SPC - DSA Upskilling Series
Bit Manipulation and Hashing Techniques

Sundaresh Karthic Ganesan

Introduction

We are delving into Bit Manipulation and Hashing techniques. This set contains several complex problems that may not be intuitive to solve directly. If you encounter difficulties, please review the solution explanations to understand the strategies and approaches used.

Playlist

To build a comprehensive understanding of Bit Manipulation and Hashing, please refer to the following resources. These videos cover foundational techniques and concepts, essential for tackling advanced problems effectively:

- **Bit Manipulation Concepts:** YouTube Playlist
- **Hashing Techniques:** Hashing Video Explanation

Problem Set and Resources

Problems for Understanding

These problems are designed to reinforce your foundational knowledge of bit manipulation. Refer to the accompanying videos for guidance on solving these problems:

- **Problem:** Minimum Bit Flips to Convert Number
  Video Explanation: YouTube
- **Problem:** Subsets
  Video Explanation: YouTube

Problems for Solving

These problems are intended to test and strengthen your understanding of bit manipulation and hashing concepts through practical application. Note that solutions are not provided for these problems. Students are encouraged to explore various approaches and utilize YouTube for additional explanations.

- **Bit Manipulation - Easy:** Binary Number with Alternating Bits
- **Bit Manipulation and Hashmap - Hard:** Triples with Bitwise AND Equal to Zero
- **Hashmap and Prefix Sum - Medium:** Continuous Subarray Sum
- **Hashtable and Sliding Window - Hard:** Smallest Range Covering Elements from K Lists
- **Hashtable, Sliding Window and Counting - Hard:** Subarrays with K Different Integers

Note

The "Problems for Solving" require a mix of practical skills and conceptual understanding; direct solutions are not included here, so students are encouraged to learn from the code and refer to the suggested resources for guidance. Familiarize yourself with the techniques outlined in the playlist to gain confidence in approaching these types of problems.

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