

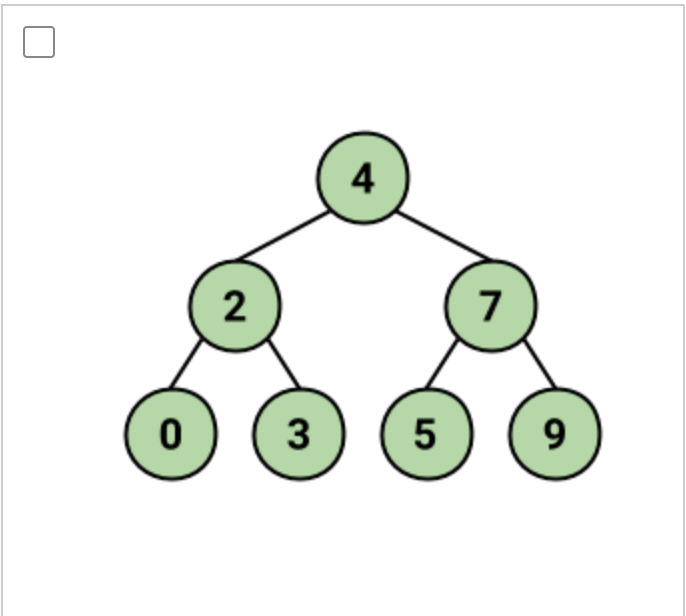
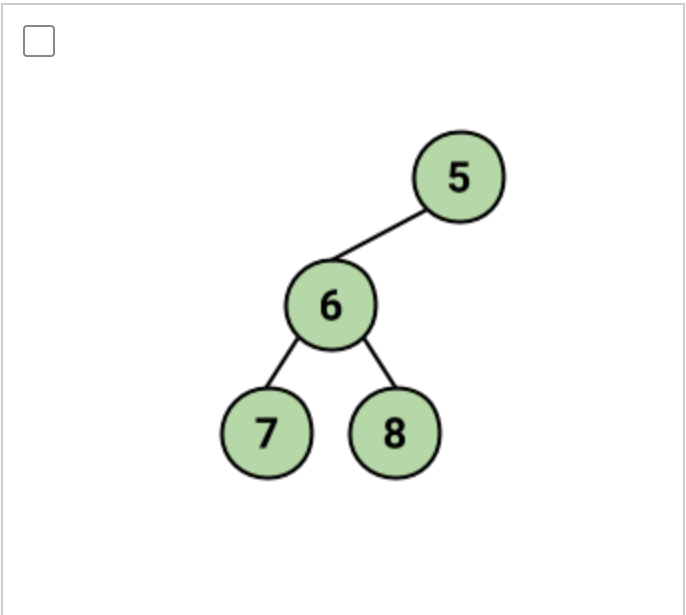
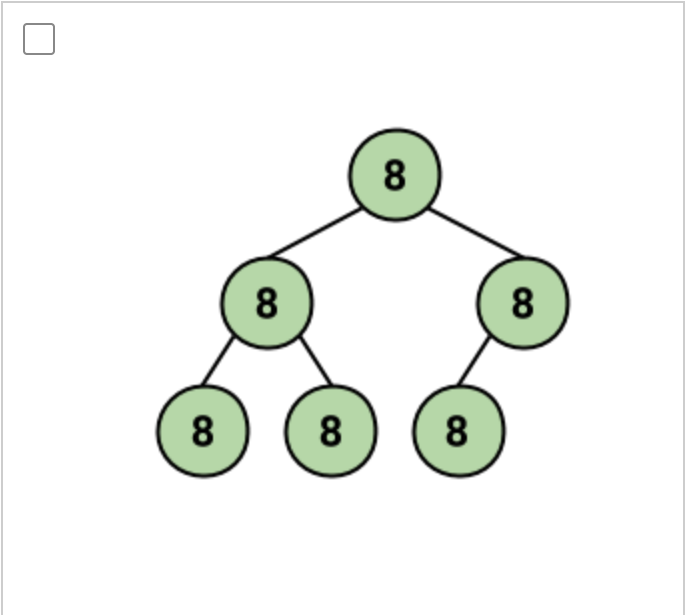
Q1 Heap Invariants

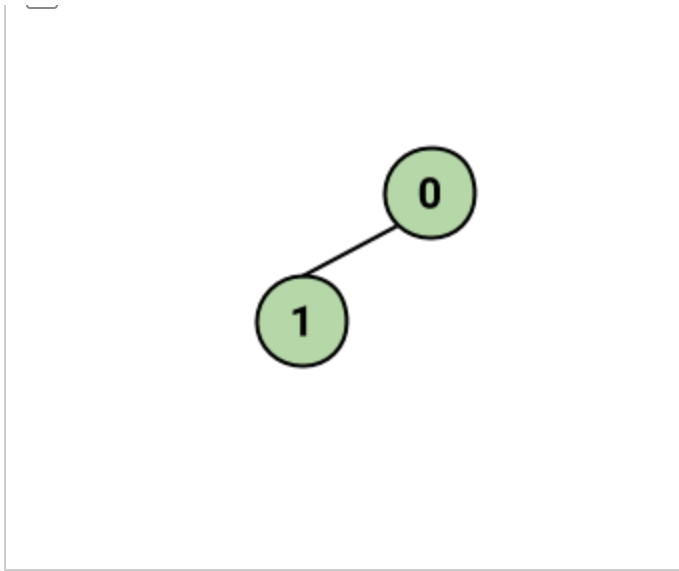
2 Points

A **binary min-heap** is a **complete binary tree** that maintains the min-heap invariant.

Min-heap invariant: The priority of each node in the heap is less-than or equal to the priorities of its children.

Which of these trees are valid binary min-heaps?





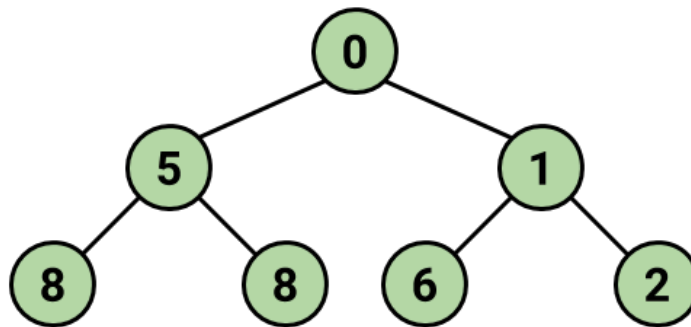
Save Answer

Q2 Operations

2 Points

When removing the minimum-priority element from this heap, which value will be temporarily placed at the root of the heap (**before any percolations are done**)?

Enter your answer as an integer.



Save Answer

Q3 Array to Heap Representation

5 Points

Consider the following binary min-heap of integers with `_` denoting blank spaces in the array. Coincidentally, the value of the integer lines up with its index in the array representation of the heap. Note that this implementation is using the zero-indexed array representation.

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, _, _, _, _]
```

Q3.1

1 Point

Give the index representing the minimum value.

Save Answer

Q3.2

1 Point

Give the index representing the last leaf node on the bottommost level.

Save Answer

Q3.3

1 Point

Give the index representing the left child of the value 3.

Save Answer

Q3.4
1 Point

Give the index representing the right child of the value 3.

Save Answer

Q3.5
1 Point

Give the index representing the parent of the value 10.

Save Answer

Save All Answers

Submit & View Submission >