In the lab-classes we experiment with *binary heaps.*

1. You investigate binary heaps and HEAP-SORT.

2. For this the program `Heap.java` is to be investigated.

1 Understanding the implementation

Look into `Heap.java` and understand the code. ***Explain questions in the comments.***

1. How can we construct Heap-objects? After construction, do we already have a binary heap?

2. What is `heap_property` computing?

3. There are two methods which change the size n — which are they?

4. Identify the examples from the lecture in the `main`-function.

2 Running an example

Consider the sequence
$$20, 0, 26, 33, 4, 15, 7, 27, 2, 1, 33, 25, 0, 30, 21, 10, 5.$$

1. Build a binary heap from that sequence, first on paper, and then check via the implementation.

2. Now run HEAP-SORT on that sequence, computing one after another all the binary heaps which are created on the way (as we had it in the example from the lecture). After you did this on paper, modify the code so that it prints out this sequence of heaps.