

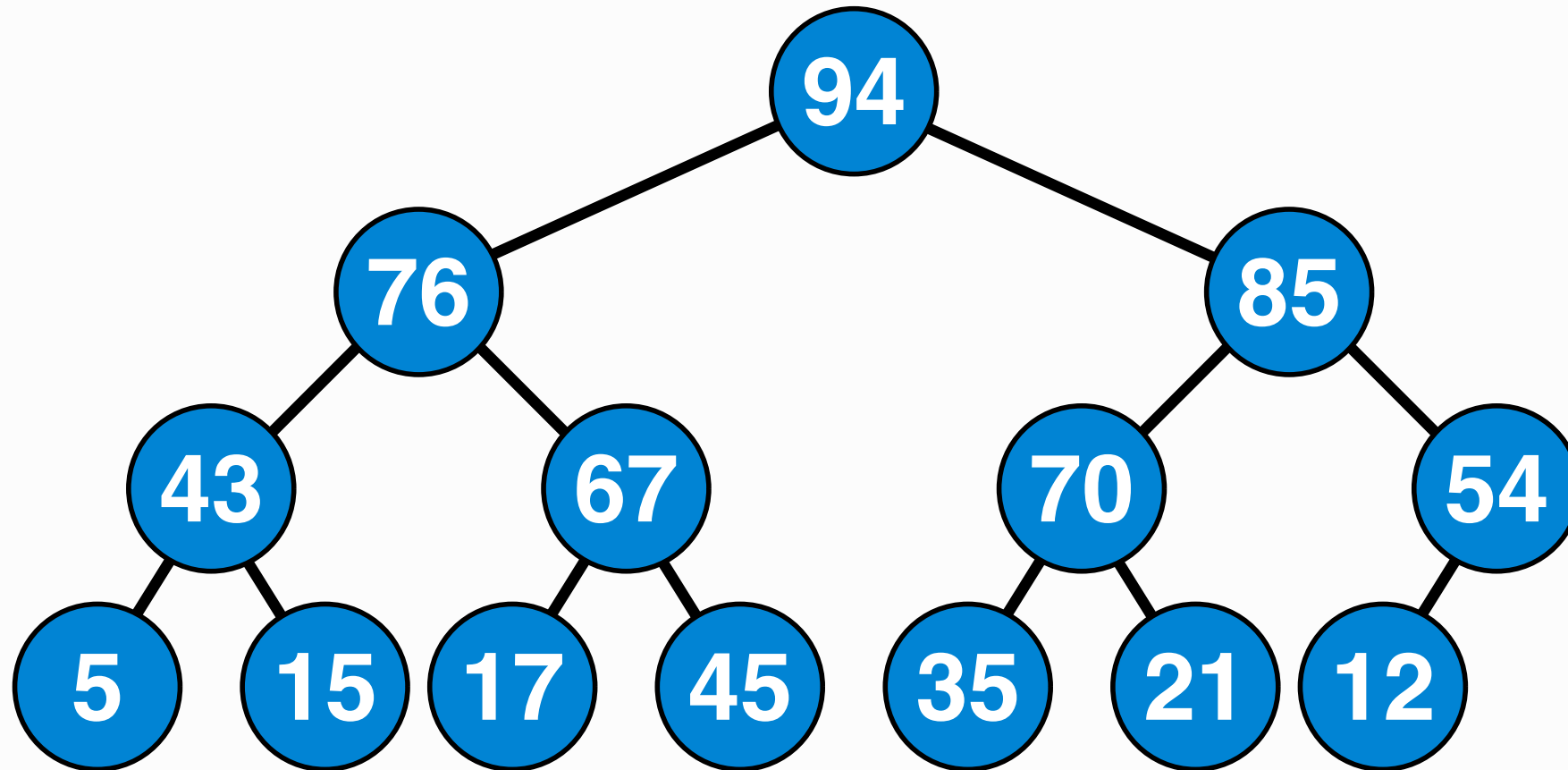
# HEAP BINARIO

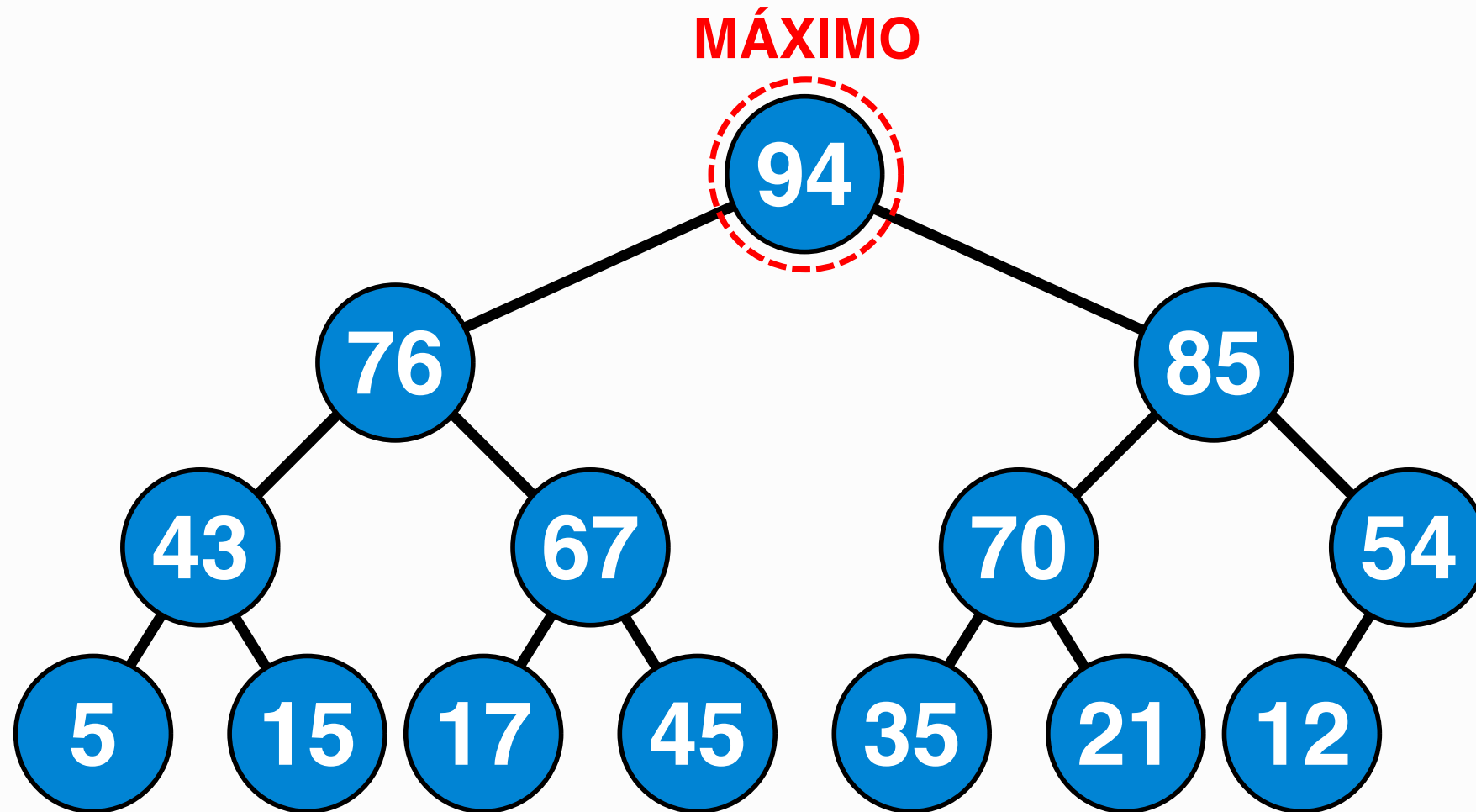
