C++

LAUNCHPAD

CODING BLOCKS

Lecture-12

- Space Time Complexity Analysis

Utkarsh Nath

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
- Selection Sort
- Fibonacci

Complexity Analysis Examples

Given k<N

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

Complexity Analysis Examples

Given k<N

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

Merge Sort ?

What is space complexity?

What in case of recursion?

HW - Go through the assignments

C++

LAUNCHPAD

CODING BLOCKS

Thank You!

Utkarsh Nath