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## Algorithm Analysis-Big-oh notation

Due: 9/1/2024 11:59 PM • Algorithms Analysis and Design S



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#### Attempt

Attempt 1
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# Attempt 1

Due on Sep 1, 2024 11:59 PM

Available on Aug 29, 2024 12:01 AM until Sep 4, 2024 11:59 PM

Written: Sep 4, 2024 12:09 PM - Sep 4, 2024 12:26 PM

**Quizzes Event Log** 

#### **Timing**

No Time Limit

Submitted Late: 2 days past the due date

# **Evaluation Summary**

**Reset Evaluation** 

#### **Attempt Grade**

25 / 25

**Student View Preview** 

25 / 25 - 100 %

**Attempt Feedback** 

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# **Quiz Results**

#### Question 1

Reorder the following efficiencies or complexity functions from smallest to largest(specify the required value of n to maintain the order):

a)
$$n \log n$$

b) 
$$n + n^2 + n^3 + n^4$$

c)
$$n^3$$

d)
$$n^5 \log n$$

e) 7

f)n

Answer: e < f < a < c < b < d (7, n n logn ..... for n > 7)

Save Time

12:26 PM

Score

5 / 5 (graded by Md Amjad Hossain)

Expand question 1 feedback

## **Question 2**

What will be the efficiency/time complexity of the following nested for loop?

for 
$$(j = 1; j < = n; j = j*2)$$

the loop body

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- $\bigcirc O(\log n)$   $\bigcirc O(n\log n)$   $\checkmark \bigcirc O(\log^2 n)$

Save Time

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Score

/ 4 (graded by Md Amjad Hossain) 4

Expand question 2 feedback

## **Question 3**

Indicate constant time complexity in terms of Big-O notation.

Note: ^ represents the power.

O(n)

O(nlogn)

O(n^2)

O(1)

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Expand question 3 feedback

#### **Question 4**

If  $f(n)=3n^3+2n^2+n+1$ , what is the Big-O notation of f(n)?

- O(n)
- O(n^2)
- **✓**(n^3)
  - O(1)

**Save Time** 

12:26 PM

Score

- 3 / 3 (graded by Md Amjad Hossain)
- Expand question 4 feedback

#### **Question 5**

Big-Omega notation provides which type of bound?

- Upper bound
- ✓ Lower bound
  - Average bound
  - one of the above

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Expand question 5 feedback

#### **Question 6**

If 
$$f(n)$$
 is  $O(n^2)$ , then  $f(n)$  can also be  $O(n^3)$ .

- ✓ ( ) True
  - ( ) False

**Save Time** 

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Expand question 6 feedback

#### **Question 7**

What is the efficiency or time complexity of the following code in Big-oh notation?

```
int a = 0, b = 0;
for (i = 0; i < N; i++) {
    a = a + rand();
}
for (j = 0; j < M; j++) {
    b = b + rand();
}</pre>
```

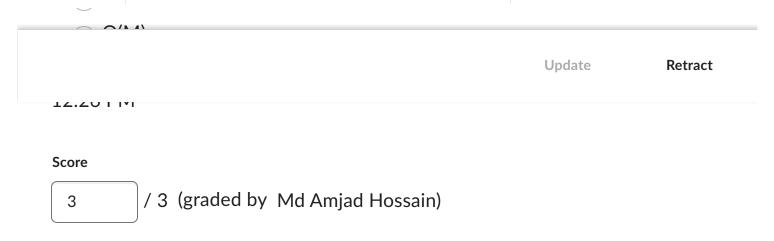
O(N \* M)

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## Algorithm Analysis-Big-oh notation

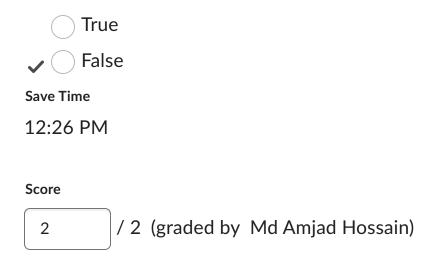
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# **Question 8**

Algorithm A and B have a worst-case running time of O(n) and O(logn), respectively. Therefore, algorithm B always(for any value of n) runs faster than algorithm A.



Expand question 7 feedback

Expand question 8 feedback