CODING BLOCKS

Complexity

- Time Complexity
- Space Complexity
- Optimizations

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Merge Sort

Quick Sort

Order Complexity Analysis

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

Experimental Analysis

Bubble vs Merge Sort

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Theoretical Analysis

- Linear Search
- Binary Search
- Factorial
- Bubble Sort, Selection Sort, Insertion Sort
- Merge Sort and Quick Sort
- Fibonacci

Complexity Analysis


```
for(int I = 0; I <= N; I++){
  for(int j = I; j <= k; j++){
  // some operation taking time c.
  }
  // some operation taking time c'
}
```

Time Complexity for some K < N

Complexity Analysis


```
for(int I = 1; I <= N;){
for(int j = 1; j <= k; j++){
// some operation taking time c.
}
I += k;
}
```

Time Complexity for some K < N

Think

- MaximumInArray
- CheckDuplicate
- Intersection of arrays (two, three)

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Think

- Evaluate polynomial
- $1.x^n + 2.x^{n-1} + ...n.x^1$
- Sieve Of Eratosthenes
- Power
- Count Palindromes in a string.

Space Complexity?

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ArrayList
&
StringBuilder

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What in case of recursion?

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Thank you

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