DATA STRUCTURES II

‣ *heapify demo*

Lecture slides by Kevin Wayne
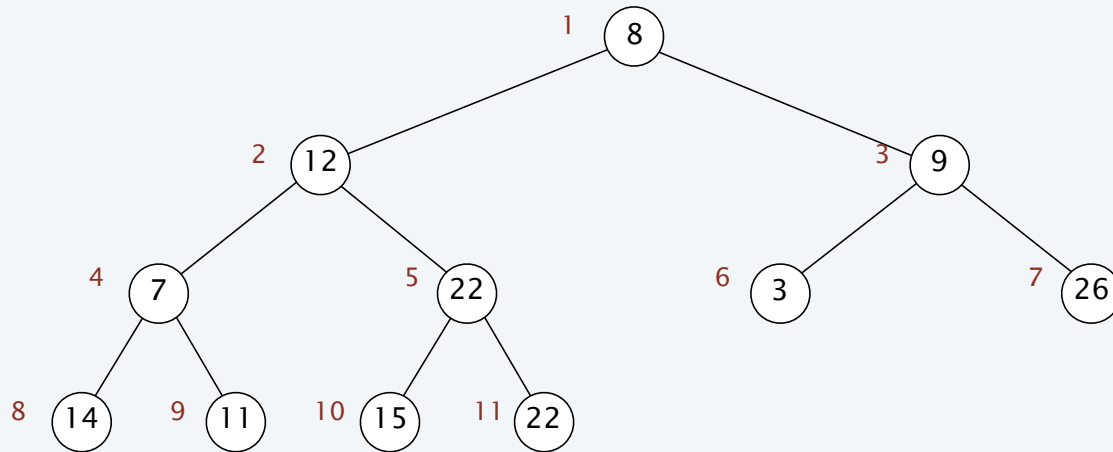
Heapify. For each element in reverse-array order, sink it down.

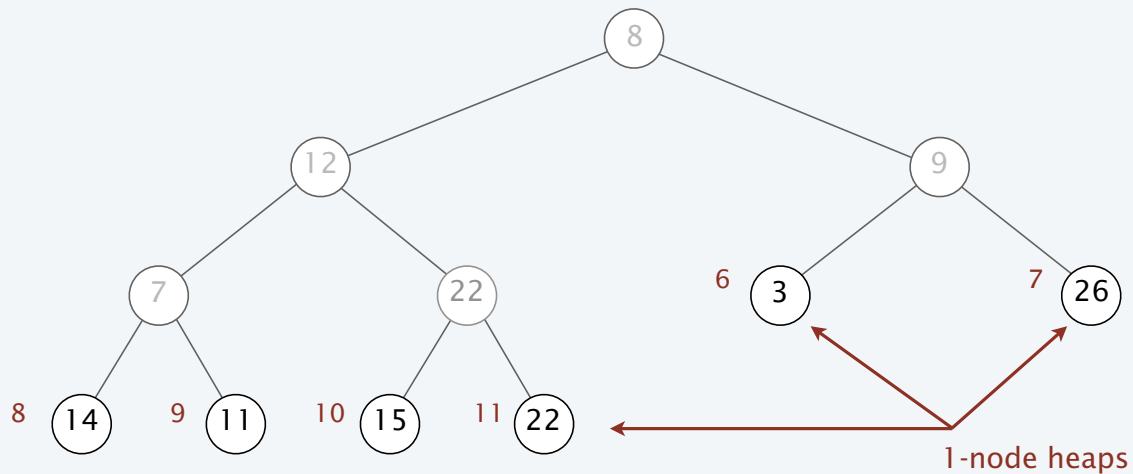we assume array entries are indexed 1 to n

array in arbitrary order

8	12	9	7	22	3	26	14	11	15	22
1	2	3	4	5	6	7	8	9	10	11

Heapify. For each element in reverse-array order, sink it down.

