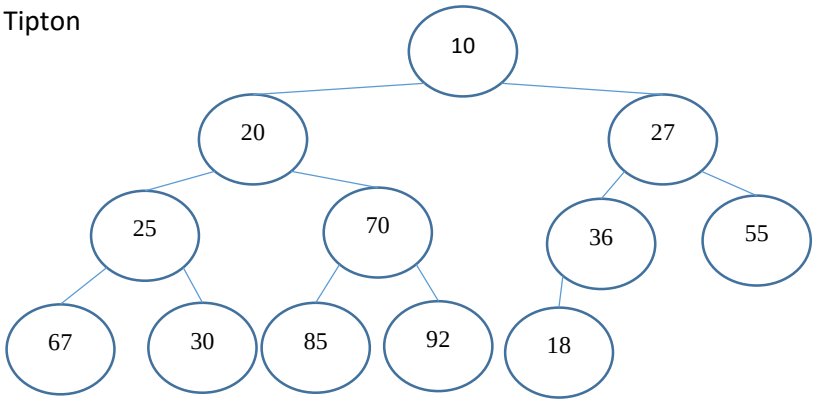
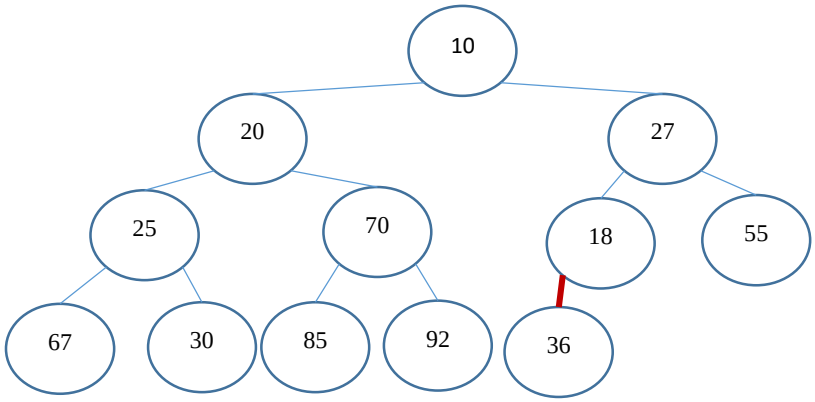
Nathan Tipton

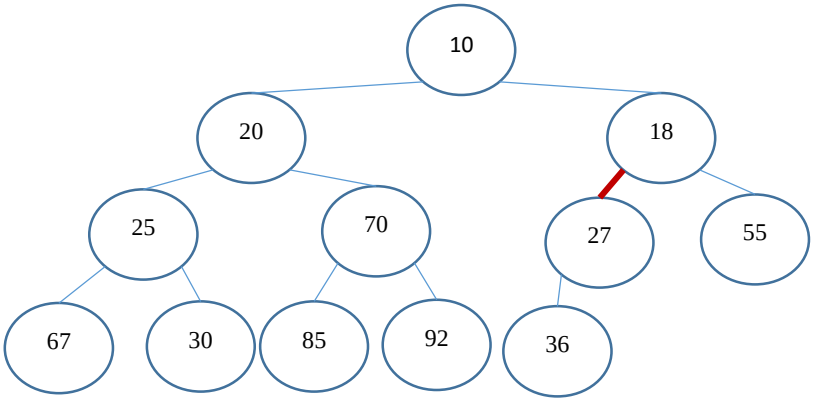
1.



