

Lab 1C Report

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1. Test Cases

SIMPleton SHell	Bash / Dash
<pre>./simpsh --profile \ --rdonly pg98_100.txt \ --creat --wronly t1err \ --creat --wronly t1out \ --pipe \ --command 0 4 1 sort \ --close 4 \ --command 3 2 1 grep the \ --wait</pre>	<pre>sort pg98_100.txt 2>t1err \ grep the > t1out 2>t1err</pre>
<pre>./simpsh --profile \ --rdonly pg98_100.txt \ --pipe \ --pipe \ --creat --wronly t2out \ --creat --wronly t2err \ --command 0 2 6 cat \ --close 2 \ --command 1 4 6 sort -u \ --close 4 \ --command 3 5 6 tr A-Z a-z\ --wait</pre>	<pre>(cat pg98_100.txt sort -u \ tr A-Z a-z > t2out) 2>t2err</pre>
<pre>./simpsh --profile \ --rdonly largefile \ --creat --wronly caterr \ --pipe \ --command 0 3 1 cat\ --close 3 \ --pipe \ --creat --wronly tr1err \ --command 2 5 6 tr A-Z a-z\ --close 5 \ --pipe \ --creat --wronly tr2err \ --command 4 8 9 tr -c "bash" "dash" \ --close 8 \ --pipe \ --creat --wronly sorterr \ --command 7 11 12 sort \ --close 11 \ --creat --wronly shafire \ --creat --wronly shaerr \ --command 10 13 14 sha256sum \ --wait</pre>	<pre>cat largefile 2>caterr \ tr A-Z a-z 2>tr1err \ tr -c "bash" "dash" 2>tr2err \ sort 2>sorterr \ sha256sum >shafire 2>shaerr</pre>

2. Performance Tests

Test Number	Mode	CPU Context	simpsh	bash	dash
1	Shell	User System	0.001s 0.000s	0.001s 0.003s	0.000s 0.000s
	Children	User System	7.997s 0.476s	7.973s 0.498s	7.993s 0.473s
2	Shell	User System	0.000s 0.000s	0.000s 0.003s	0.000s 0.000s
	Children	User System	5.982s 0.125s	5.997s 0.132s	6.003s 0.133s
3	Shell	User System	0.000s 0.001s	0.000s 0.003s	0.000s 0.000s
	Children	User System	2.257s 1.012s	2.240s 0.986s	2.257s 1.010s

3. Observations

All 3 shells run at roughly the same speeds, although Dash consistently spent the least amount of time in shell mode. Simpsh was almost as good as dash when running in shell mode. Times for child processes differed always and no one shell was the fastest at this.

Dash is the fastest when it is running the shell itself. Simpsh was second and bash was the slowest. When waiting for children, they were largely all the same, but bash was the fastest in this aspect. Simpsh was second and dash was the lowest.

Simpsh was on average the most efficient as it was almost as fast as dash when in shell mode and almost as fast as bash when waiting for children.