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Assignment #8
CS 302-1004

Priority queue is mostly like a regular queue but each element has some kind of property associated with it. For this assignment, two priority queues were implemented. In the first one, maxHeap, the priority was the maximum number from the list. In the second one, minHeap, the priority was the minimum number from the list. Both of the queues were implemented using array.

Big-Oh

- Insert = $O(\mathrm{n}\log n)$
- DeleteMin = $O(n\log n)$
- DeleteMax = $O(n\ \log n)$
- reheapUp = $O(\ \log n)$
- reheapDown = $O(\ \log n)$
- Heapify = $O(n)$
- printHeap = $O(n)$
- DynamicMedians = $O(n\log n)$

Inserting elements via insert function took 3387 milliseconds and using heapify took 2319 milliseconds. Heapify was fast because it is less overhead, as we do all the inserts first and then call the function staring count/2 to the root. Heapify has the time complexity of $O(n)$. Talking about the insert function, definitely is had more overhead because we do maintain the order every time the insert is called. Insert function had the time complexity of $O(\mathrm{n}\log n)$.