18 and 36 Swap



18 and 27 Swap



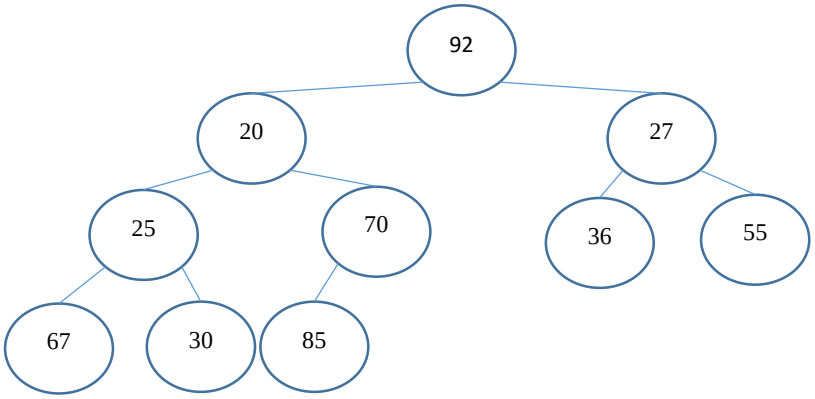
10	20	27	25	70	36	55	67	30	85	92

-Index of 18 / 2 = 6 (Parent) 36>18, swap

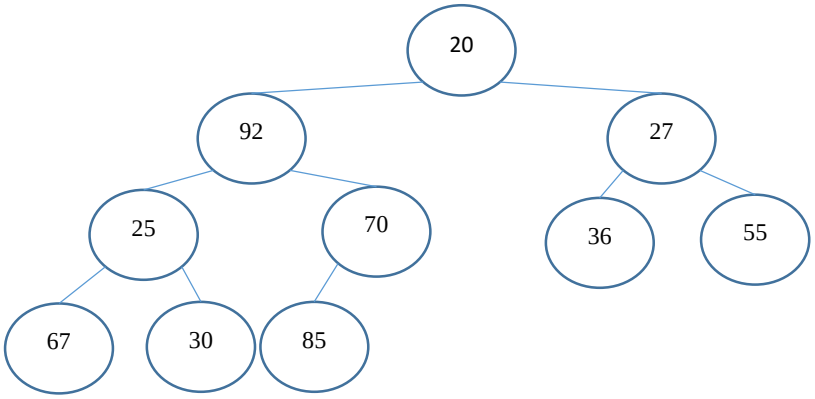
-Index of 18/2=3 (parent) 27>18, swap

1	2	3	4	5	6	7	8	9	10	11	12
10	20	27	25	70	36	55	67	30	85	92	18
10	20	27	25	70	18	55	67	30	85	92	36
10	20	27	25	70	18	55	67	30	85	92	36
10	20	18	25	70	27	55	67	30	85	92	36

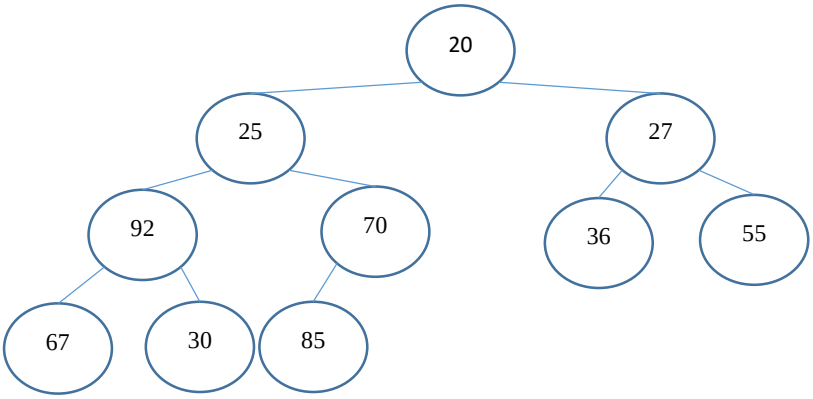
2. DeleteMin, Remove 10, replace with 92



