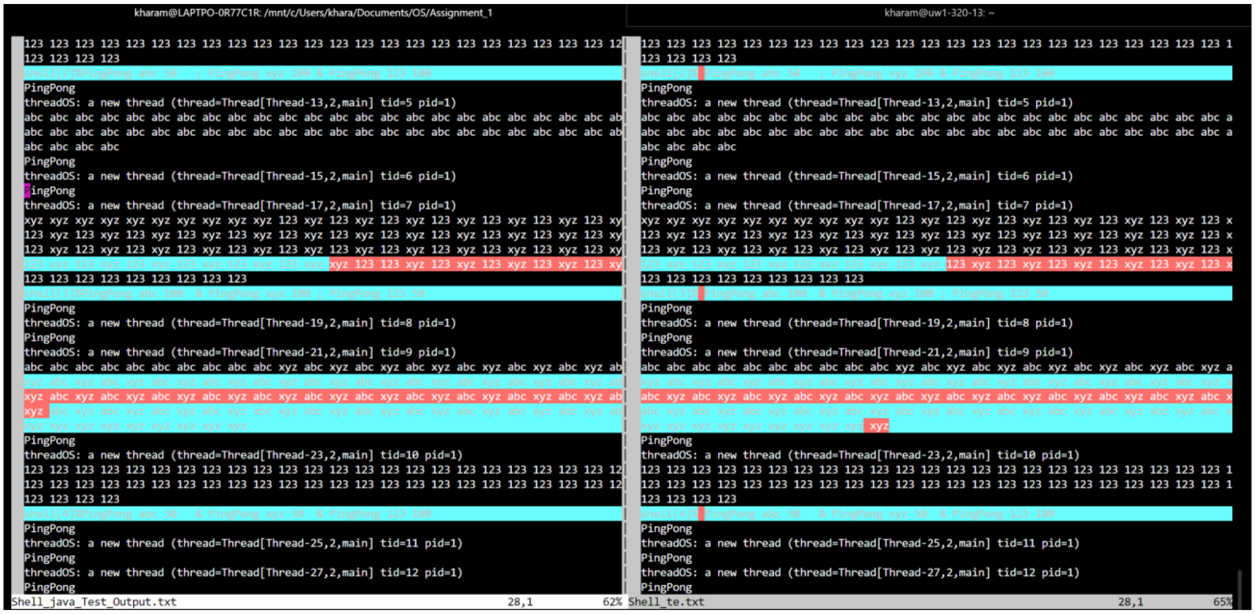
Test

Shell.java Test

Compare with Answer *.class

The left side is my output, and the right-side is from the output code from the Prof. Robert. With vimdiff, I can visually see what's wrong output.

By this comparison, I can see there is no practical difference between two output, and it seems they are very similar (Some differences because I tested the code on different machine, and since no process has priority, the order of the output might differ.)



kharam@LAPTPO-0R77C1R: /mnt/c/Users/khara/Documents/OS/Assignment_1

```
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 12
123 123 123 123
shell[2]%PingPong abc 50   ; PingPong xyz 100 & PingPong 123 100
PingPong
threadOS: a new thread (thread=Thread[Thread-13,2,main] tid=5 pid=1)
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc ab
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc ab
abc abc abc abc
PingPong
threadOS: a new thread (thread=Thread[Thread-15,2,main] tid=6 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-17,2,main] tid=7 pid=1)
xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xy
123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xy
123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xy
123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz xyz 123 123 xyz 123 xyz 123 xyz 123 xyz 123 xy
123 123 123 123 123 123 123 123 123
shell[3]%PingPong abc 100  & PingPong xyz 100 ; PingPong 123 50
PingPong
threadOS: a new thread (thread=Thread[Thread-19,2,main] tid=8 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-21,2,main] tid=9 pid=1)
abc abc abc abc abc abc abc abc abc abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz ab
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz ab
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz ab
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz ab
xyz xyz xyz xyz xyz xyz xyz xyz xyz
PingPong
threadOS: a new thread (thread=Thread[Thread-23,2,main] tid=10 pid=1)
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 12
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 12
123 123 123 123
shell[4]%PingPong abc 50   & PingPong xyz 50  & PingPong 123 100
PingPong
threadOS: a new thread (thread=Thread[Thread-25,2,main] tid=11 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-27,2,main] tid=12 pid=1)
PingPong
Shell_java_Test_Output.txt                                   28,1          62%
```

