BRAC UNIVERSITY
Inspiring Excellence

CSE220: Data Structures (Lab)
Fall 2024
Lab Quiz - 06
Duration: 30 Minutes

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Name:	ID:	Section:

Question 1 [15 Points]

In applications like batch task scheduling, it's vital to manage tasks based on their urgency, represented by priority levels where a lower number signifies higher urgency. You are given two arrays: one for task IDs and the other for corresponding priorities. These tasks must be organized using a data structure designed for efficient access to the most urgent tasks. However, only those tasks within a specified priority range, marked by lowPriority and highPriority, should be considered. Tasks falling outside this range should be excluded.

[Note: The most urgent tasks have lower priority numbers, so the data structure should focus on retrieving the minimum values within the range to correctly identify and process the highest-priority tasks]

Note:

1. You cannot use any built-in functions except len().
2. Direct sorting or searching methods on the array are not allowed.
3. Assume heap-related functions **extractMin(), sink()** are implemented and other necessary functions must be implemented.

Sample Input:	**Sample Output:**

tasks = [101, 102, 103, 104, 105, 106, 107, 108, 109]
priorities = [9, 3, 7, 1, 5, 8, 2, 6, 4]
lowPriority = 3
highPriority = 7
	result = [102, 109, 105, 108, 103]

Explanation:	
Given lowPriority = 3 and highPriority = 6, tasks with the third, fourth, fifth, and sixth highest priorities based on the priority scale are selected. This corresponds to the tasks with priorities 3, 4, 5, and 6 after selecting them by their priority, which are tasks 102, 105, 101, and 108.	