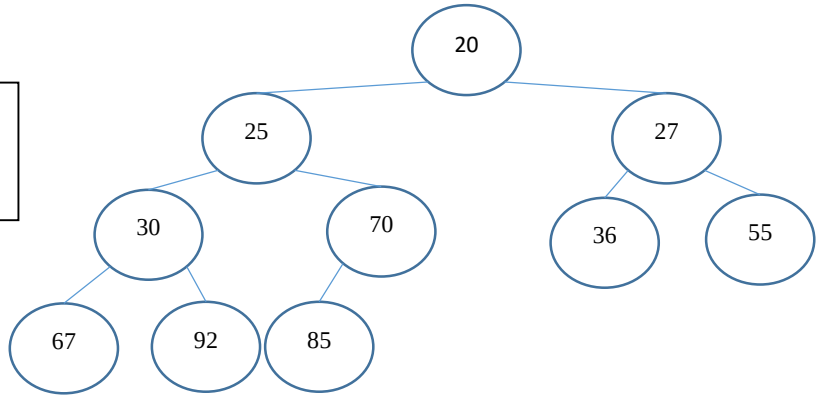
Down Heap, 92 swap with 20



Down Heap, 92 swap with 25



Down Heap, 92 swap with 30



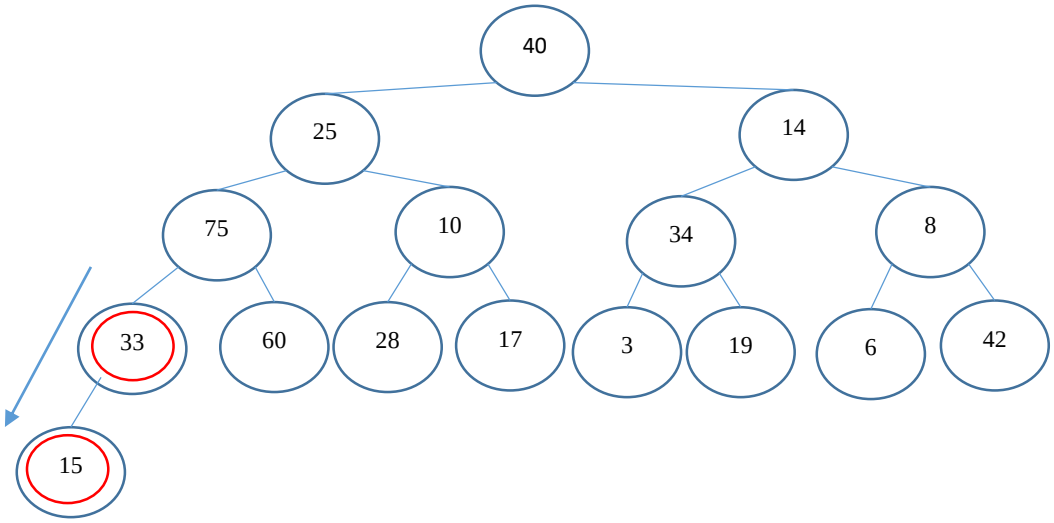
Delete Min, 10 replaced with last value, 92

Downheap 1*2 and 1*2+1 =2,3 index of children. Compare values 20 is smaller, swap 92 and 20

Downheap, 2*2 and 2*2+1 = 4,5index of children. Compare values, 92 is smaller, swap 92 and 25

Downheap 4*2 and 4*2+1, 92>30 swap

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
10	20	27	25	70	36	55	67	30	85	92
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
92	20	27	25	70	36	55	67	30	85	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
20	92	27	25	70	36	55	67	30	85	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
20	25	27	92	70	36	55	67	30	85	
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
20	25	27	30	70	36	55	67	92	85	


