**SUMMARY**

## USC ID/s:

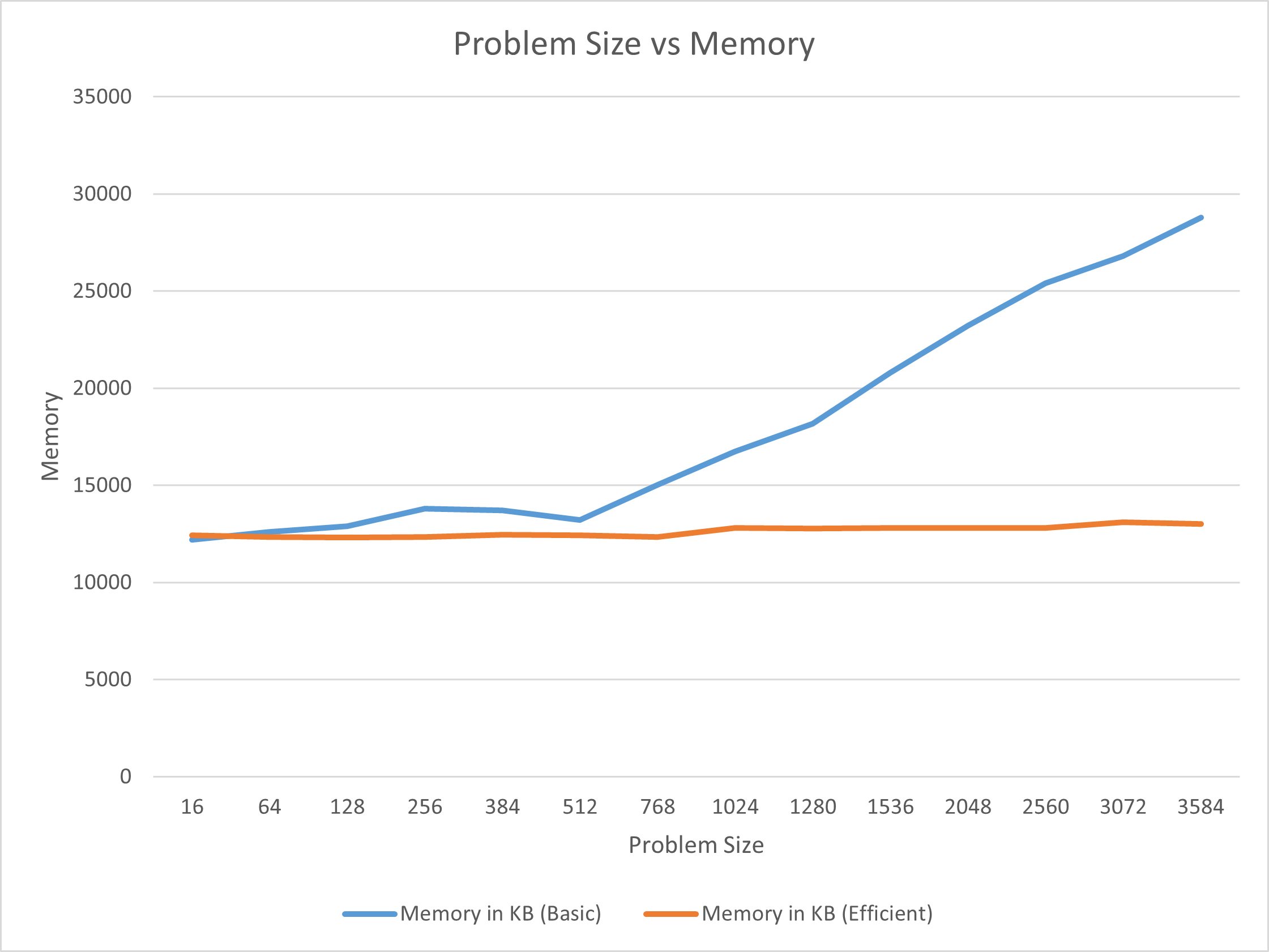
3281934045

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| M+N | Time in MS (Basic) | Time in MS (Efficient) | Memory in KB (Basic) | Memory in KB (Efficient) |
| 16 | 0.10 | 0.19 | 12204 | 12436 |
| 64 | 0.61 | 1.65 | 12192 | 12436 |
| 128 | 3.10 | 5.45 | 12620 | 12352 |
| 256 | 8.17 | 17.79 | 12908 | 12312 |
| 384 | 18.24 | 36.72 | 13808 | 12344 |
| 512 | 42.46 | 65.51 | 13716 | 12448 |
| 768 | 91.98 | 145.27 | 13220 | 12420 |
| 1024 | 177.36 | 262.05 | 15024 | 12352 |
| 1280 | 237.65 | 432.11 | 16748 | 12824 |
| 1536 | 364.31 | 604.14 | 18188 | 12780 |
| 2048 | 708.78 | 1084.37 | 20796 | 12808 |
| 2560 | 1010.89 | 1690.40 | 23216 | 12812 |
| 3072 | 1519.85 | 2521.86 | 25392 | 12812 |
| 3584 | 2021.03 | 3227.96 | 26796 | 13108 |
| 3968 | 2606.02 | 4108.90 | 28792 | 13024 |

