

Bilkent University

Computer Engineering

CS342

Project - 01

Mohammed S. Yaseen

21801331

28/02/2020

Normal and tapped modes time comparison:

An experiment was conducted to compare the execution time for the normal mode and the one for tapped mode. JavaScript node script was used to do the experiment. The script runs **isp\$./producer M | ./consumer M** with varying values of **M** in the range $[1 \times 10^8, 9 \times 10^8]$ with increments of 1×10^8 . The experiment was done twice for each mode and the average execution time of each trial was taken for each **M** value. The results were as in figure 1.

Note: N value was constant 500 for the tapped mode.

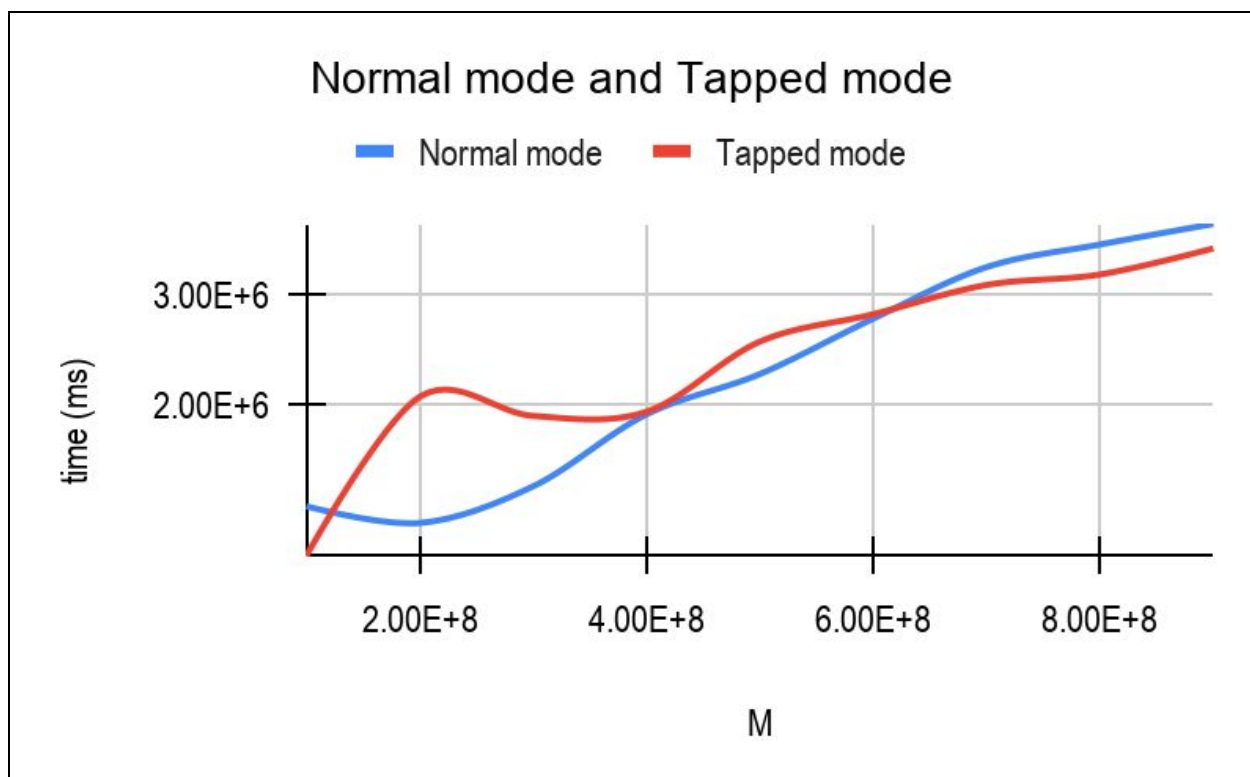


Figure 1: Execution time comparison between the normal and the tapped mode.