40
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14
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3
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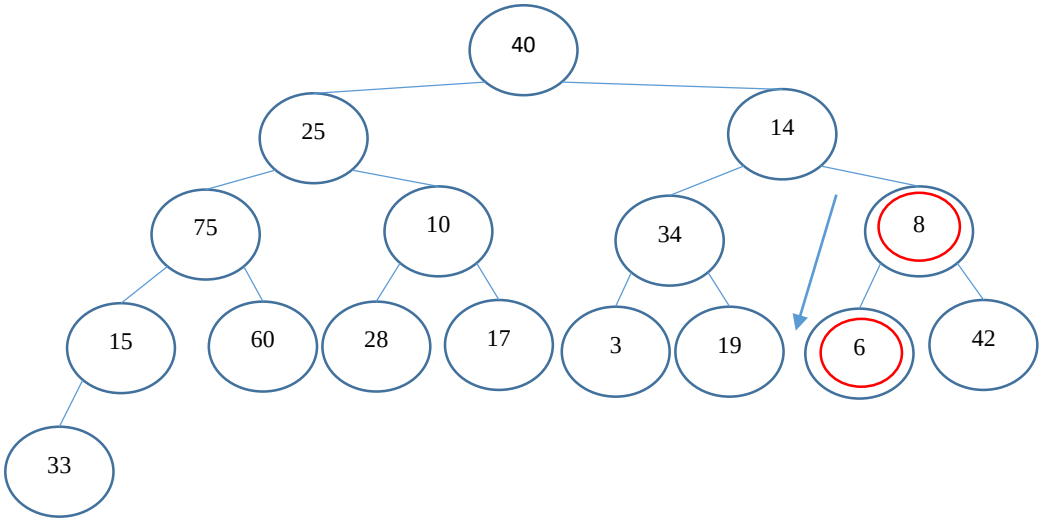
42
15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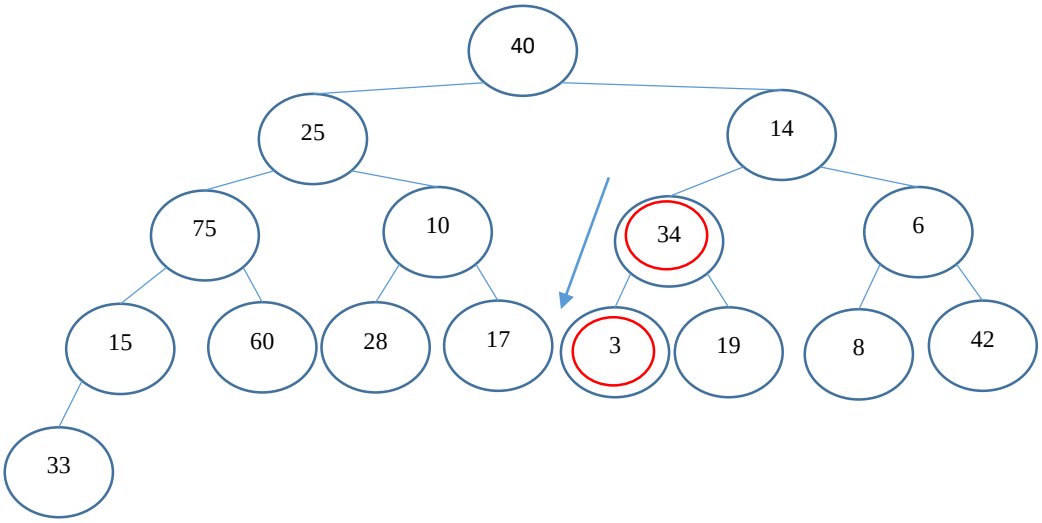
42