1-node heaps

8	12	9	7	22	3	26	14	11	15	22
					6	7	8	9	10	11

Heapify demo

Heapify. For each element in reverse-array order, sink it down.

sink 5

8	12	9	7	22	3	26	14	11	15	22

5

Heapify demo

Heapify. For each element in reverse-array order, sink it down.
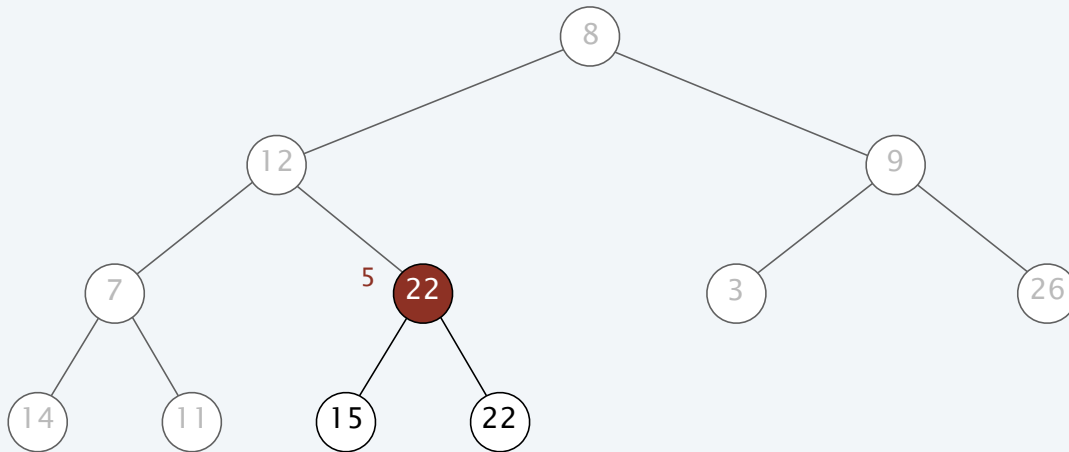
sink 5

Heapify demo
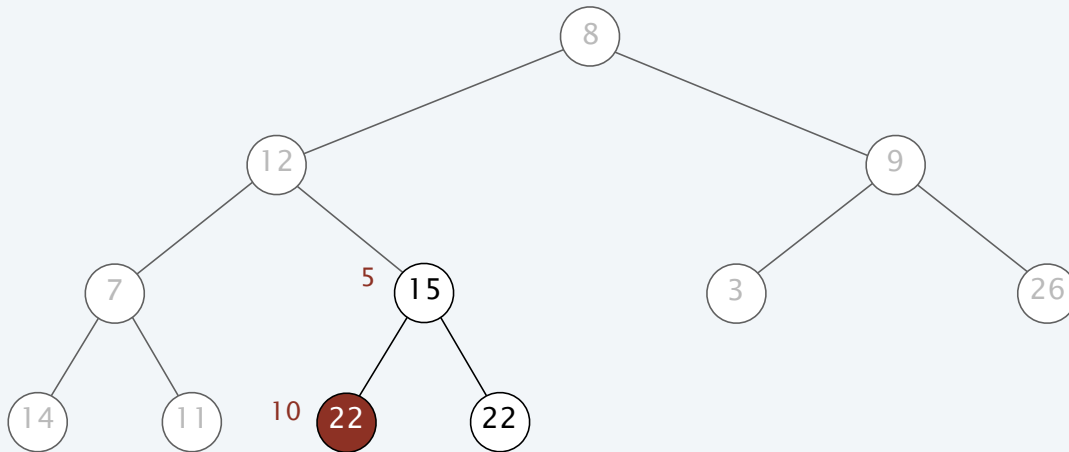
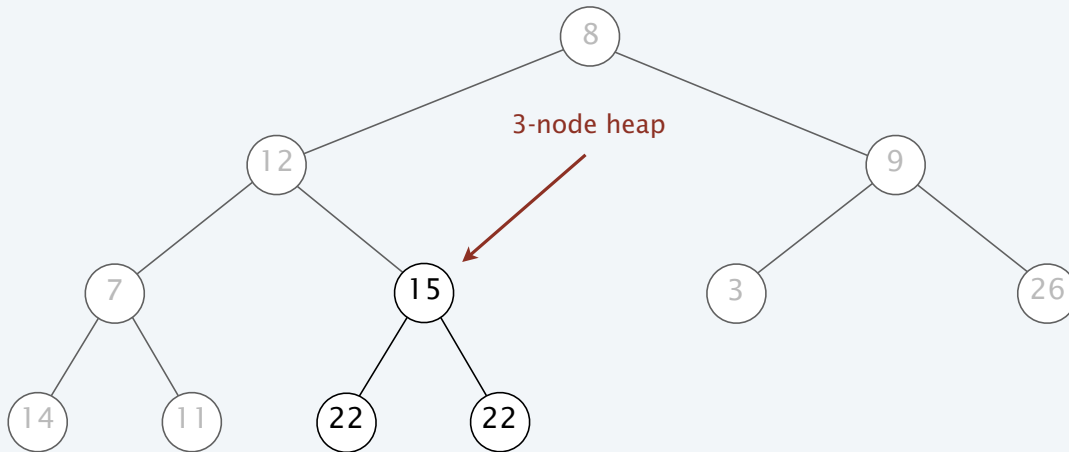Heapify. For each element in reverse-array order, sink it down.