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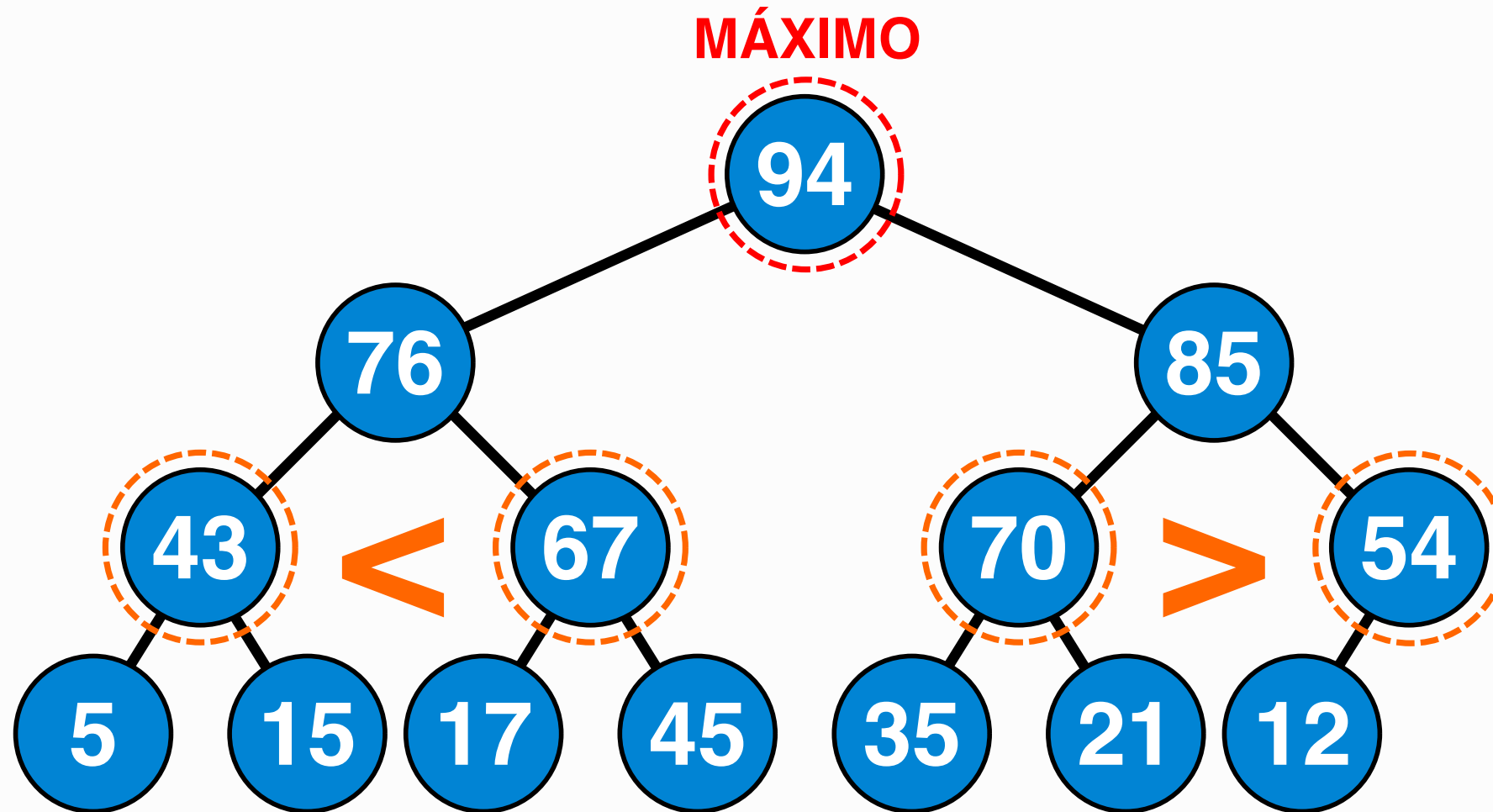
