

# COM SCI 111 Lab 1c

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October 23, 2019

## Test Case 1

### Bash/Dash

```
cat pg98_100.txt | sort | wc -l >out.txt 2>err.txt
```

### Simpsh

```
./simpsh \  
--rdonly pg98_100.txt \  
--pipe \  
--pipe \  
--creat --wronly out.txt \  
--creat --wronly err.txt \  
--command 0 2 6 cat \  
--command 1 4 6 sort \  
--command 3 5 6 wc -l \  
--close 2 --close 4 \  
--wait --total-profile
```

### Performance

who	Type	Bash	Dash	Simpsh
Shell	User	00.001	00.001	0.000
	System	00.002	00.001	0.002
Children	User	12.184	12.106	6.251
	System	00.130	00.136	0.484

We notice that Simpsh is much faster with the child execution time, but slower with child system calls. Other than that, its about even across the board

## Test Case 2

### Bash/Dash

```
cat pg98_100.txt | grep z | wc -l >out.txt 2>err.txt
```

### Simpsh

```
./simpsh \  
--rdonly pg98_100.txt \  
--pipe \  
--pipe \  
--creat --wronly out.txt \  
--creat --wronly err.txt \  
--command 0 2 6 cat \  
--command 1 4 6 grep z \  
--command 3 5 6 wc -l \  
--close 2 --close 4 \  
--wait --total-profile
```

### Performance

who	Type	Bash	Dash	Simpsh
Shell	User	00.001	00.000	0.001
	System	00.000	00.001	0.002
Children	User	00.122	00.127	0.125
	System	00.077	00.064	0.068

This time, simpsh, dash, and bash all middle around the same approximate speeds. Bash did take slightly more time on the child system calls, however

## Test Case 3

### Bash/Dash

```
cat pg98_100.txt | cat | cat | cat | cat | wc -l >out.txt 2>err.txt
```

### Simpsh

```
./simpsh \  
--rdonly pg98_100.txt \  
--pipe \  
--pipe \  
--pipe \  
--pipe \  
--pipe \  
--pipe \  
--creat --wronly out.txt \  
--creat --wronly err.txt \  
--command 0 2 12 cat \  
--command 1 4 12 cat \  
--command 3 6 12 cat \  
--command 5 8 12 cat \  
--command 7 10 12 cat \  
--command 9 11 12 wc -l \  
--wait --total-profile
```

### Performance

who	Type	Bash	Dash	Simpsh
Shell	User	00.000	00.001	0.000
	System	00.001	00.002	0.002
Children	User	00.037	00.042	0.034
	System	00.255	00.267	0.278

Again, very similar results from all three shells. It does seem overall like simpsh spends more time doing system calls for children, however. This suggests that the calls preparing for `exec()` but after `fork()` are possibly less efficient than they could be.

## Overall Conclusion

It seems like there were areas where simpsh won; specifically, when dealing with very large files and doing large, expensive operations on them. In general, however, we notice fairly similar results from all three shells.