Time And Space Complexity

Recurrence for Merge Sort

Send Feedback

What is the recurrence relation for merge sort :

Options

This problem has only one correct answer

- T(n) = 2T(n/2)
- T(n) = 2T(n/2) + k
- **T(n) = 2T(n/2) + O(n)**
- T(n) = 2T(n/2) + O(log n)

Hurray! Correct Answer

Merge sort

Send Feedback

What is the time complexity of merge sort :

Options

Attempts left: 1/2

This problem has only one correct answer

- O(n)
- O(n^2)
- **O(nlogn)**
- O(log n)

Hurray! Correct Answer

Solution Description

The time complexity of the Merge Sort is θ(nLogn) in all 3 cases (worst, average, and best) as the merge sort always divides the array into two halves and takes linear time to merge two halves.

What is time complexity

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What is the time complexity of following code ?

```
int multiplyRec(int m, int n){
   if(n == 1)
      return m;
   return m + multiplyRec(m,  n - 1);
}
```

Options

This problem has only one correct answer

- O(m*n)
- **O(n)**
- O(n^2)
- O(m)

Hurray! Correct Answer

What is time complexity

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What is the time complexity of following code ?

```
int sumOfDigits(int n){
        int sum;
        if(n < 10){
            return n;
        }
        sum = (n % 10) + sumOfDigits(n / 10);
        return sum;
}
```

Options

This problem has only one correct answer

- (●) O(logn) - log is to the base 10
- ( ) O(n)
- ( ) O(n^2)
- ( ) None of these

✓ Hurray! Correct Answer

Fibonacci

Send Feedback

What is the time complexity of following code for calculating nth fibonacci number

```
long fib(int n){
    if(n == 0 || n == 1){
        return n;
    }
    return fib(n - 1) + fib(n - 2);
}
```

Options

This problem has only one correct answer

- ( ) O(n)
- ( ) O(n^2)
- (●) O(2^n)
- ( ) O(n^3)

✓ Hurray! Correct Answer

Merge Sort space

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The space complexity for merge sort is :

Options

This problem has only one correct answer

- (•) O(n)
- ( ) O(n^2)
- ( ) O(nlogn)
- ( ) O(log n)

Hurray! Correct Answer

Fibonacci

Send Feedback

The space complexity for finding nth fibonacci number using recursion is :

Options

This problem has only one correct answer

- (•) O(n)
- ( ) O(2^n)
- ( ) O(log n)
- ( ) O(n^2)
- ( ) O(nlogn)

Hurray! Correct Answer