SUMMARY

USC ID/s:

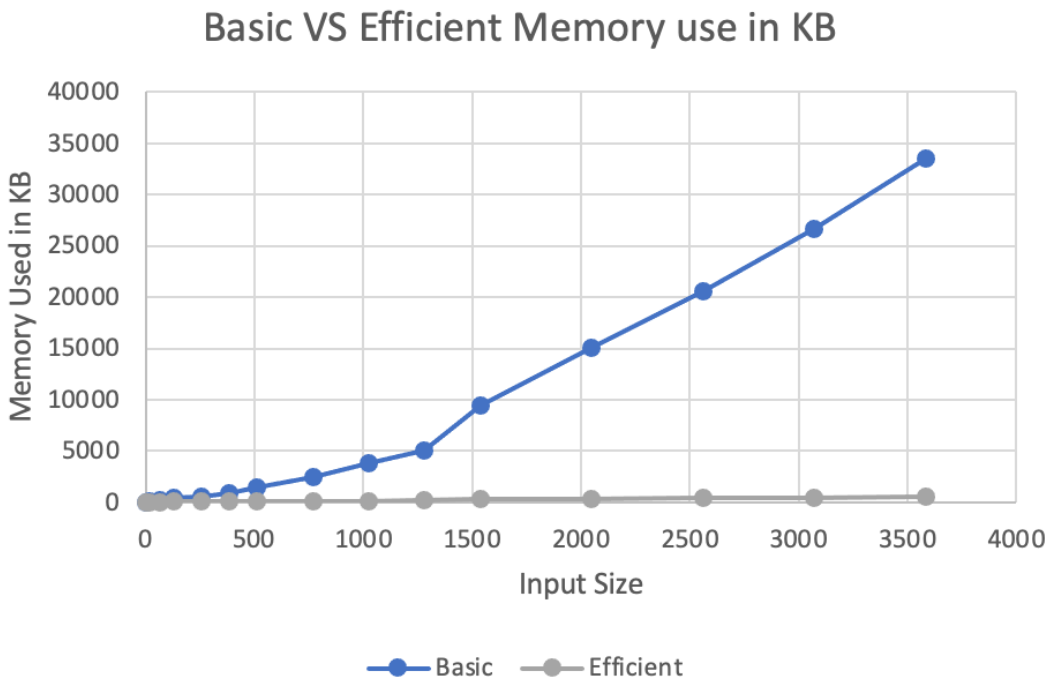
2516960373
6292048053
6032837896

Datapoints

M+N	Time in MS (Basic)	Time in MS (Efficient)	Memory in KB (Basic)	Memory in KB (Efficient)
16	0.26	1.28	4	4
64	1.29	2.21	44	8
128	4.39	11.42	156	8
256	11.86	24.26	460	48
384	29.74	44.491	552	36
512	51.849	83.018	900	124
768	110.195	178.300	1484	106
1024	209.623	323.72	2484	124
1280	332	497.92	3828	116
1536	494.37	809.86	5092	212
2048	1075	1322.03	9476	264
2560	1632.92	2057	15104	348
3072	2605.66	2966.75	20600	444
3584	3401.56	4054.65	26664	480
3968	2804.38	5076	33504	540

Insights

Graph1 – Memory vs Problem Size (M+N)



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

Basic: Polynomial O(MN)

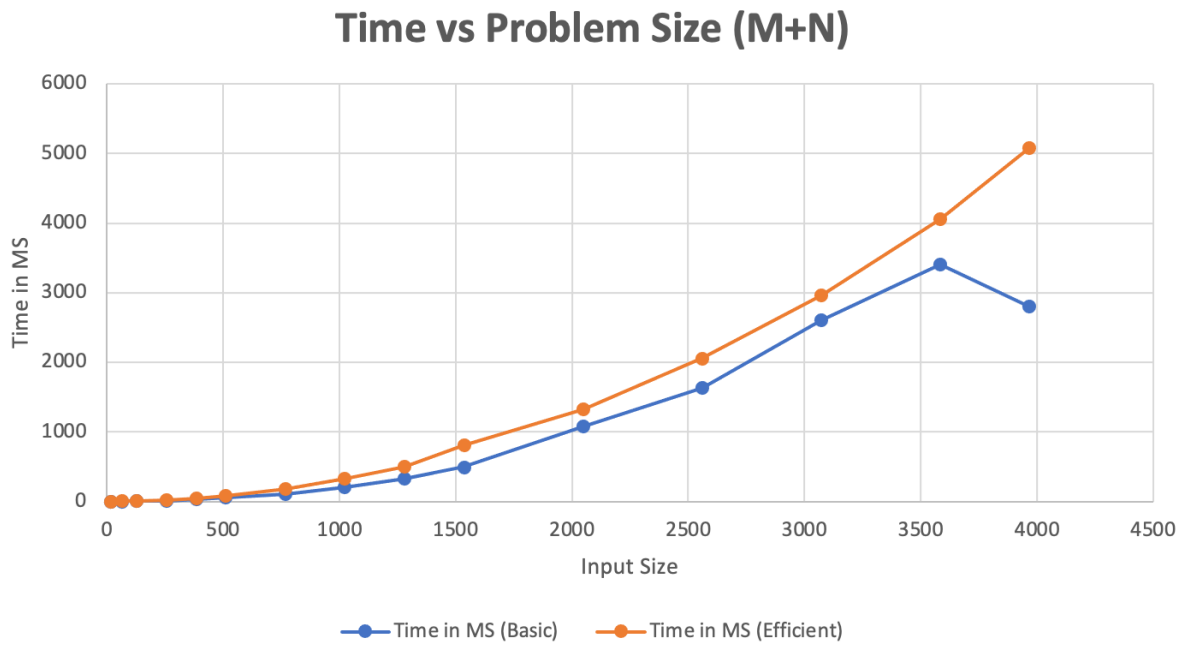
Efficient: Linear O(M+N)

Explanation:

The basic graph memory use = O(MN) since that's how much the size of the table grow in relationship to the input

The efficient graph memory use = O(M+N) making it linear

Graph2 – Time vs Problem Size (M+N)



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

Basic: (pseudo) Polynomial O(MN)

Efficient: (pseudo) Polynomial O(MN)

Explanation:

Both of them grow in Polynomial time though the efficient memory solution takes longer since there's extra computation involved to optimize space used, therefore it is doing extra work making time used longer.

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>

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