33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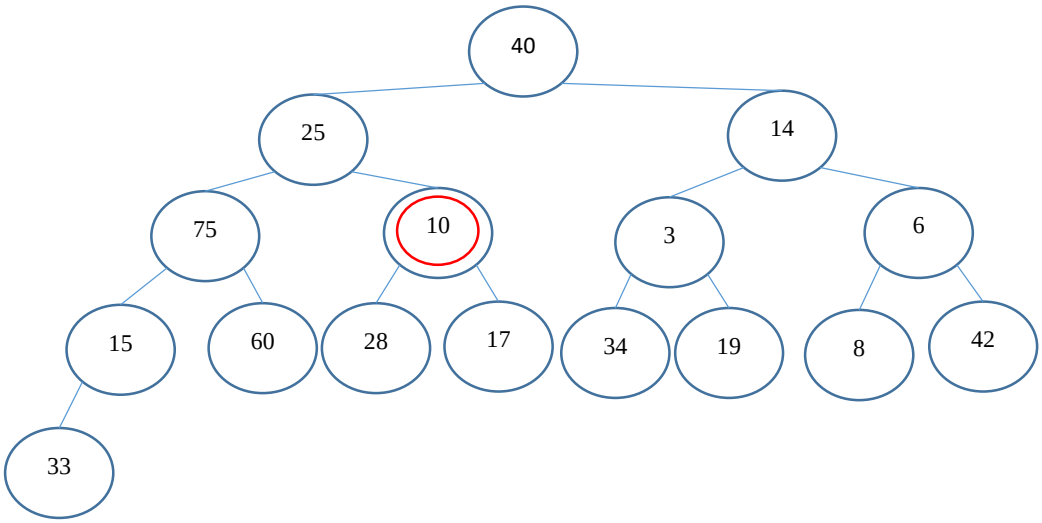
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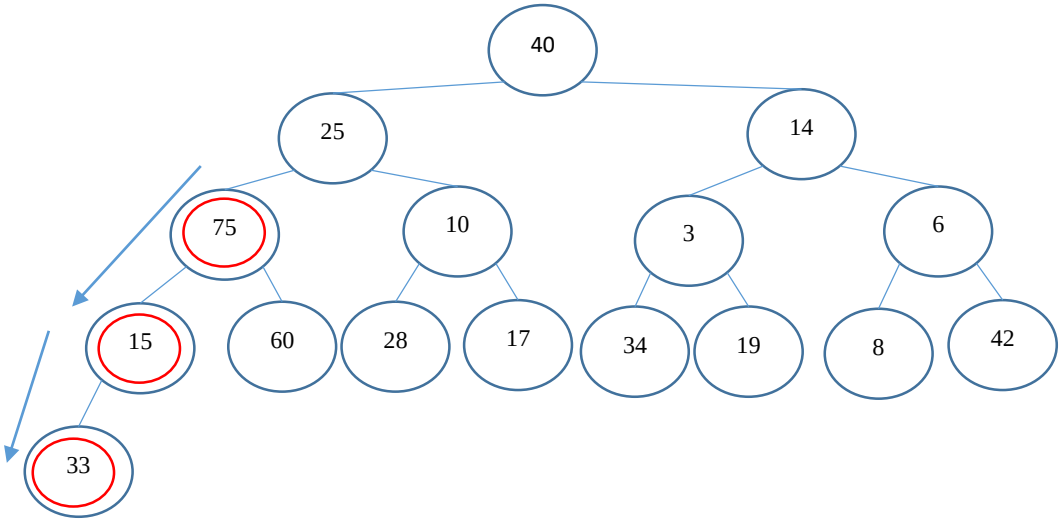
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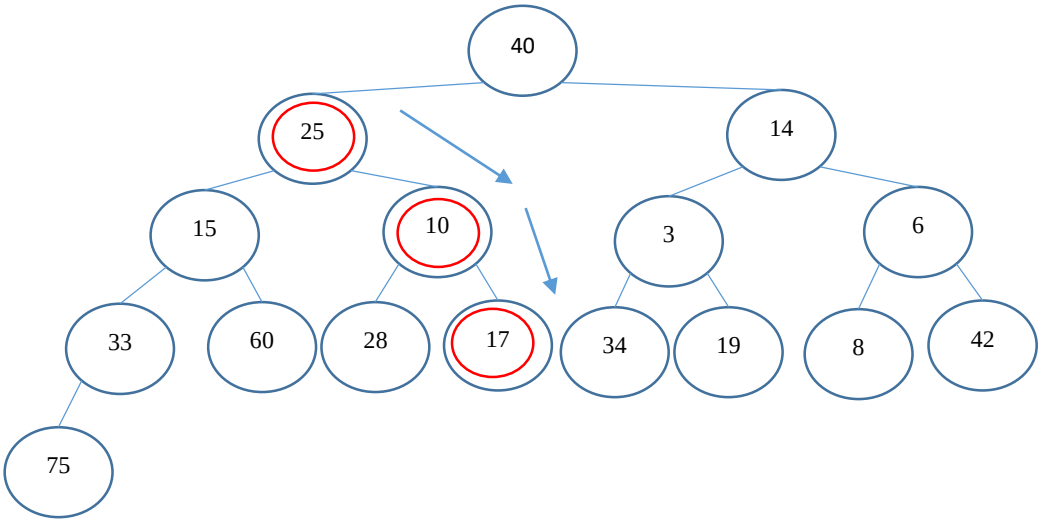
