

Assignment 1

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Part A

c) Load

Array

Space Complexity Analysis:

For Array, space taken should be $O(n^2)$

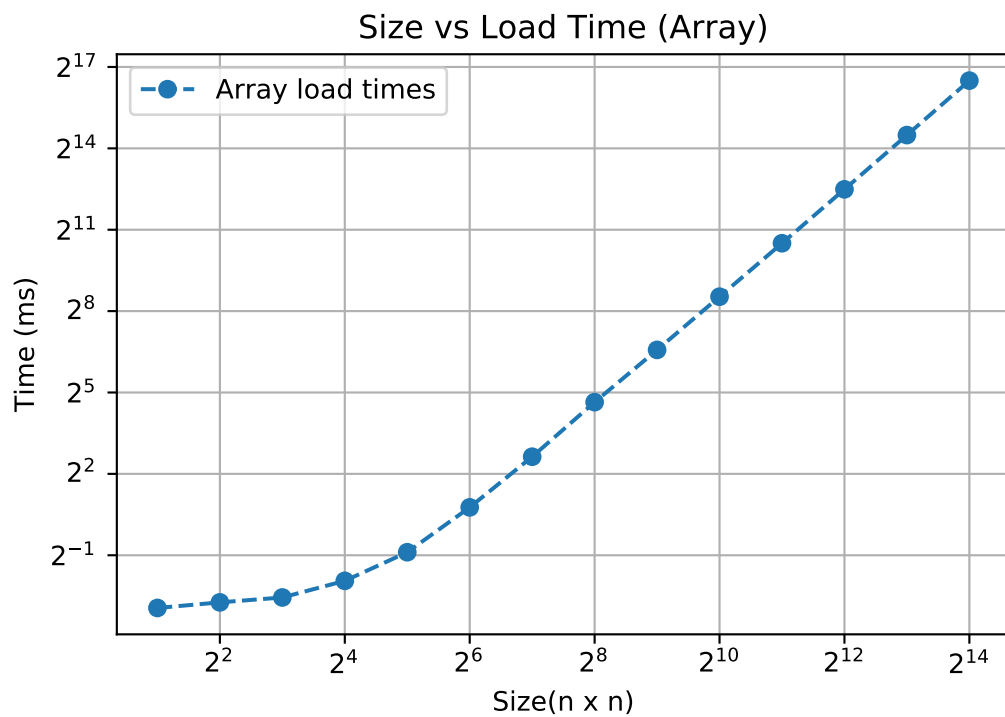
For CSR, space taken = $O(\text{NNZ})$

Time Complexity Analysis:

Array = $O(n^2)$

CSR = $O(\text{NNZ})$

Experimental Observations:



CSR

Due to some error, that I don't know yet how to solve, I couldn't load any CSR that is of size 8x8 or greater. The exact error encountered is:

**** stack smashing detected ***: ./Runner.o terminated
Aborted*

d) Transpose

Space Complexity Analysis:

