Data Structures and Algorithms

Studio 1

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1.

a. O(1)

b. O(n)

c. O(n^2)

d. O(log n)

2.

a. O(n) – number of operation always equal the number of characters in a string.

b. O(n^2) – nested loop, number of operation depends on columns and rows.

c. O(n) – nested loop with upper limit of 10, therefore O(n\*10) == O(n)

3.

a. O(n) – number of print operation always equal the array length

b. O(n) – single loop, number of print operation depends on an if statement and print, O(n+2) = O(n)

c. O(n) – single loop through array with an if statement for each element, O(n+1) = O(n)

d. O(n) – single loop through array with an if statement for each element, O(n+1) = O(n)

4.

a. O(n) – size of operation depends on the number of values of the dictionary

b. O(n) – single loop through one hash key

c. O(1) – single search operation of key value “A”

d. O(n) – single loop through keys and search for first name beginning with “A”