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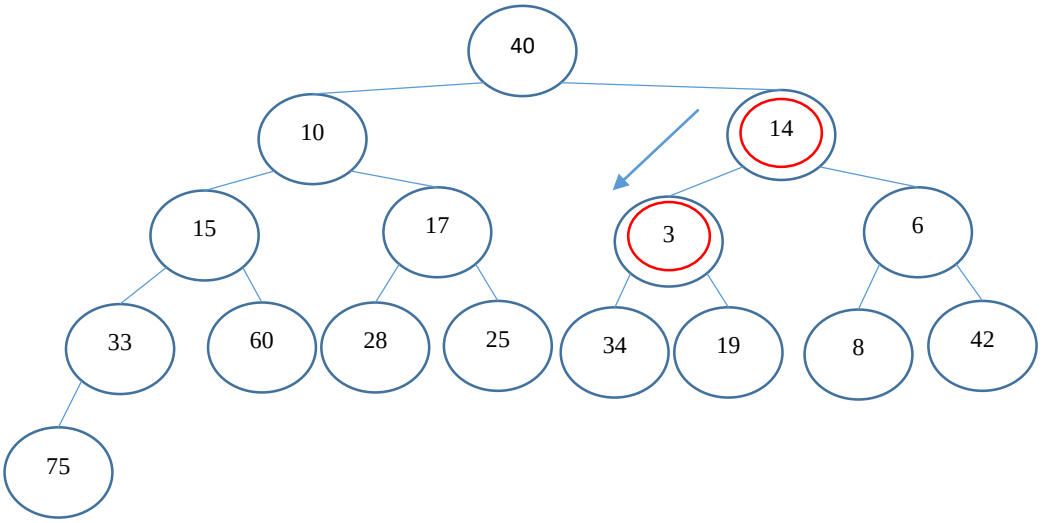
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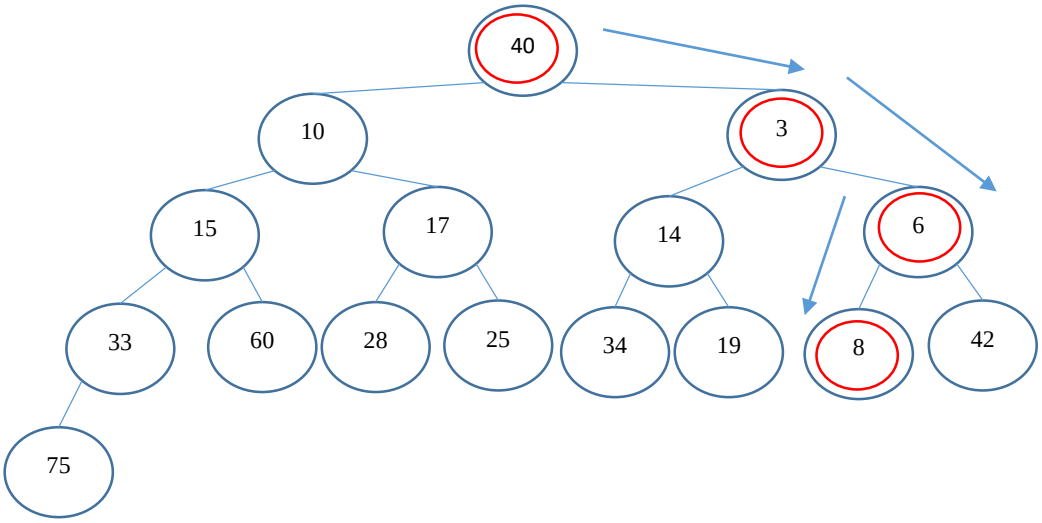
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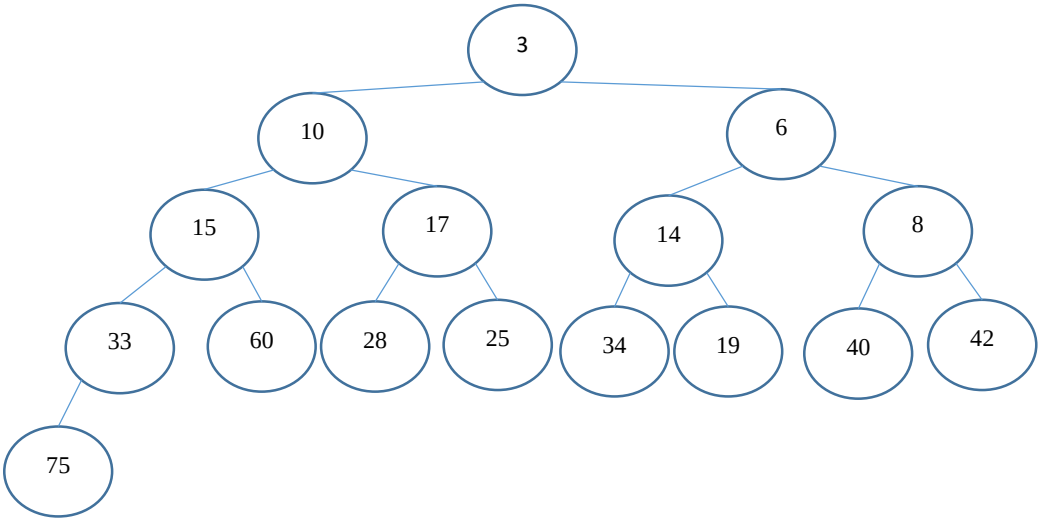
3
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42
75

