

Accelerated deleteMax from heap

Note Title

3/13/2012

$$N = 2477 +$$

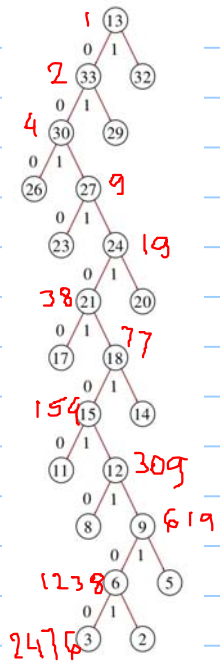
$$h = \lfloor \lg N \rfloor = 11$$

worst-case # of comps: 2×11

2476 = (in binary)

100110101100

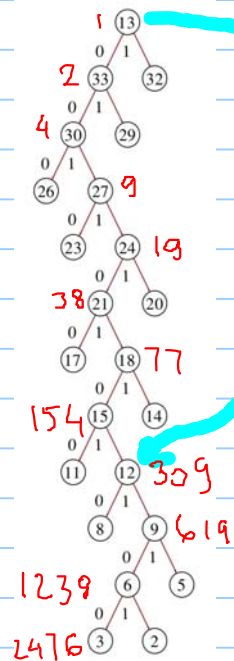
navigation from the root
to node # 2476

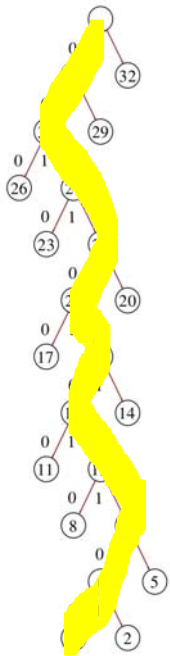


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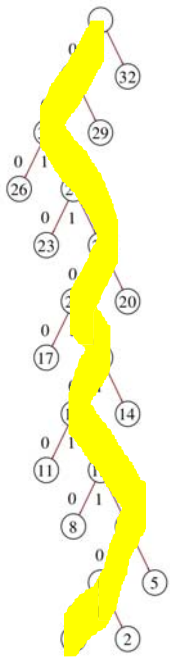
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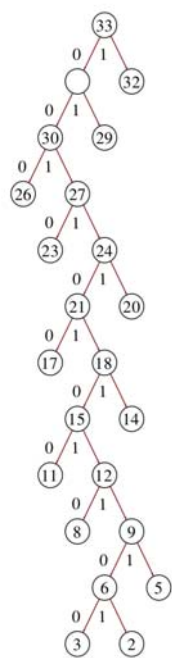


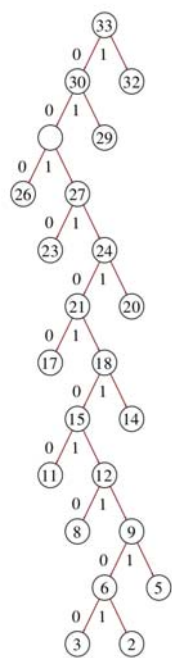


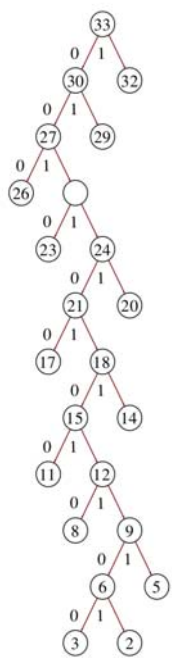
P_{GAN} of the larger children

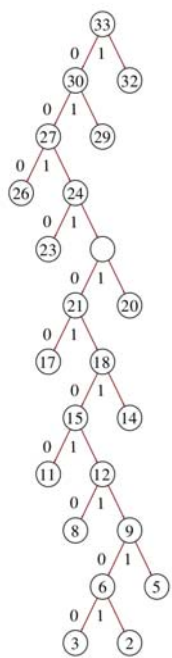
1. Go down $\lceil \frac{h}{2} \rceil = \lfloor \frac{h+1}{2} \rfloor = 6$ levels

