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