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Lab 1 Report

1. **Benchmarks**

|  |  |  |
| --- | --- | --- |
| # | simpsh | Dash/Bash |
| 1 | ./simpsh --profile --rdonly a \  --creat --append --wronly c \  --pipe --pipe --pipe --pipe \  --creat --wronly b \  --command 0 3 1 cat \  --command 2 5 1 sort \  --command 4 7 1 tr A-Z a-z \  --command 6 9 1 grep 'abcd' \  --command 8 10 1 wc \  --close 3 --close 5 --close 7 --close 9 \  --wait | cat a | sort | tr A-Z a-z | grep 'abcd' | wc >b 2>c |
| 2 | ./simpsh --profile --rdonly a \  --creat--append --wronly c\  --creat --wronly b\  --pipe --pipe --pipe \  --command 0 4 1 cat \  --command 3 6 1 uniq \  --command 5 8 1 sort \  --command 7 2 1 wc \  --close 4 --close 6 --close 8 \  --wait | cat a | uniq | sort | wc >b 2>c |
| 3 | ./simpsh --profile --pipe --pipe --pipe \  --creat rdonly foo --creat --append wronly c \  --creat wronly b \  --command 6 1 7 ls \  --command 0 3 7 sed ‘/report/d’ \  --command 2 5 7 sort \  --command 4 8 7 grep ‘abcd’ \  --close 1 --close 3 --close 5 \  --wait | ls | sed ‘/report/d’ | sort | grep ’abcd’ >b 2>c |

1. **Time**

Format of the time is followed by:

System Time User time

Children System Children User time

|  |  |  |  |
| --- | --- | --- | --- |
| # | Bash | simpsh | Dash |
| 1 | 0m0.00090s 0m0.00140s  0m0.00270s 0m0.00540s | 0m0.00009s 0m0.00012s  0m0.00264s 0m0.00296s | 0m0.00010s 0m0.00000s  0m0.00260s 0m0.00390s |
| 2 | 0m0.00050s 0m0.00110s  0m0.00130s 0m0.00430s | 0m0.00012s 0m0.00014s  0m0.00190s 0m0.00225s | 0m0.00000s 0m0.00010s  0m0.00200s 0m0.00290s |
| 3 | 0m0.00070s 0m0.00170s  0m0.00170s 0m0.00590s | 0m0.00005s 0m0.00008s  0m0.00315s 0m0.00375s | 0m0.00010s 0m0.00000s  0m0.00190s 0m0.00560s |

1. **Analysis**

I ran bash and dash both ten times with the same command and took the average time. However, total system time and user time of ten times in dash is still too small, which makes the measurement not very precise. From what we can see in the table, simpsh has relatively good performance on system time, children system time and it also has the best performance on children user time. Bash has the worst performance in all cases and its system time user time is significantly greater than simpsh and dash. Dash also has relatively good performance on system time and children system. Dash also has the best performance on user time.

1. **Conclusion**
2. Bash is the worst shell and it has the worst performance in all test cases.
3. Dash and simpsh both have relatively good performance. According simpsh seems to be better on children process time while dash seems to perform better in terms of user and system time.