CS342 Operating Systems

Project 1 Report

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Analysis

According to the table and the graph given below we can analyze how the execution time relates to the modes and the number of alphanumeric characters (M) written and read by producer.c and consumer.c.

- In Normal Mode and Tapped Mode with different N (number of bytes to read/write in one system call). When M increases, the execution time increases linearly.
- When M is the same across the modes, execution times did not change more than 10%. The only exception to this was tapped mode with N =1. In that case, execution time was roughly 2.5 times of all modes, which made it the least efficient mode.
- Even though the execution time only varies by %10 between the modes other than Tapped Mode (1), the most efficient one between them is Tapped Mode (4096) for small processes and Normal Mode for big processes. For processes that are more complex and demanding than printing a few millions of characters, the more bits written and read at one time, the more efficient it becomes.

Mode M	Normal Mode	Tapped Mode (1)	Tapped Mode (16)	Tapped Mode (256)	Tapped Mode (4096)
1.000.000	2.20	5.60	2.35	2.42	2.14
2.000.000	4.79	12.30	4.96	4.75	4.90
4.000.000	9.55	23.46	9.41	9.33	9.83
8.000.000	18.77	49.98	19.75	19.78	18.55
16.000.000	37.69	103.17	39.96	38.48	38.17

Figure 1: Table representing Execution Time (seconds) depending on the mode vs. M(number of alphanumeric characters)

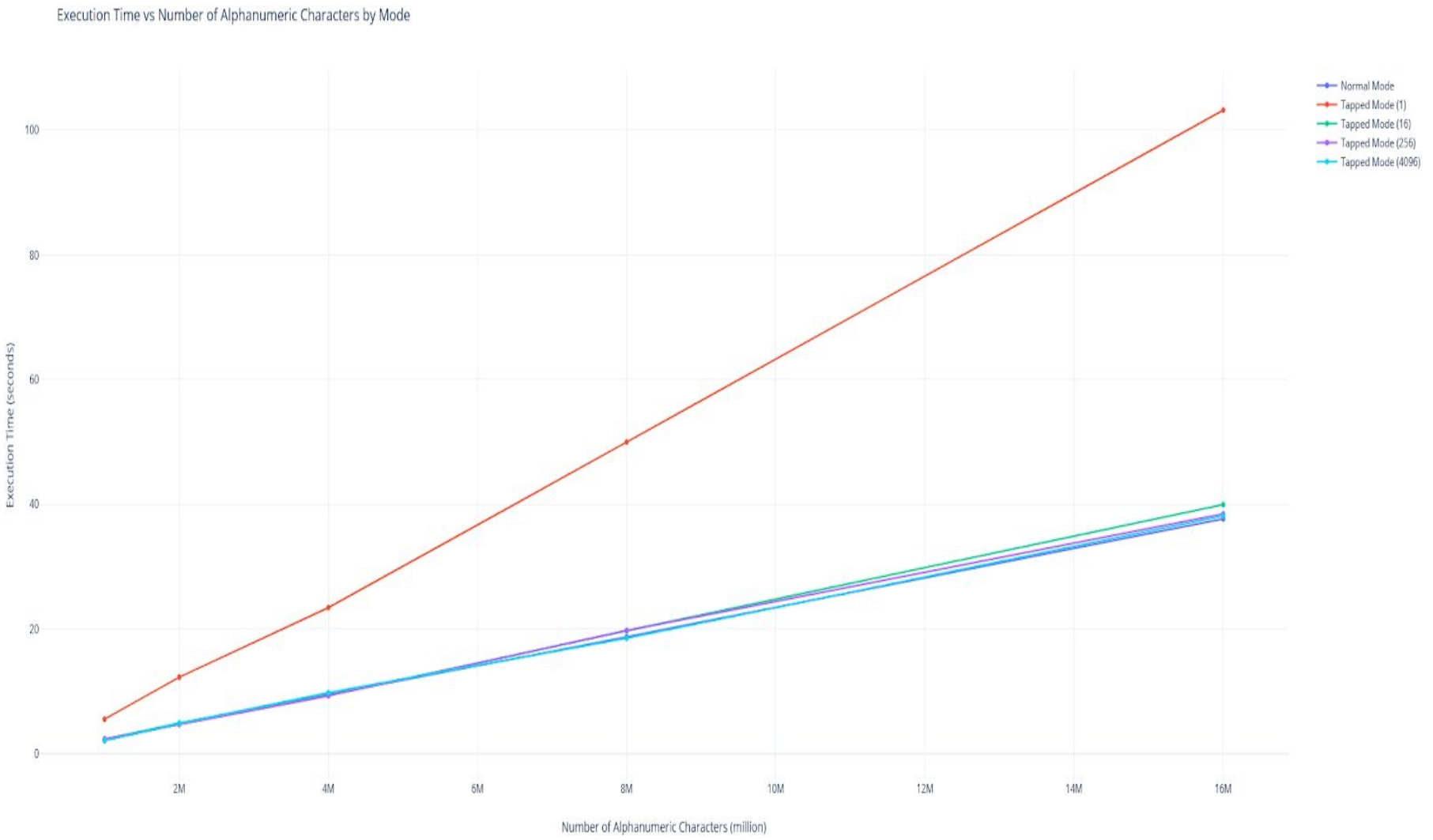

Figure2: Graph representing Execution Time (seconds) depending on the mode vs. M(number of alphanumeric characters)