coursera

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Programming Assignment: Quickcheck

You have not submitted. You must earn 8/10 points to pass.

Deadline

Pass this assignment by Feb 14, 1:59 AM CST

Instructions **My submissions** **Discussions**

In this assignment, you will work with the ScalaCheck library for automated property-based testing. Your task is to implement property-based tests that distinguish between correct and incorrect implementations of a priority queue. A priority queue is a collection that gives a priority to each element in the collection, and allows elements to be retrieved in order from highest to lowest priority. Our priority queues are in turn implemented using a data structure known as a heap.

Heaps

You're given several implementations of a purely functional data structure called a heap, which is a data structure that supports quickly finding and removing the smallest element. The main operations are **insert**, **meld**, **findMin**, and **deleteMin**. Here is the interface:

```
1   trait HeapInterface:
2     /** the empty heap */
3     def empty: List[Node]
4     /** whether the given `heap` is empty */
5     def isEmpty(heap: List[Node]): Boolean
6
7     /** the heap resulting from inserting `x` into `heap` */
8     def insert(x: Int, heap: List[Node]): List[Node]
9     /** the heap resulting from merging `heap1` and `heap2` */
10    def meld(heap1: List[Node], heap2: List[Node]): List[Node]
11
12    /** a minimum of the heap `heap` */
13    def findMin(heap: List[Node]): Int
```