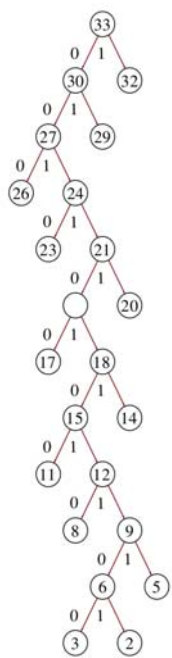


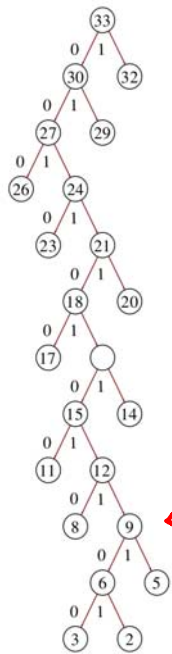








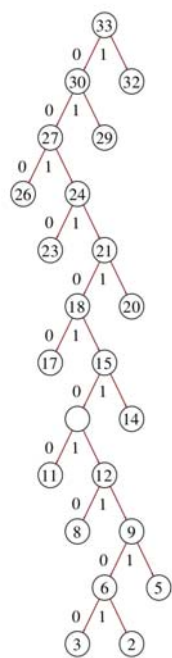


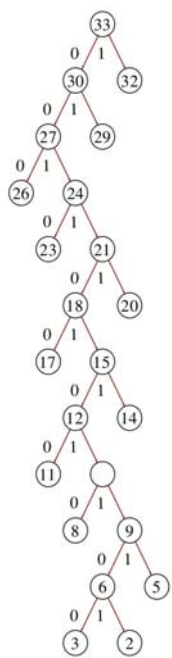


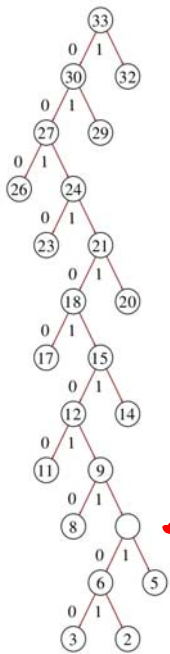
2. compare the parent (18) of the vacant position with the root (33)

3. the root is less than, so
 ← continue going down.

4. Go down $\left\lfloor \frac{\left\lfloor \frac{h}{2} \right\rfloor + 1}{2} \right\rfloor = \left\lfloor \frac{\left\lfloor \frac{h+2}{2} \right\rfloor}{2} \right\rfloor = \left\lfloor \frac{h+2}{4} \right\rfloor = 3$
 levels



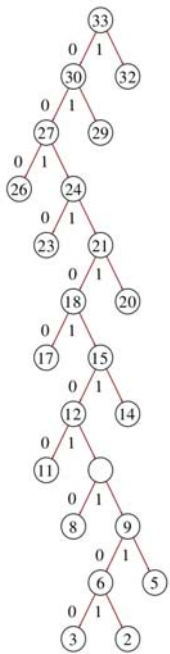




5. Compare the parent (9) of the
vacancy and the root (33).

6. root is larger, so
stop going down

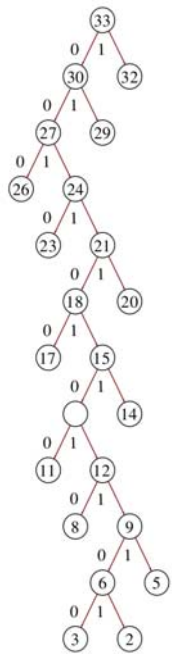
7. promote the vacancy



8. Compare the parent (12) of the vacancy with the root (3)

9. The root is larger

10. Promote the vacancy



11. Compare the parent (15) of the vacancy with the root.

12. The root is less, so insert the root to the vacancy