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	14	75	10	34	8	33	60	28	17	3	19	6	42	15

Last internal node is 16/2 = 8. 33>15 swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	14	75	10	34	8	15	60	28	17	3	19	6	42	33

Children of H[7]=7*2 and 7*2+1. 8>6 swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	14	75	10	34	6	15	60	28	17	3	19	8	42	33

Children of H[6]=6*2 and 6*2+1 34>3 swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	14	75	10	3	6	33	60	28	17	34	19	8	42	33

Children of H[5]=5*2 and 5*2+1 10<28 and 17, do nothing

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	14	75	10	3	6	15	60	28	17	34	19	8	42	33

Children of H[4]=4*2 and 4*2+1 75>15, swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	14	15	10	3	6	75	60	28	17	34	19	8	42	33

Children of H[8]=8*2=16, 75>33, swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	14	15	10	3	6	33	60	28	17	34	19	8	42	75

Children of H[3]=3*2 and 3*2+1 24>3, swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	3	15	10	14	6	33	60	28	17	34	19	8	42	75

Children of H[6]=6*2 and 6*2+1 Do nothing

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	25	3	15	10	14	6	33	60	28	17	34	19	8	42	75

Children of H[2]=2*2 and 2*2+1 25>10, swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	10	3	15	25	14	6	33	60	28	17	34	19	8	42	75

Children of H[5]=5*2 and 5*2+1 25>17 swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
40	10	3	15	17	14	6	33	60	28	25	34	19	8	42	75

Children of H[1] =1*2 and 1*2+1 40>3, swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3	10	40	15	17	14	6	33	60	28	25	34	19	8	42	75

Children of H[3]=3*2 and 3*2+1 40>6, swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3	10	6	15	17	14	40	33	60	28	25	34	19	8	42	75

Children of H[7]=7*2 and 7*2+1. 40>8 swap

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3	10	6	15	17	14	8	33	60	28	25	34	19	40	42	75