CSE220: Data Structures (Lab)

Fall 2024

Lab Quiz - 06

Duration: 30 Minutes

| Name: | ID: | Section: |
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### **Question 1 [15 Points]**

You are given an **array of integers** and values of `**x`** and **`y`.** You need to create a new heap consisting of the numbers between **xth** highest position and **yth** highest position from the array.

**Note:**

1. **You need to figure out which heap to use.**
2. You are not allowed to use any **direct sorting, searching on the array.**
3. You are not allowed to use any built-in functions except **len()**
4. You can assume **insert()** and **swim()** functions are **already implemented.** **You have to implement whatever else is needed.**

| **Sample Input:** | **Sample Output:** |
| --- | --- |
| array = [11, 15, 8, 2, 31, 23]  x = 2  y = 5 | result = [23, 15, 11, 8] |
| **Explanation:** | |
| When the array is sorted [31, 23, 15, 11, 8, 2] the values are in highest to lowest order  For each position of n we can say, If:-  n = 1 (Position-1) , 1-st highest: 31  n = 2 (Position-2) , 2-nd highest: 23  … … … … … … … … … … … …  n = 5 (Position-5) , 5-th highest: 8  n = 6 (Position-6) , 6-th highest: 2 | **Here,**   x = 2, 2-nd highest: 23  y = 5, 5-th highest: 8  Numbers between 2nd and 5th highest in the given array are: **23, 15, 11, 8**  So the new heap will have these values. |