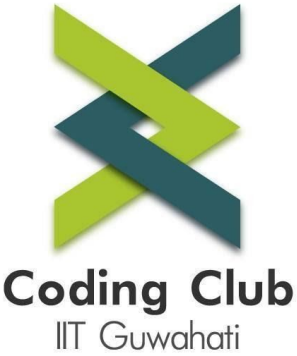

CRACKING THE PLACEMENT TESTS

A WEEKLY GUIDE CONTAINING TOPICS, QUESTIONS AND TRICKS COMMONLY ENCOUNTERED IN PLACEMENT TESTS

JULY 5, 2020
CODING CLUB, IIT GUWAHATI

Coding Club
IIT Guwahati

WEEK 1

TIME COMPLEXITY

Concept Reading Materials

- Asymptotic notation [CLRS]: 43-52
- Complexity Analysis - Introduction
- Big-O notation in 5 minutes - The basics
- Interview Bit tutorials on https://www.interviewbit.com/courses/programming/topics/time-complexity/
- A rule of thumb is that our computers do roughly 10^8 operations per second (this value gets outdated fast). So, to check whether our solution is correct, the first step is to ensure that the time complexity is good enough to meet the timing requirements of the problem (usually the time limit is 1 second). To do this, first calculate the worst-case time using big O notation. Substitute the constraints and check if the value <= 10^8.
  For e.g. our algorithm has a complexity of O(n^2) and n <= 10^6. Substituting n yields roughly 10^12 operations. Do note that this is not the exact number of operations, rather a rough estimate. Since 10^12 is much bigger than 10^8, we can safely conclude that our algorithm won't run in under 1 second.

Problem Solving

- https://www.interviewbit.com/courses/programming/topics/time-complexity/ [VERY IMPORTANT]
- https://www.codechef.com/LRNDSA01 [HANDPICKED QUESTIONS]
- https://www.geeksforgeeks.org/practice-questions-time-complexity-analysis/
- https://www.geeksforgeeks.org/interesting-time-complexity-question/
- MCQs on BigO
- https://www.tutorialspoint.com/practice-questions-on-time-complexity-analysis-in-cplusplus

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WEEK 1

ARRAYS AND OTHER LINEAR DS

Concept Reading Materials

- https://www.hackerearth.com/practice/data-structures/arrays/1-d/tutorial/
- Vectors in C++, ArrayLists in Java, and Lists in Python are similar data structures
- Vectors C++: BitDegree, TheCherno, Reel Learning
- Stacks and Queues in C++
- Strings, Vectors, Pair in C++
- ArrayLists in Java
- Lists in Python
- Linked Lists: Video, C++, Java
- Interview Bit tutorials on https://www.interviewbit.com/courses/programming/topics/arrays/, https://www.interviewbit.com/courses/programming/topics/stacks-and-queues/, https://www.interviewbit.com/courses/programming/topics/linked-lists/

Problem Solving

- https://www.interviewbit.com/courses/programming/topics/arrays/ [VERY IMPORTANT]
- https://www.interviewbit.com/courses/programming/topics/stacks-and-queues/ [VERY IMPORTANT]
- https://www.interviewbit.com/courses/programming/topics/linked-lists/ [VERY IMPORTANT]
- https://www.codechef.com/LRNDSA02 [HANDPICKED QUESTIONS]
- Further practice can be done on geeksforgeeks and leetcode using the tag array

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WEEK 1

TWO POINTERS

Concept Reading Materials

- https://www.geeksforgeeks.org/two-pointers-technique/
- Interview Bit tutorial on https://www.interviewbit.com/courses/programming/topics/two-pointers/
- https://leetcode.com/articles/two-pointer-technique/
- https://medium.com/algorithms-and-leetcode/two-pointer-algorithm-explained-with-leetcode-problems-2ed289925acf
- https://www.youtube.com/watch?v=2wVjt3yhGwg

Problem Solving

- https://www.interviewbit.com/courses/programming/topics/two-pointers/ [VERY IMPORTANT]
- https://cses.fi/problemset/task/1640
- https://cses.fi/problemset/task/1641
- https://cses.fi/problemset/task/1642
- Further practice can be done on geeksforgeeks and leetcode using the tag two-pointer