sink 5

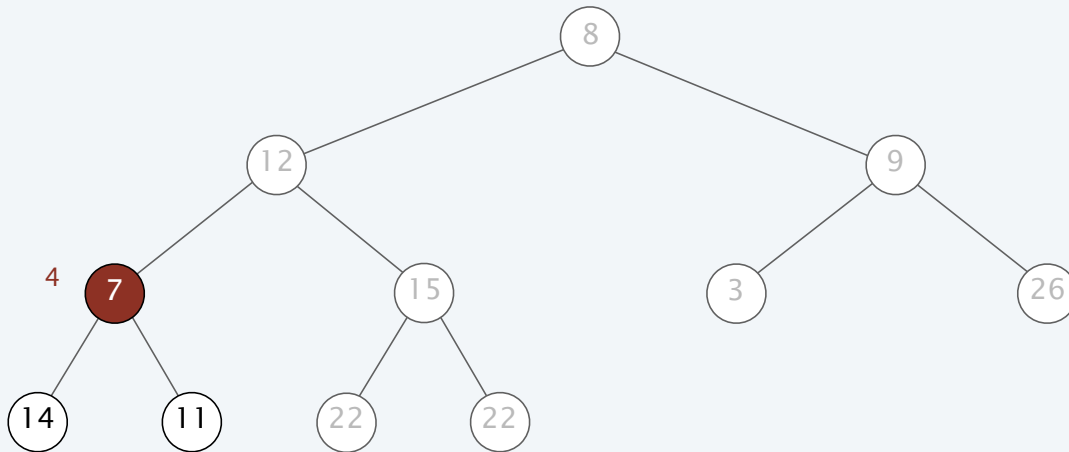| 8	12	9	7	15	3	26	14	11	22	22

Heapify demo

Heapify. For each element in reverse-array order, sink it down.

sink 4

	8	12	9	7	15	3	26	14	11	22	22	

4

Heapify demo

Heapify. For each element in reverse-array order, sink it down.

