

- A. Compare the two results and explain the differences, if any. If none, explain why.

The results are that the CPU time is shorter than that of the wall clock time. This makes sense since the wall-clock time is not the number of seconds that the process has spent on the CPU. Rather it is elapsed time spent waiting for its turn on the CPU. This includes other processes running.

Character by character

CPU clock is:168.92 ms

Wall clock is:7222 ms

Line by line

CPU clock is:139.668 ms

Wall clock is:5970 ms

This makes sense since there is overhead to each call. By reading line by line, the loop(cost) is shorter and thus, a shorter time.

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- B. Run both modes (UNCHANGED) on your Linux system. Again, compare the times and explain the differences if any. If none, explain why.

Character by character

CPU clock is:259.445 ms

Wall clock is:260 ms

Line by line

CPU clock is:230.739 ms

Wall clock is:231 ms

Here, we see a similar result, where the CPU time is shorter than the wall clock time and the line by line read is faster. As above, this makes sense since there is overhead to each call. By reading line by line, the loop(cost) is shorter and thus, a shorter time.

Note: there will be differences with each run and with each computer. Variables involving the specs of a computer will also greatly affect speeds.