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CSE 374 – A
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Assignment #5

Section V: Brief Summaries

1) How would you find the maximum in a min heap?

Ans: I'll first set the max variable to be the last element in the array for reference. Then I'll traverse the leaves of the heap (backwards in the array from previous element to the last until the ceiling of half the index of the last element). During the traverse, for each element, I'll check whether the element is greater than the current max. If so, the current element will be the current max. After the loop ends, I'll simply return the current max.

2) How would you measure the extent to which a tree can efficiently be put in an array?

Ans: I can measure the "occupancy" a tree will have when stored in an array by using the given formula of $n / 2^{d+1} - 1$ where n is the number of nodes in the heap, d is the depth of the heap starting from 0, and $2^{d+1} – 1$ is the number of nodes a tree of depth d can have. The lower the number, the less efficient the tree can be stored in an array as there will be a lot of wasted space. The higher the number, in contrast, the more efficient the tree can be stored in the array as there will be less space lost.