sink 4

3-node heap

8	12	9	7	15	3	26	14	11	22	22

Heapify demo

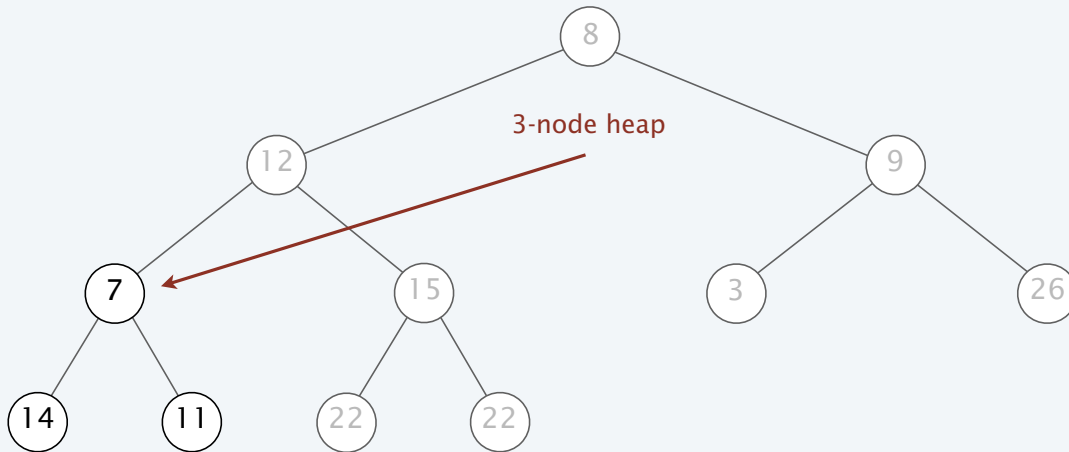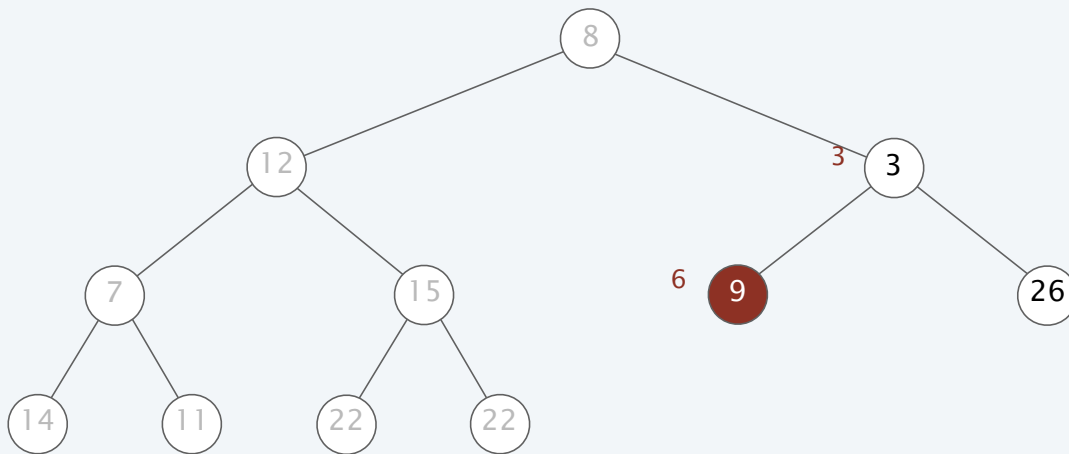Heapify. For each element in reverse-array order, sink it down.

sink 3

8	12	9	7	15	3	26	14	11	22	22
		3								
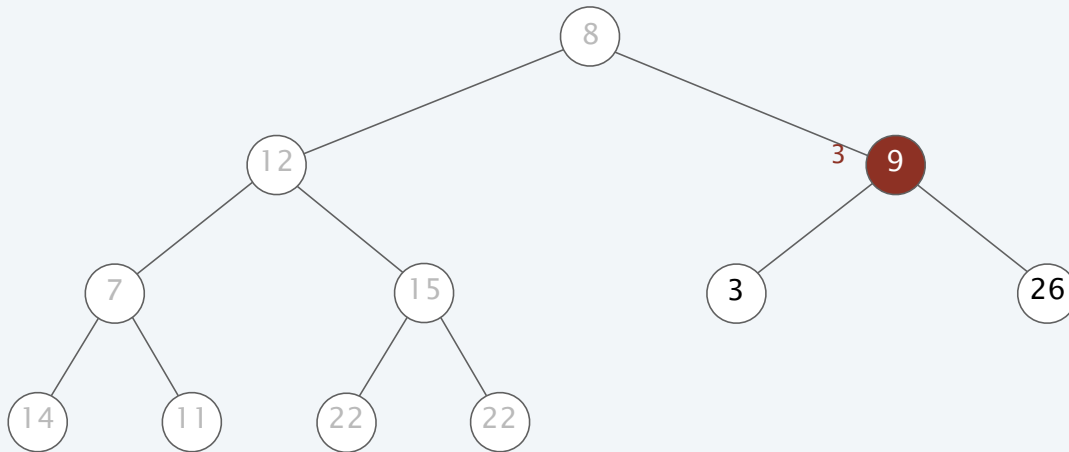
Heapify demo

Heapify. For each element in reverse-array order, sink it down.

sink 3

8	12	3	7	15	9	26	14	11	22	22
		3			6					

Heapify demo

Heapify. For each element in reverse-array order, sink it down.

