

8. [4] Time for some heaping fun! What's the time complexity for these functions in a Java Library priority queue (binary heap) of size N ?

Function	Big-O complexity
push(x)	$O(\log(n))$
top()	$O(1)$
pop()	$O(\log(n))$
PriorityQueue(Collection<? extends E> c) // BuildHeap	$O(n)$

9. [4] What would a good application be for a priority queue (a binary heap)? Describe it in at least a paragraph of why it's a good choice for your example situation.

A good application would be the operating system. This is because of the order of operations that need to be maintained to keep a system running. It can go through the queue and run each cycle. This also allows for additional processes to be added (like games). These processes can then be removed from the queue if needed.