# Lab 1C Report

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## 1. Test Cases

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

## 2. Performance Tests

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