sink 3

3-node heap
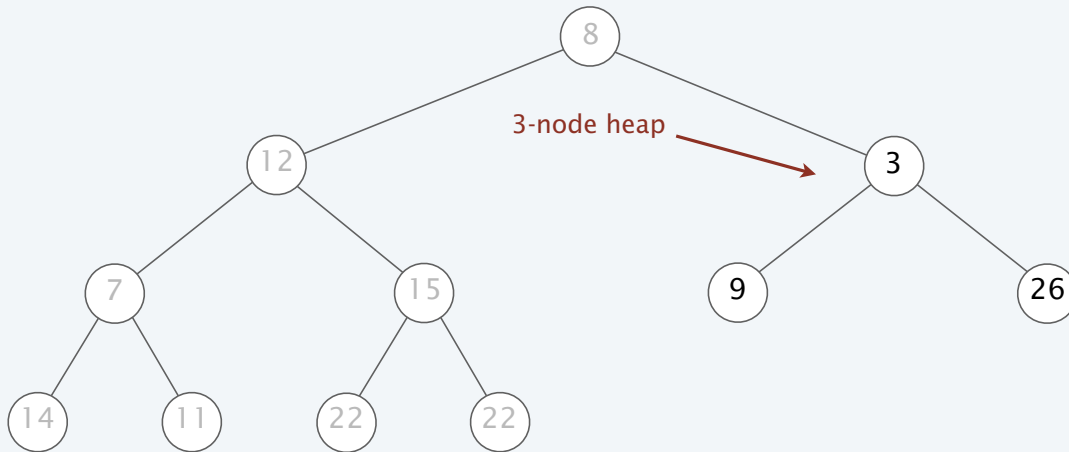
8	12	3	7	15	26	26	14	11	22	22

Heapify demo

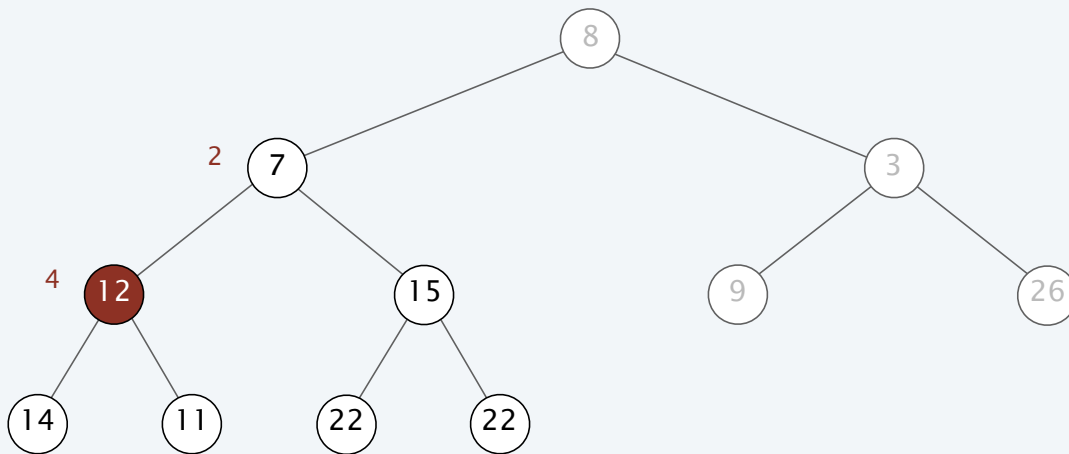Heapify. For each element in reverse-array order, sink it down.

sink 2

8	12	3	7	15	9	26	14	11	22	22
	2									
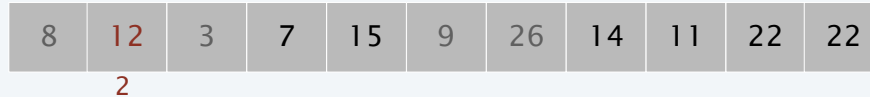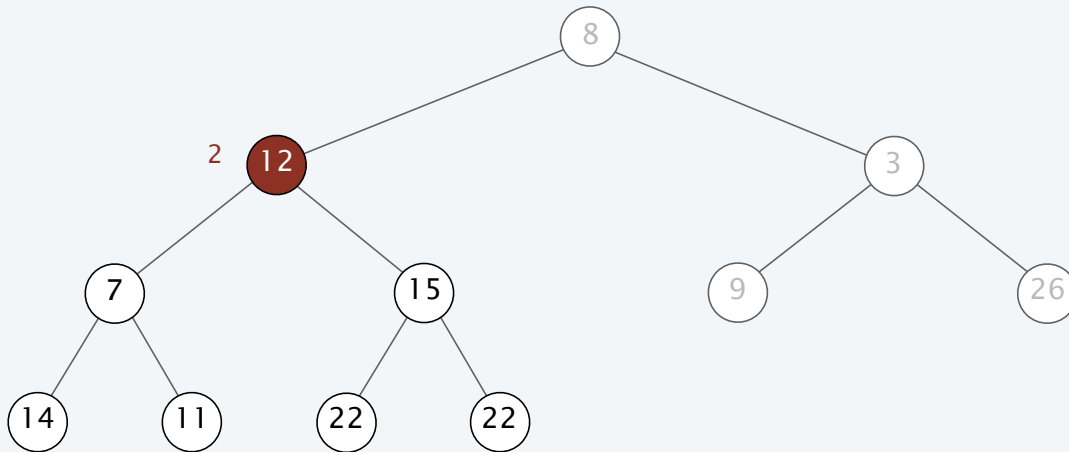
Heapify demo