75.41 - ALGORITMOS Y PROGRAMACIÓN II



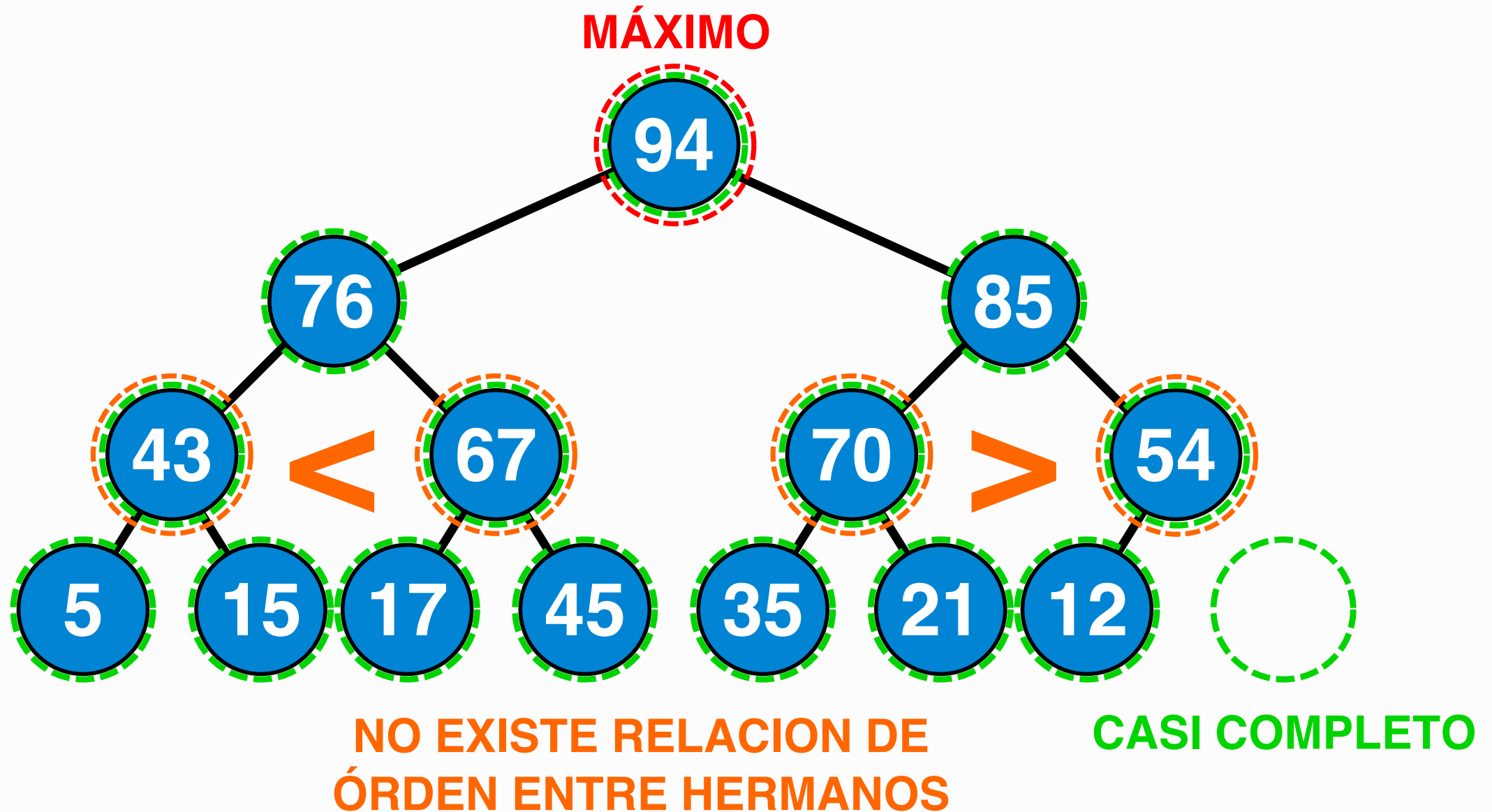
