Assignment 3

csci2200, Algorithms

Instructions:

- Honor code: Work on this assignment alone, or with one partner. Between different teams, Collaboration is at level 1 [verbal collaboration only]
- Check out the Homework guidelines on class website.

For each algorithm below, give their runtime recurrence, and solve it.

We expect: (1) the recurrnece (2) two steps of iteration (3) the pattern after i steps of iteration; (4) derivation of the recursion depth; (5) the final $\Theta()$ bound

1.

AlgorithmA(n):

- Do something that takes $O(1)$
- AlgorithmA($n/4$)
- Do something that takes $O(1)$
- AlgorithmA($n/4$)
- Do something that takes $O(1)$
- AlgorithmA($n/4$)

2.

AlgorithmB(n):

- Do something that takes $O(1)$
- AlgorithmB($n/2$)
- Do something that takes $O(n)$
- AlgorithmB($n/2$)
- Do something that takes $O(n^2)$
- AlgorithmB($n/2$)

3.

AlgorithmC(n):

- Do something that takes $O(1)$
- AlgorithmC($n/3$)
- Do something that takes $O(n)$
- AlgorithmC($n/3$)