Data Structures & Algorithms

Hashing-II

B.Bhuvaneswaran, AP (SG) / CSE

9791519152

bhuvaneswaran@rajalakshmi.edu.in

RAJALAKSHMI ENGINEERING COLLEGE

An AUTONOMOUS Institution

Affiliated to ANNA UNIVERSITY, Chennai

Counting

- Counting is a very common pattern with hash maps.
- By "counting", we are referring to tracking the frequency of things.
- This means our hash map will be mapping keys to integers.
- Anytime you need to count anything, think about using a hash map to do it.

Counting

- Recall that when we were looking at sliding windows, some problems had their constraint as limiting the amount of a certain element in the window.

Example

- For example, longest substring with at most k 0s. In those problems, we could simply use an integer variable curr because we are only focused on one element (we only cared about 0).
- A hash map opens the door to solving problems where the constraint involves multiple elements.

Example 1

- You are given a string s and an integer k. Find the length of the longest substring that contains at most k distinct characters.
- For example, given s = "eceba" and k = 2, return 3. The longest substring with at most 2 distinct characters is "ece".

Example

- Input
  - s = "eceba"
  - k = 2
- Output
  - 3

Intersection of Multiple Arrays

- Given a 2D array nums that contains n arrays of distinct integers, return a sorted array containing all the numbers that appear in all n arrays.

Example

- For example, given nums = [[3,1,2,4,5],[1,2,3,4],[3,4,5,6]], return [3, 4]. 3 and 4 are the only numbers that are in all arrays.

Check if All Characters Have Equal Number of Occurrences

- Given a string s, determine if all characters have the same frequency.

Example

- For example, given s = "abacbc", return true. All characters appear twice. Given s = "aaabb", return false. "a" appears 3 times, "b" appears 2 times. 3 != 2.

Queries?

Thank You…!