# CARACTERÍSTICAS



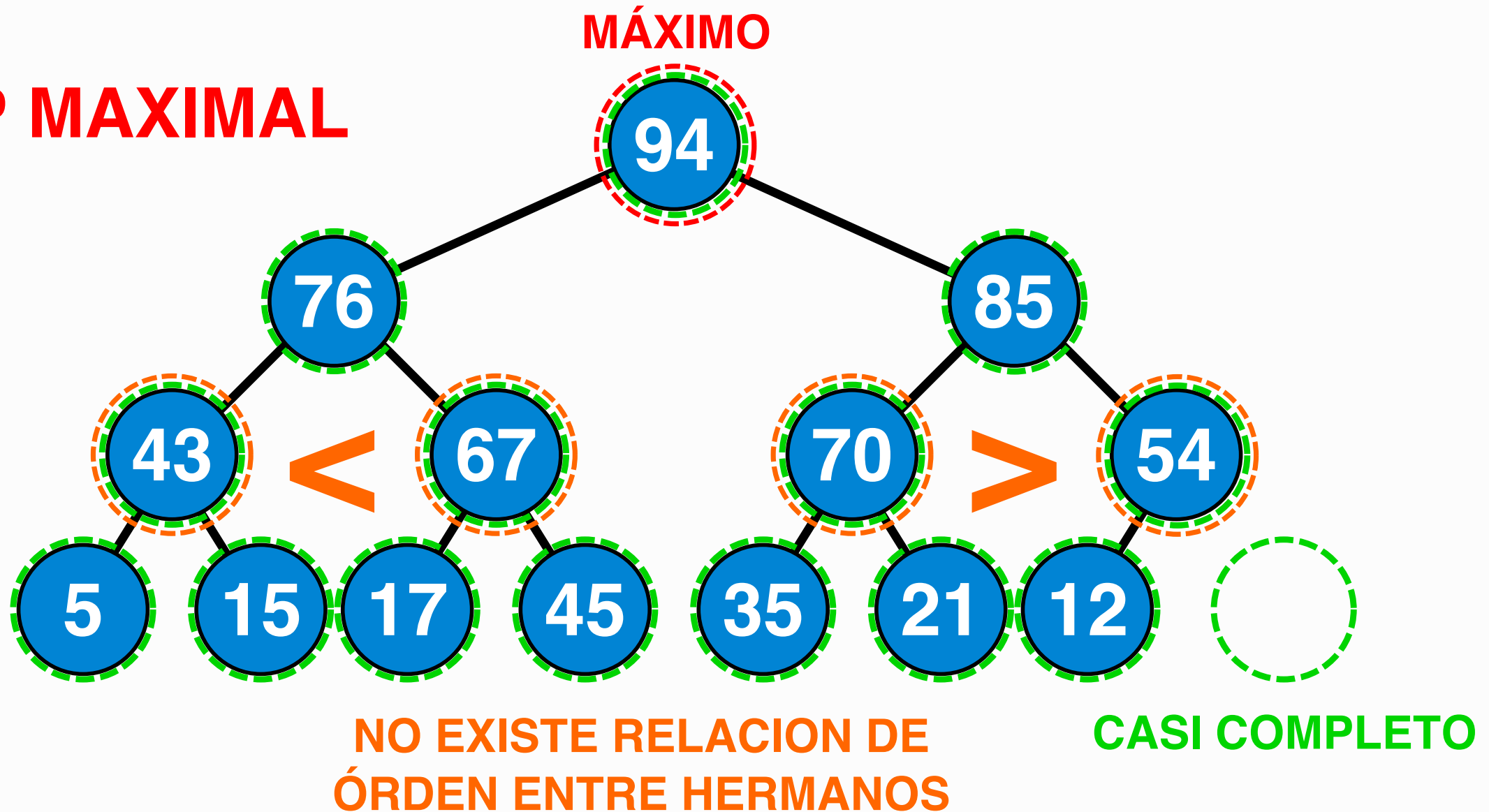