kharam@uw1-320-13: ~

```
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 1
123 123 123 123
shell[2]% PingPong abc 50   ; PingPong xyz 100 & PingPong 123 100
PingPong
threadOS: a new thread (thread=Thread[Thread-13,2,main] tid=5 pid=1)
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc a
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc a
abc abc abc abc
PingPong
threadOS: a new thread (thread=Thread[Thread-15,2,main] tid=6 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-17,2,main] tid=7 pid=1)
xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 x
123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 x
123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 x
123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 x
123 123 123 123 123 123 123 123 123
shell[3]% PingPong abc 100  & PingPong xyz 100 ; PingPong 123 50
PingPong
threadOS: a new thread (thread=Thread[Thread-19,2,main] tid=8 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-21,2,main] tid=9 pid=1)
abc abc abc abc abc abc abc abc abc abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz a
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz a
abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc x
abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc x
xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz
PingPong
threadOS: a new thread (thread=Thread[Thread-23,2,main] tid=10 pid=1)
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 1
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 1
123 123 123 123
shell[4]% PingPong abc 50   & PingPong xyz 50  & PingPong 123 100
PingPong
threadOS: a new thread (thread=Thread[Thread-25,2,main] tid=11 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-27,2,main] tid=12 pid=1)
PingPong
Shell_te.txt                                                 28,1          65%
```

Exit test

I tested the code with exit, and I notice that the program exit very normally without any problem.

Test process.cpp

Test with Prof. Dempsey's test case

```
kharam@uw1-320-01:~/OS/Assignment_1$ ./processes kworker
37
kharam@uw1-320-01:~/OS/Assignment_1$ ps -A | grep kworker | wc -l
37
kharam@uw1-320-01:~/OS/Assignment_1$ ./processes sshd
7
kharam@uw1-320-01:~/OS/Assignment_1$ ps -A | grep sshd | wc -l
7
kharam@uw1-320-01:~/OS/Assignment_1$ ./processes scsi
```

```
12
kharam@uw1-320-01:~/OS/Assignment_1$ ps -A | grep scsi | wc -l
12
```

For these cases, the code runs similar to each other. Therefore, the code is running smoothly

Code without argument

```
kharam@LAPTPO-0R77C1R:/mnt/c/Users/khara/Documents/OS/Assignment_1$ ./processes
Usage: grep [OPTION]... PATTERN [FILE]...
Try 'grep --help' for more information.
0
kharam@LAPTPO-0R77C1R:/mnt/c/Users/khara/Documents/OS/Assignment_1$ ps -A | grep
| wc -l
Usage: grep [OPTION]... PATTERN [FILE]...
Try 'grep --help' for more information.
0
```

They both shows the same output for the test case.

Code with more than 2 argument.

```
kharam@LAPTPO-0R77C1R:/mnt/c/Users/khara/Documents/OS/Assignment_1$ ./processes a
b c d
more than 2 aruement is not allowed
```

As the result shows, I don't allow input more than 2.

Report output

Process.cpp

```
kharam@uw1-320-01:~/OS/Assignment_1$ ./processes kworker
37
kharam@uw1-320-01:~/OS/Assignment_1$ ps -A | grep kworker | wc -l
37
kharam@uw1-320-01:~/OS/Assignment_1$ ./processes sshd
7
kharam@uw1-320-01:~/OS/Assignment_1$ ps -A | grep sshd | wc -l
7
kharam@uw1-320-01:~/OS/Assignment_1$ ./processes scsi
12
kharam@uw1-320-01:~/OS/Assignment_1$ ps -A | grep scsi | wc -l
12
```

```
-->l Shell
l Shell
threadOS: a new thread (thread=Thread[Thread-5,2,main] tid=1 pid=0)
shell[1]%PingPong abc 100  ; PingPong xyz 50  ; PingPong 123 100
PingPong
threadOS: a new thread (thread=Thread[Thread-7,2,main] tid=2 pid=1)
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc
abc abc abc abc abc abc abc abc
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abc abc abc abc abc abc abc abc
abc abc abc abc
PingPong
threadOS: a new thread (thread=Thread[Thread-9,2,main] tid=3 pid=1)
xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz
xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz
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xyz xyz xyz xyz xyz xyz xyz xyz
xyz xyz xyz xyz
PingPong
threadOS: a new thread (thread=Thread[Thread-11,2,main] tid=4 pid=1)
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123
123 123 123 123
shell[2]%PingPong abc 50   ; PingPong xyz 100 & PingPong 123 100
PingPong
threadOS: a new thread (thread=Thread[Thread-13,2,main] tid=5 pid=1)
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc
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abc abc abc abc abc abc abc abc
abc abc abc abc
PingPong
threadOS: a new thread (thread=Thread[Thread-15,2,main] tid=6 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-17,2,main] tid=7 pid=1)
```

```
xyz xyz xyz xyz xyz xyz xyz xyz xyz xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz
123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz
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123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz 123 xyz xyz 123 123 xyz 123 xyz
123 xyz 123 xyz 123 xyz 123
123 123 123 123 123 123 123 123 123
shell[3]%PingPong abc 100  & PingPong xyz 100 ; PingPong 123 50
PingPong
threadOS: a new thread (thread=Thread[Thread-19,2,main] tid=8 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-21,2,main] tid=9 pid=1)
abc abc abc abc abc abc abc abc abc abc xyz abc xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc
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xyz abc xyz abc xyz abc xyz
xyz xyz xyz xyz xyz xyz xyz xyz xyz
PingPong
threadOS: a new thread (thread=Thread[Thread-23,2,main] tid=10 pid=1)
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123
123 123 123 123
shell[4]%PingPong abc 50   & PingPong xyz 50  & PingPong 123 100
PingPong
threadOS: a new thread (thread=Thread[Thread-25,2,main] tid=11 pid=1)
PingPong
threadOS: a new thread (thread=Thread[Thread-27,2,main] tid=12 pid=1)
```

