Friday, 12 February 16

Crux
Lecture - 9

Programming Fundamentals -3

Order Complexity Analysis

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Recursion Assignment 2?

Order Complexity Analysis

Amount of time/space taken by the algorithm to run as a function of the input size

Experimental Analysis

- Bubble Sort vs Merge Sort

Theoretical Analysis

- Bubble Sort
- Binary Search
- Factorial
- Polynomial Evaluation

Your turn

- Insertion sort
- Fibonacci
- Assignment 3 and assignment 4 solutions

Complexity Analysis Examples

```
for (i=0; i<=n-1; i++){
   for (j=i+1; j<=n; j++){
       constant number of operations.
   }
}
```

Complexity Analysis Examples

```
for (i=0; i<=n-1; i++){
   for (j=i+1; j<=k; j++){
       constant number of operations.
   }
}
```

Complexity Analysis Examples

```
for (i=0; i<=n-1; i++){
   for (; i<=n; i++){
       constant number of operations.
   }
}
```

Complexity Analysis Examples

```
for (i=0; i<=n-1; ){
   for (j = 0; j<=k; j++){
       constant number of operations.
   }
   i = i + j;
}
```

Your turn

- Pair sum problem
- Triplets

What is space complexity?

What in case of recursion?

Quick Sort

Time for more Brain Teasers!

Gold for 7 Days of Work

You've got someone working for you for seven days and a gold bar to pay him. You must pay the worker for his work at the end of every day. If you are only allowed to make two breaks in the gold bar, how do you pay your worker? (Assuming equal amount of work is done during each day thus requiring equal amount of pay for each day)

Thank You !! ☺

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