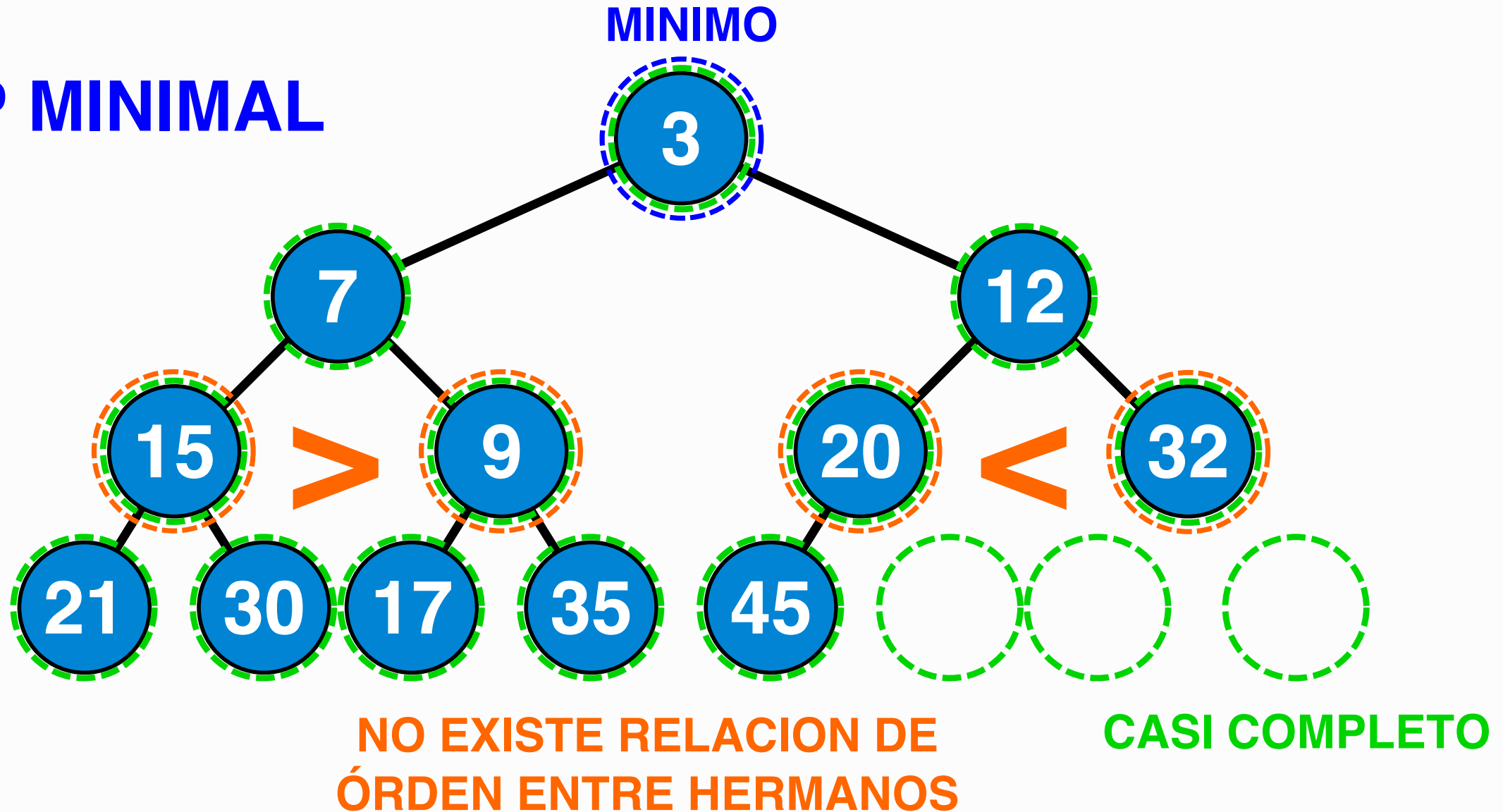
**NO EXISTE RELACION DE  
ÓRDEN ENTRE HERMANOS**