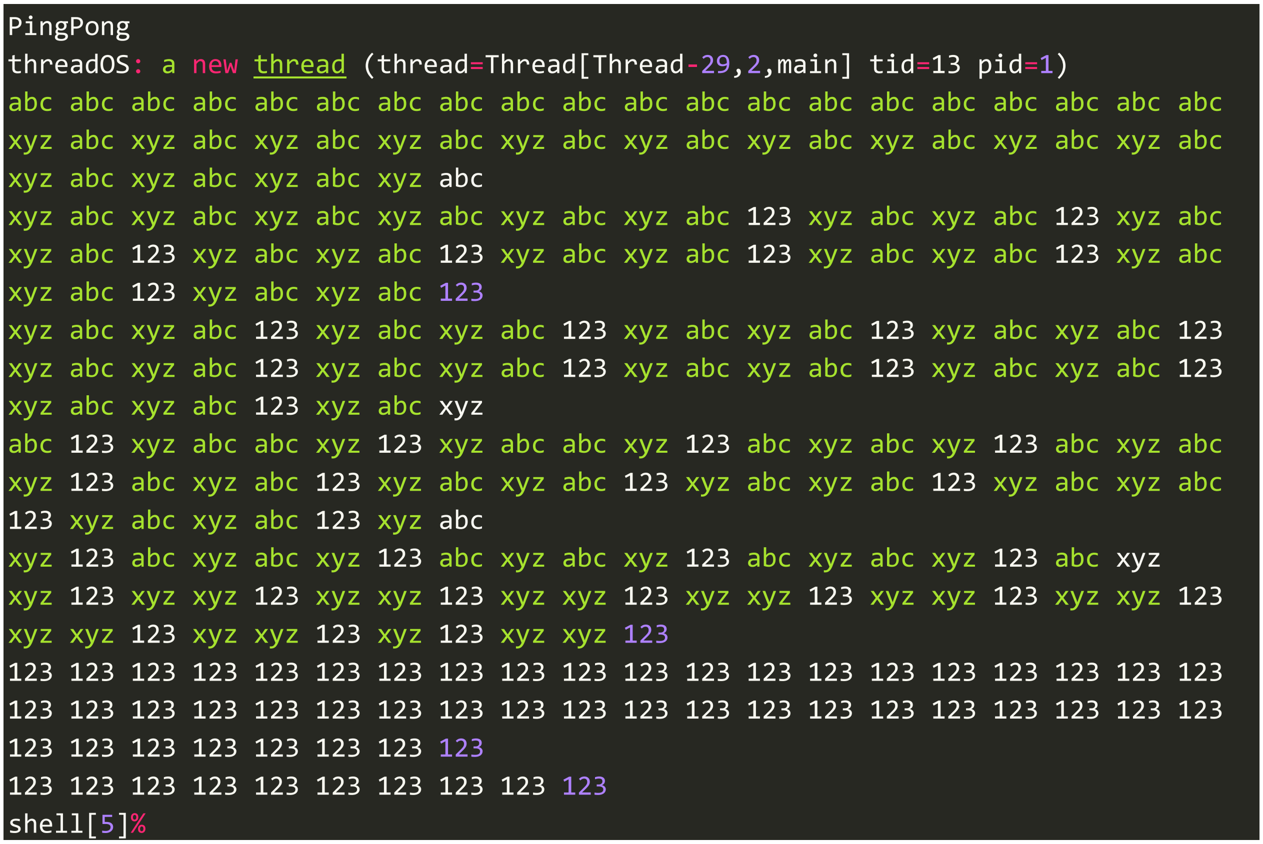

```
PingPong
threadOS: a new thread (thread=Thread[Thread-29,2,main] tid=13 pid=1)
abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc abc
xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc xyz abc
xyz abc xyz abc xyz abc xyz abc
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xyz abc xyz abc 123 xyz abc xyz abc 123 xyz abc xyz abc 123 xyz abc xyz abc 123
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xyz abc xyz abc 123 xyz abc xyz
