Next Greater Element - III

Given a character array, with digits of a number at indexes, find the smallest integer which has exactly the same digit and the value is greater than the number in ch[]

Ex:- {1, 2} ⇒ ans = 21

↳ form a 2 digit number using these 2 elements and that should be greater "12" ⇒ "21"

Ex:- {9, 7, 5, 3, 2} ⇒ ans = -1

↳ 5 digit number using {9,7,5,3,2} can't form number that is greater than "97532"

//idea-1:

Iterate from n+1 till you get the answer & check for every integer if Occurances of digits same or not

Suppose 38 → is our given array {3, 8}

Iterate from 39, 40, 41, ..., 59, ...82, 83, 84, ...

Check every number and their Occurances

* if we check from (39 to 99) ⟶ "83" we find same occurances of digits and this is our next greater element.

//idea-2 (optimal)

So, let us take an example

12145

If we want the next greater element of this number, we swap last 2 digits

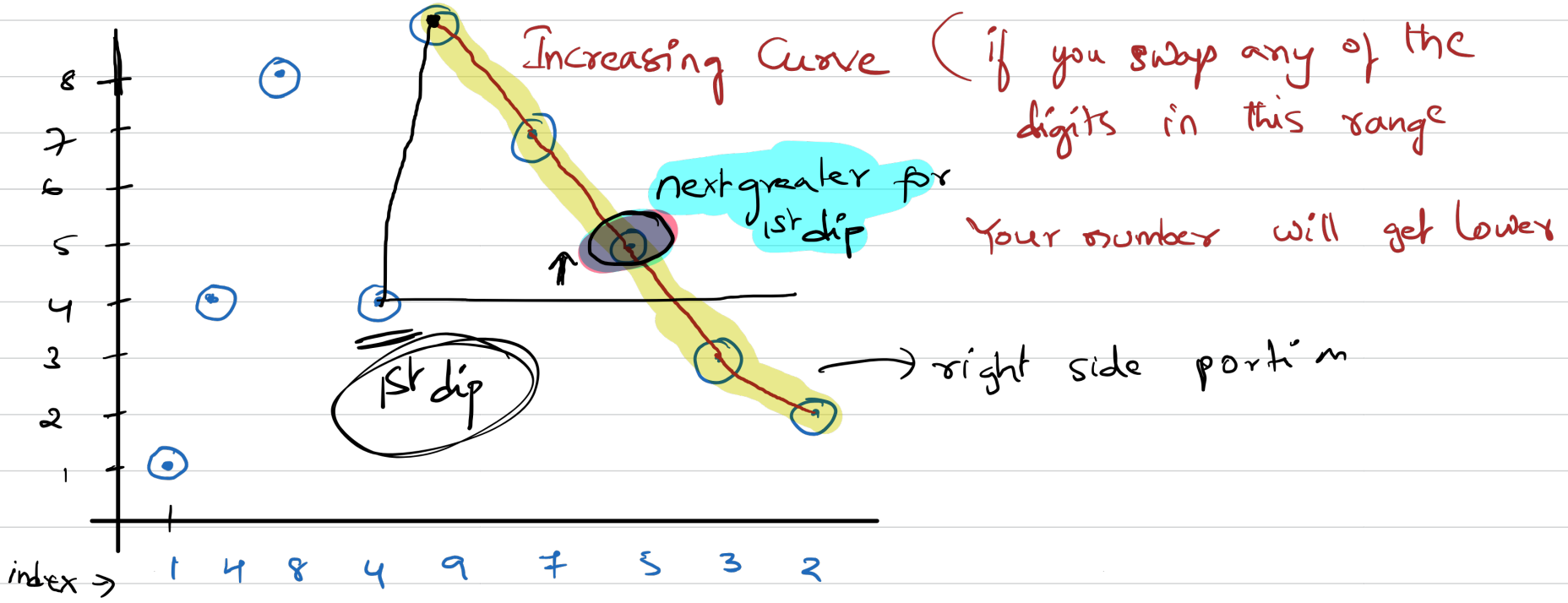
So that new number ⇒ 12154

12154 > 12145

An Observation here is,

As we want to do minimum Increment, we target Smaller place Value and we Swap them

Ex:- 1 4 8 4 9 7 5 3 2



* So, the most important point is ⇒ look for 1st dip & swap it with the next greatest number in right side portion

* Look for next greater Element for 4 in right portion

Ex:- 1 4 8 4 9 7 5 3 2

next greater

9 ✓

Ex:- 1 4 8 4 9 7 5 3 2

9 > 7 > 4 ⇒ So 7 is potential next greater, so update

Ex:- 1 4 8 4 9 7 5 3 2

7 > 5 > 4 → Update to 5

Ex:- 1 4 8 4 9 7 5 3 2

3 < 4 → Break

Swap (4,5) → 1 4 8 5 | 9 7 4 3 2

Sort them in ascending Order

∴ 1 4 8 (5) | 2 3 4 7 9 → is the next greater element

Sorted