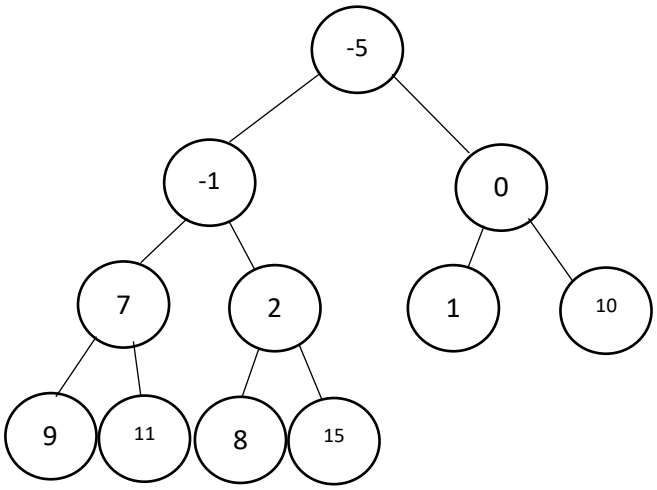
1. (5 marks) You are given code for minheap (small values are important) and JUnit to test your code.

- Assume that:
    - before “add” method is called, the heap has its largest data stored in position (size-1).
    - Method “pop” is never called.

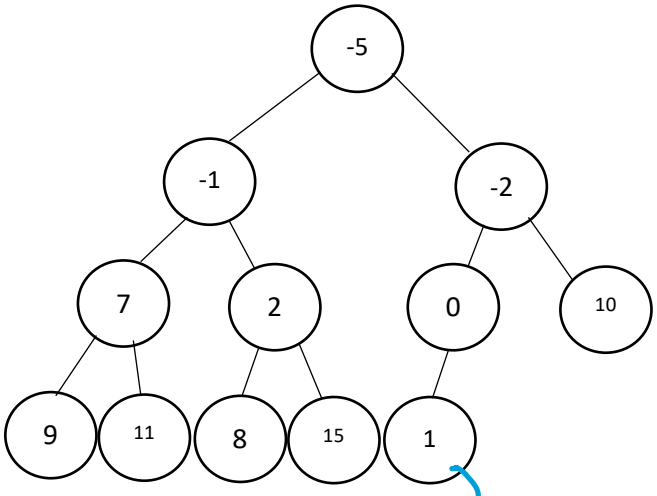
We want to modify the code of the method “add” of this heap such that:

- each time it is called, it adds new value to the heap (as done for normal heap).
- Then it modifies the heap so that largest value is at position (size-1).
- The modified heap must remain a heap.
- You are **NOT allowed** to add new fields to Heap class. **If you do, you get 0 point**.
- You are allowed to write your own methods to help with this question.

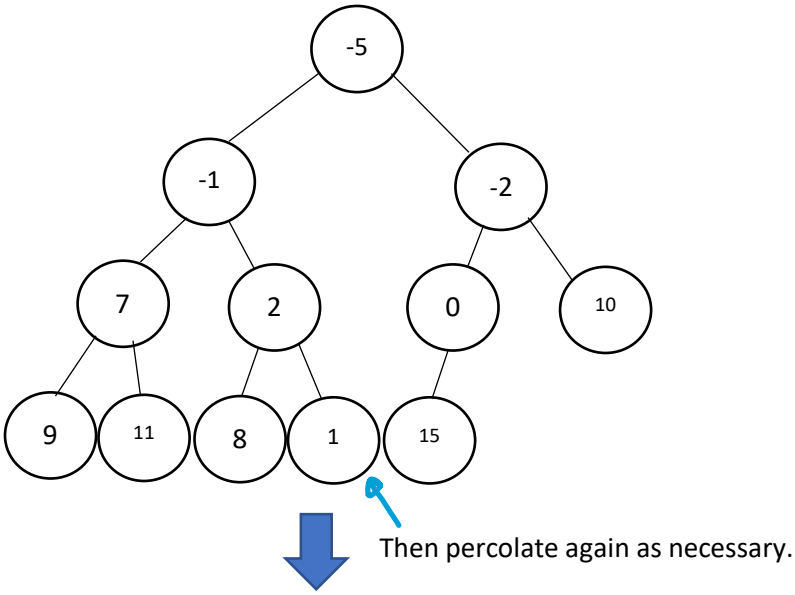
The following example illustrates how you **MUST** implement “add” in this question when adding -2 to the following heap (**If you do not use this algorithm, you get 0 point**):

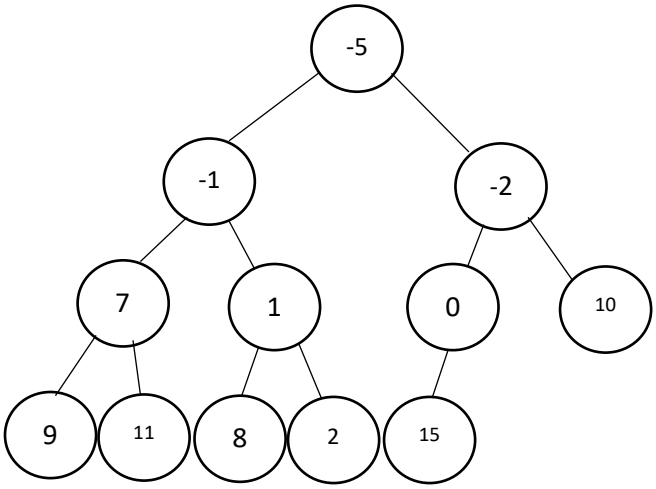


Add -2.
First, add and percolate normally.



If the last position does not contain the largest data, swap its data with the largest data.





How to submit:

- Submit only “Heap.java” in MyCourseville.