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123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123
123 123 123 123 123 123 123 123 123 123
shell[5]%
```
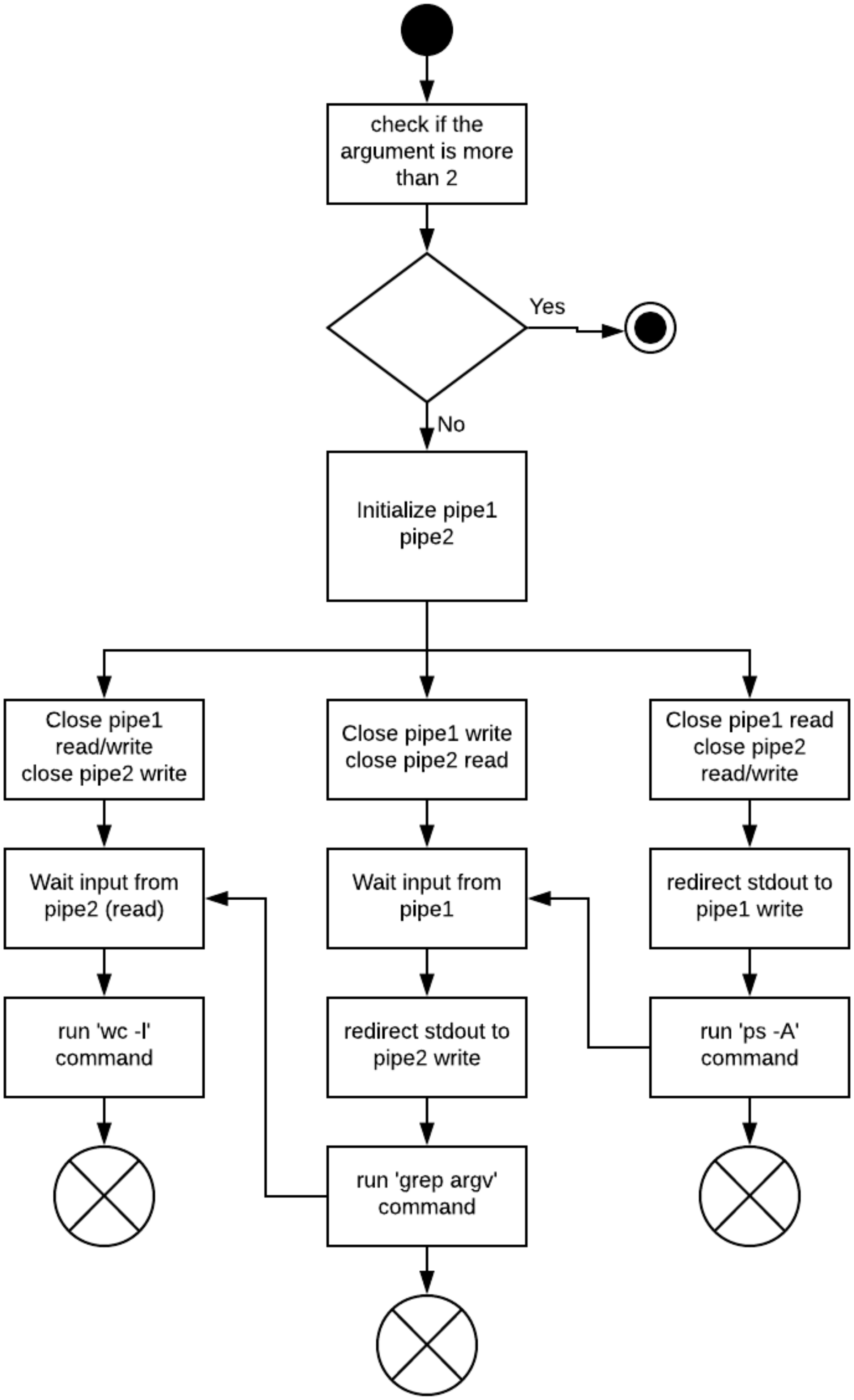
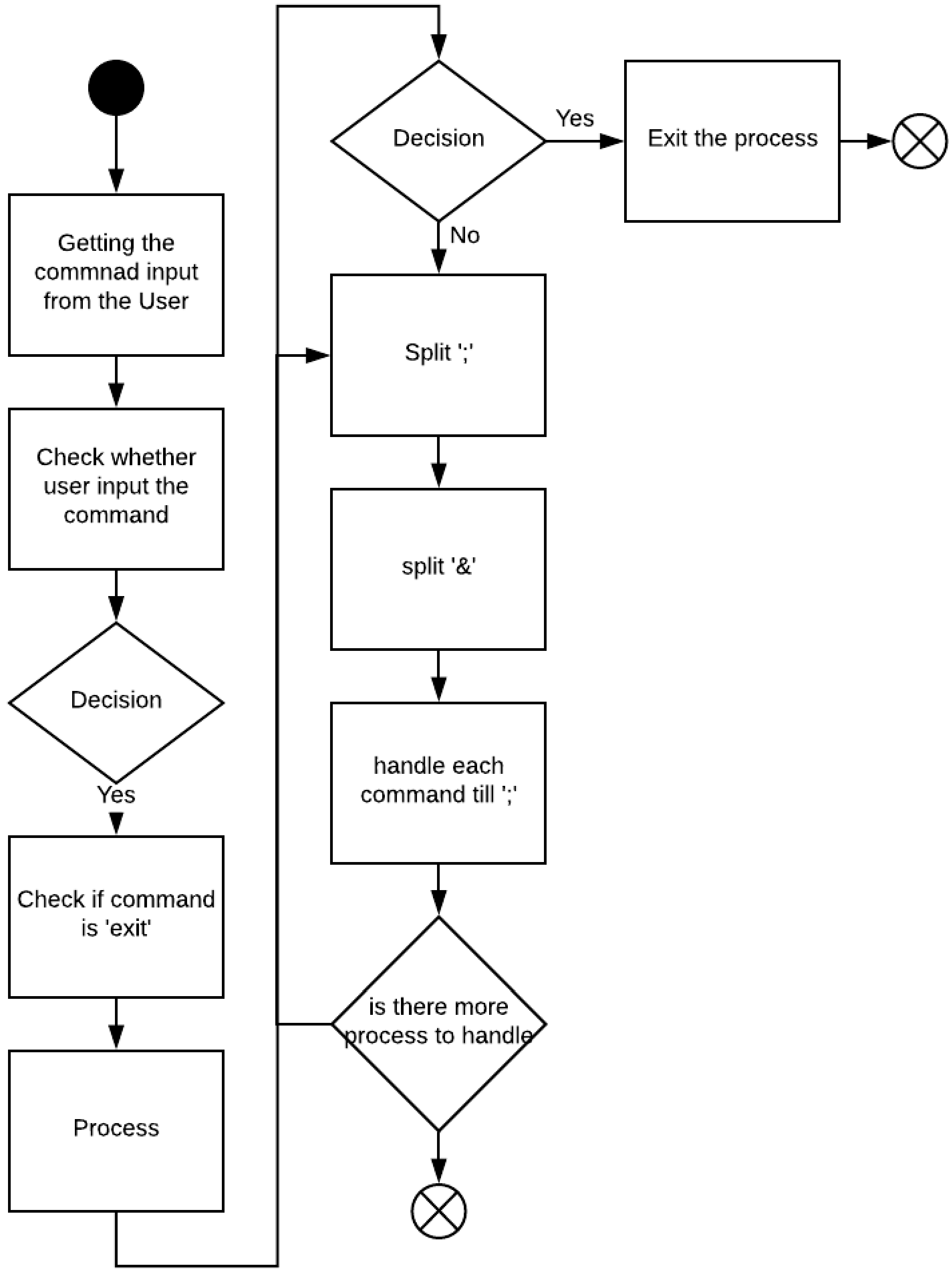

Flow Chart

processes.cpp


check if the argument is more than 2
Yes
No
Initialize pipe1 pipe2
Close pipe1 read/write close pipe2 write
Close pipe1 write close pipe2 read
Close pipe1 read close pipe2 read/write
Wait input from pipe2 (read)
Wait input from pipe1
redirect stdout to pipe1 write
run 'wc -l' command
redirect stdout to pipe2 write
run 'ps -A' command
run 'grep argv' command

Shell.java


Getting the commnad input from the User
Check whether user input the command
Decision
Yes
Check if command is 'exit'
Process
Decision
Yes
Exit the process
No
Split ';'
split '&'
handle each command till ';'
is there more process to handle