## HEAP MAXIMAL



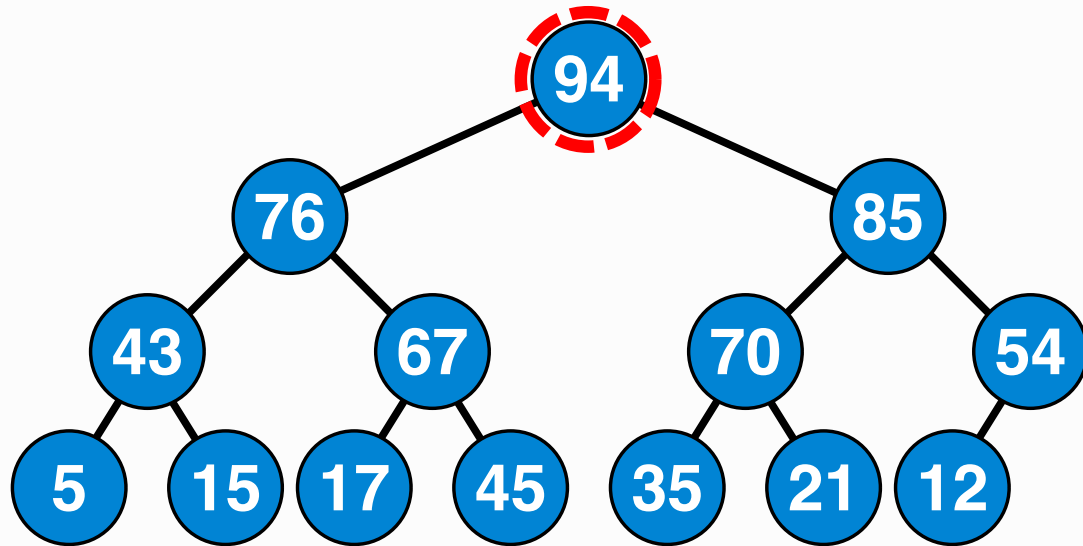
## HEAP MINIMAL



