

Our Solution(s)

Run Code

Solution 1

```
1 # Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 class MinHeap:
4     def __init__(self, array):
5         self.heap = self.buildHeap(array)
6
7     # O(n) time | O(1) space
8     def buildHeap(self, array):
9         firstParentIdx = (len(array) - 2) // 2
10        for currentIdx in reversed(range(firstParentIdx + 1)):
11            self.siftDown(currentIdx, len(array) - 1, array)
12        return array
13
14    # O(log(n)) time | O(1) space
15    def siftDown(self, currentIdx, endIdx, heap):
16        childOneIdx = currentIdx * 2 + 1
17        while childOneIdx <= endIdx:
18            childTwoIdx = currentIdx * 2 + 2 if currentIdx * 2 +
19            if childTwoIdx != -1 and heap[childTwoIdx] < heap[ch
20                idxToSwap = childTwoIdx
21            else:
22                idxToSwap = childOneIdx
23            if heap[idxToSwap] < heap[currentIdx]:
24                self.swap(currentIdx, idxToSwap, heap)
25                currentIdx = idxToSwap
26                childOneIdx = currentIdx * 2 + 1
27            else:
28                return
29
30    # O(log(n)) time | O(1) space
31    def siftUp(self, currentIdx, heap):
32        parentIdx = (currentIdx - 1) // 2
33        while currentIdx > 0 and heap[currentIdx] < heap[parentI
```

Your Solutions

Run Code

Solution 1

Solution 2

Solution 3

```
1 # Do not edit the class below except for the buildHeap,
2 # siftDown, siftUp, peek, remove, and insert methods.
3 # Feel free to add new properties and methods to the class.
4 class MinHeap:
5     def __init__(self, array):
6         # Do not edit the line below.
7         self.heap = self.buildHeap(array)
8
9     def buildHeap(self, array):
10        # Write your code here.
11        pass
12
13    def siftDown(self):
14        # Write your code here.
15        pass
16
17    def siftUp(self):
18        # Write your code here.
19        pass
20
21    def peek(self):
22        # Write your code here.
23        pass
24
25    def remove(self):
26        # Write your code here.
27        pass
28
29    def insert(self, value):
30        # Write your code here.
31        pass
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```

```

1 # Write a program that prints out the numbers 1 through 100.
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```

Run or submit code when you're ready.