Tapped mode with varying N values:

Here, only tapped mode was investigated with varying values of N. Again JavaScript node script was used in the experiment, where the command **isp N 2** was invoked multiple times with varying values of N in the range [100, 1000] with increments of 100. Each invocation did run the command **isp\$./producer M | ./consumer M**, where M is constant and has the value 2×10^8 . The results obtained are graphed in figure 2.

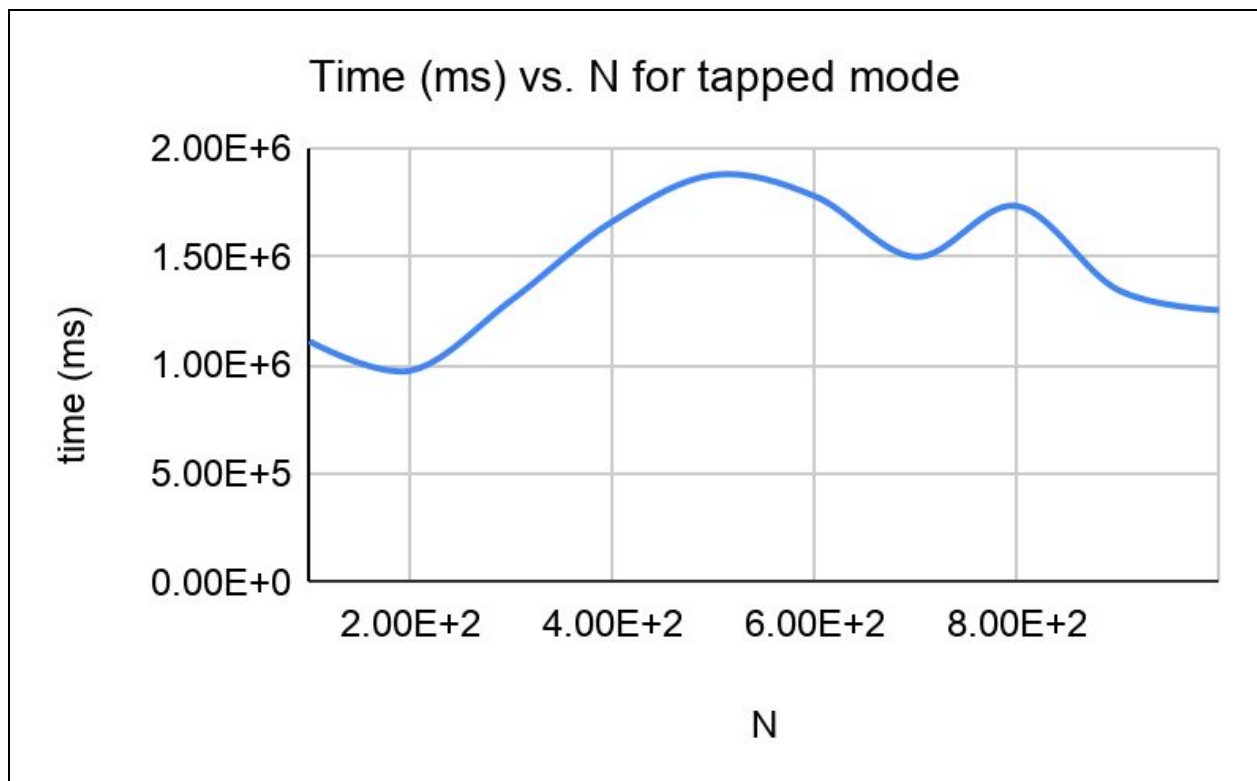


Figure 2: Execution time of the tapped mode with varying values of N.

Conclusion

From the first experiment we observe that the tapped mode contains some overhead until a certain threshold, where it surpasses the normal mode in speed. Additionally, we notice that both tapped and normal mode execution time gets longer as the amount of bytes transferred between the two child programs increase. This increase happens linearly. On the other hand, in the second experiment when the number of bytes is made constant, the transfer speed fluctuates as N increases. We also notice that the minimum time was recorded with N value of 200. However, this minimum changes when executed another time; therefore, it can be concluded that the value of N does not directly affect the execution speed.