For Array, space = $O(n^2)$

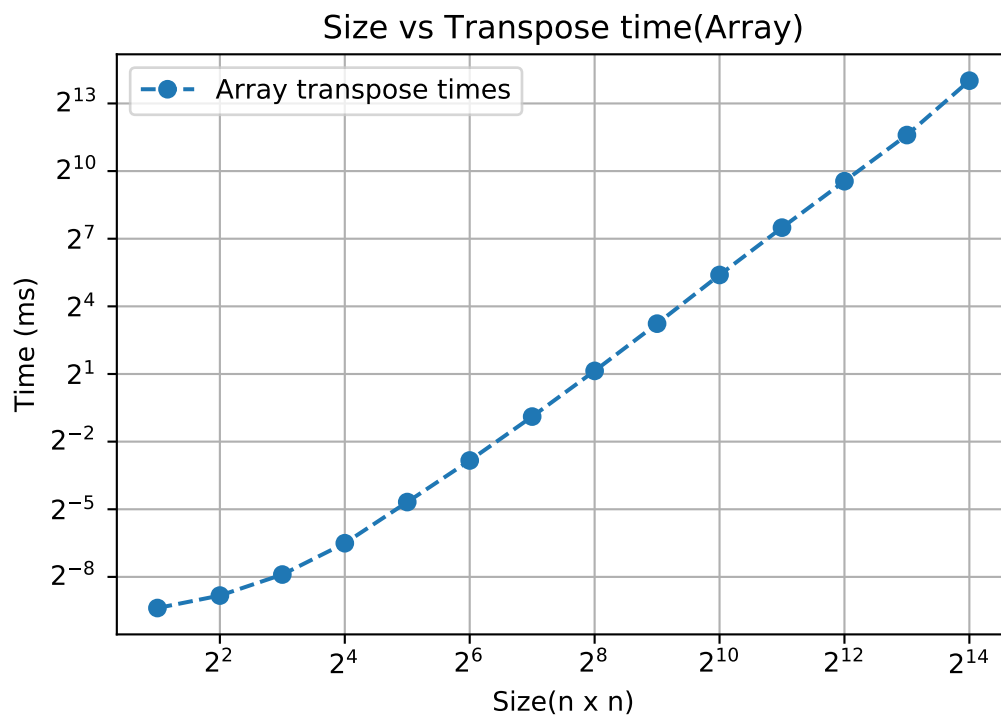
For CSR, space taken = $O(\text{NNZ})$

Time Complexity Analysis:

Array = $O(n^2)$

CSR = $O(\text{NNZ})$

Experimental Observations:



e) Multiply

Space Complexity Analysis:

For Array, space = $O(n^2)$

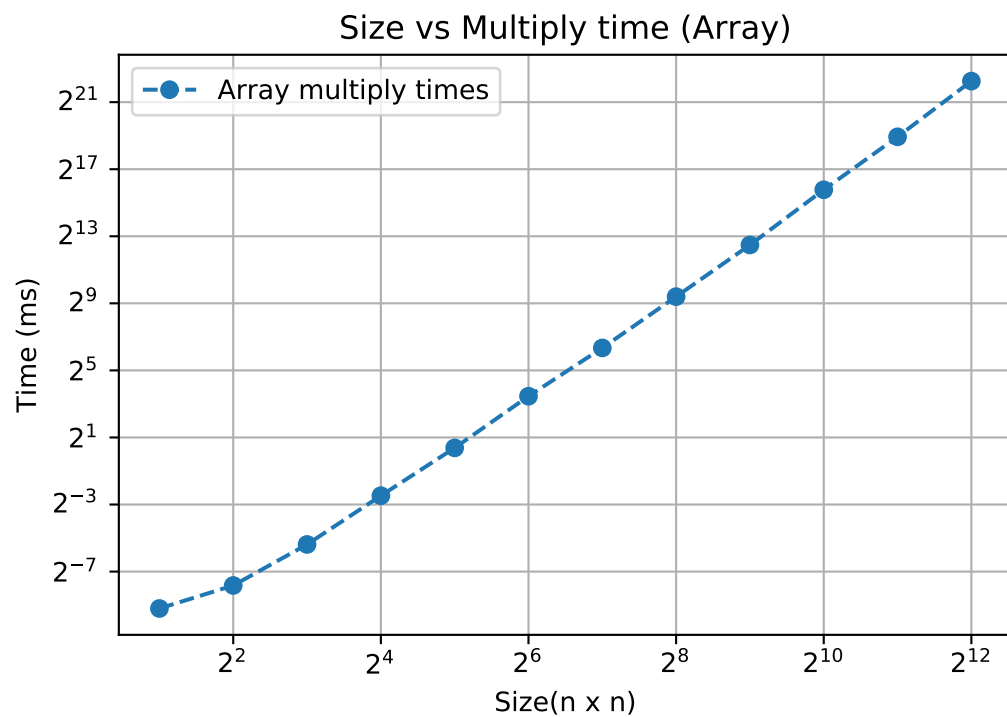
For CSR, space taken = $O(\text{NNZ})$

Time Complexity Analysis:

Array = $O(n^3)$

CSR = $O(\text{NNZ})$

Experimental Observations:



Part B