Heapify. For each element in reverse-array order, sink it down.

sink 2

8	7	3	12	15	9	26	14	11	22	22
	2		4							

Heapify. For each element in reverse-array order, sink it down.
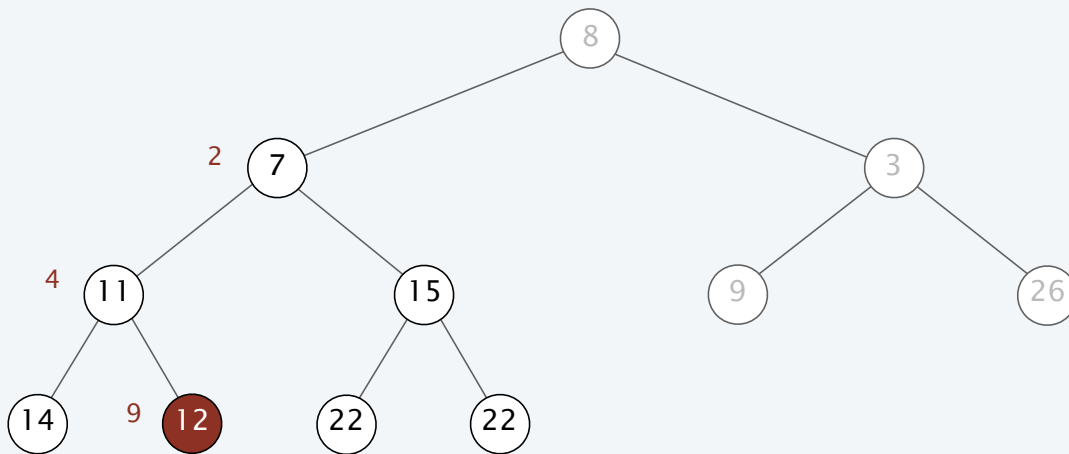
sink 2

	8	7	3	11	15	9	26	14	12	22	22

2 · 4 · 9

Heapify demo

Heapify. For each element in reverse-array order, sink it down.
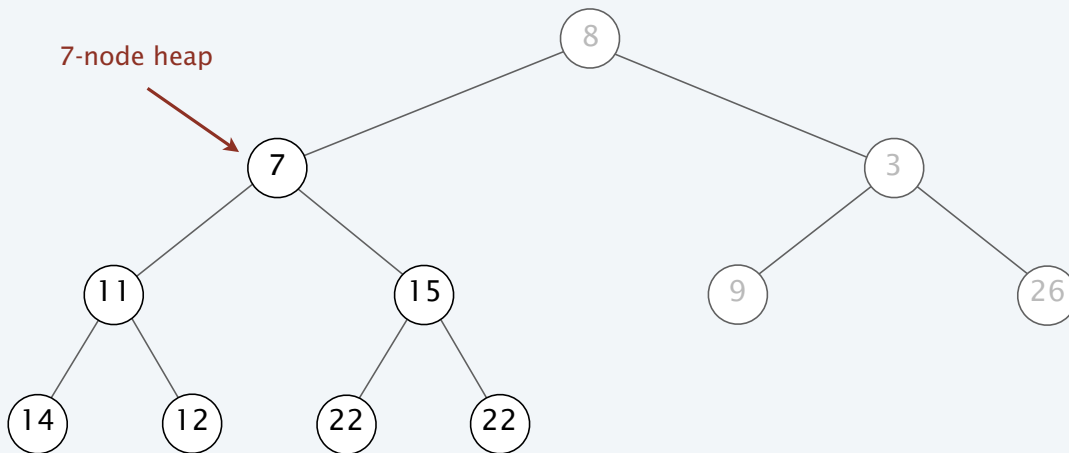
sink 2

