

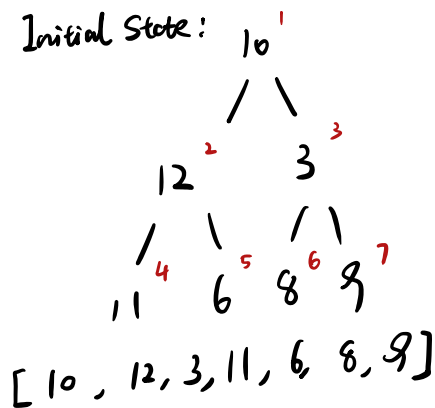
$$\text{Parent}(i) = \frac{i-1}{2}$$

$$\text{Left-child}(P) = 2i+1$$

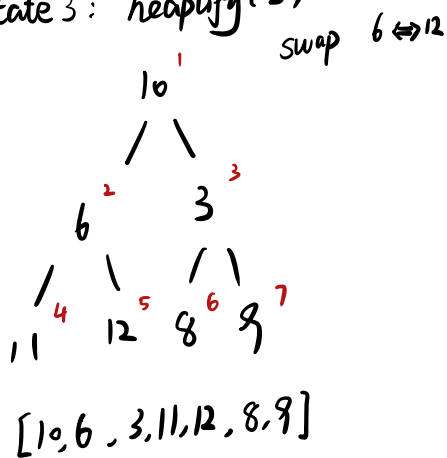
$$\text{right-child}(P) = 2i+2$$

Part 4 (a)

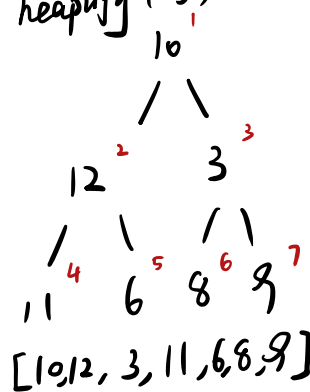
Initial State:



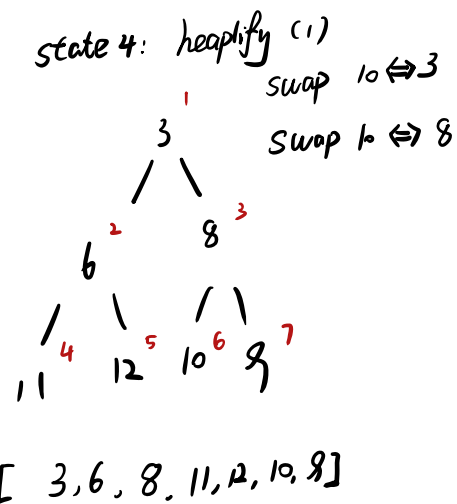
State 3: heapify(2)



state 2: heapify(3)

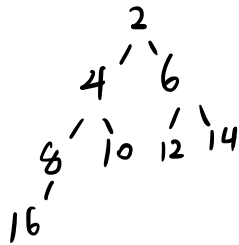


state 4: heapify(1)

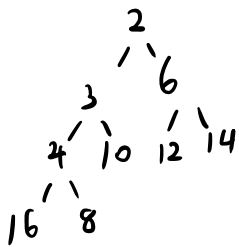


Part (b)

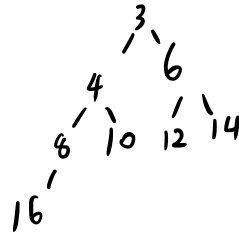
• Initial Configuration



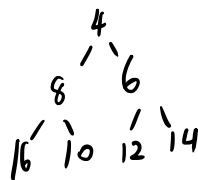
• Insert 3



• Pop



• Pop



• Insert 5