## Datapoints

## Insights

### Graph1 – Memory vs Problem Size (M+N)



#### Nature of the Graph (Logarithmic/ Linear/ Polynomial/ Exponential)

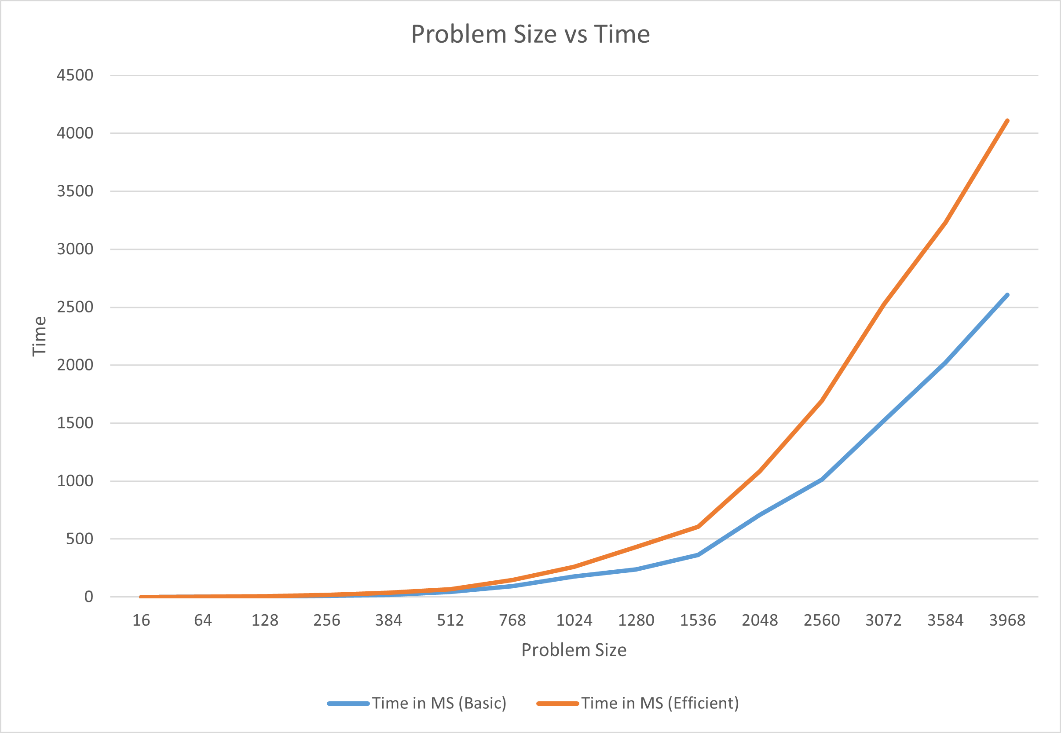
Basic: logarithmic

Efficient: polynomial

#### Explanation:

As size grows up, the line of basic version grows in polynomial speed, while the line of efficient version is almost a horizontal line. Apparently, the efficient version uses much less memory when the size is huge.

### Graph2 – Time vs Problem Size (M+N)



#### Nature of the Graph (Logarithmic/ Linear/ Polynomial/ Exponential)

Basic: polynomial

Efficient: polynomial

#### Explanation:

Both lines grow in polynomial speed as problem size increases, but the efficient version costs more time when size is huge.

## Contribution

(Please mention what each member did if you think everyone in the group does not have an equal contribution, otherwise, write “Equal Contribution”)

<USC ID/s>: <Equal Contribution>

3281934045: Equal Contribution