7-node heap

| 8 | 7 | 3 | 11 | 15 | 9 | 26 | 14 | 12 | 22 | 22 |

Heapify demo

Heapify. For each element in reverse-array order, sink it down.

sink 1

8	7	3	11	15	9	26	14	12	22	22
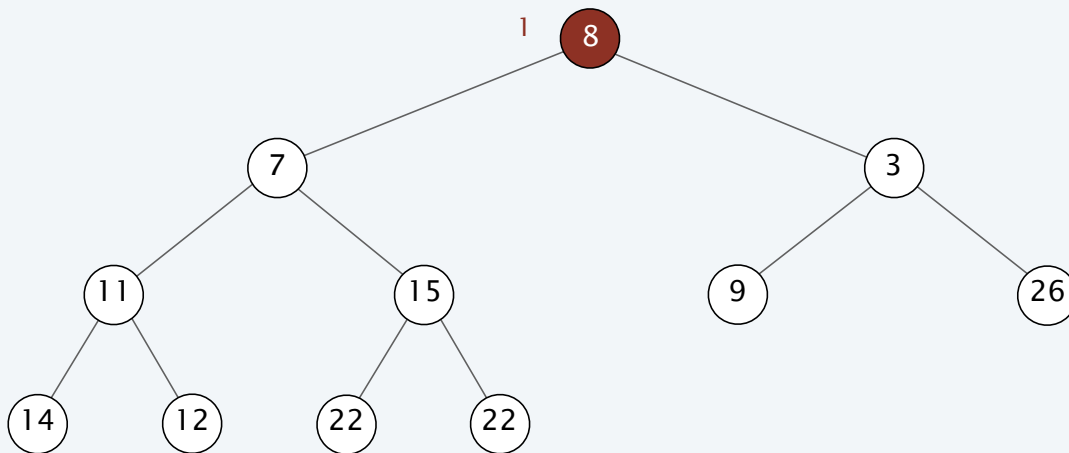
Heapify demo

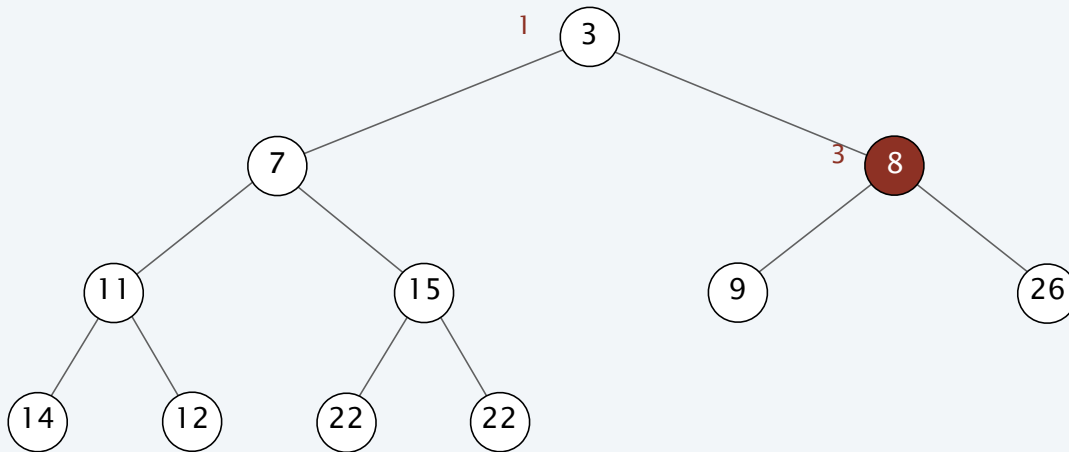Heapify. For each element in reverse-array order, sink it down.

sink 1

3	7	8	11	15	9	26	14	12	22	22

Heapify demo

Heapify. For each element in reverse-array order, sink it down.

array is heap ordered

11-node heap

3	7	8	11	15	9	26	14	12	22	22