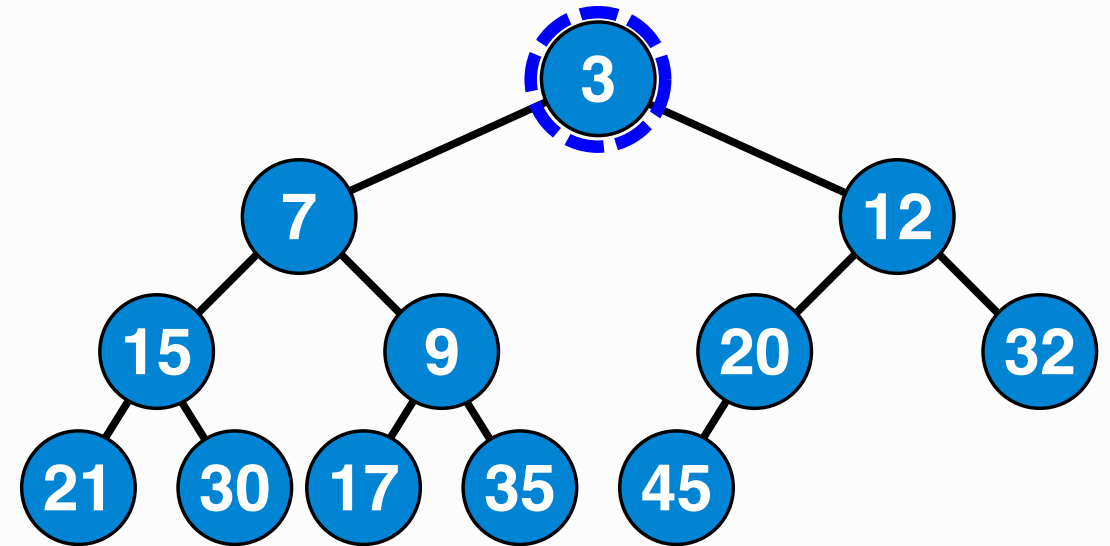


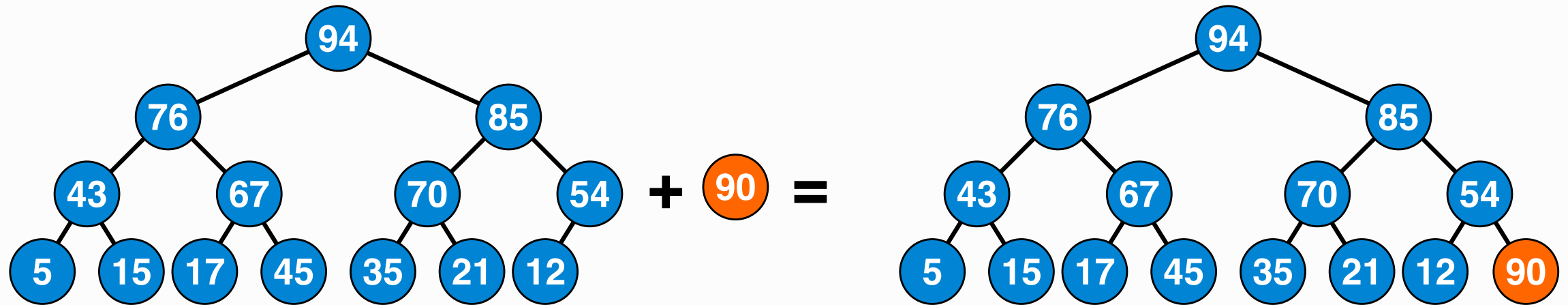
# OPERACIONES

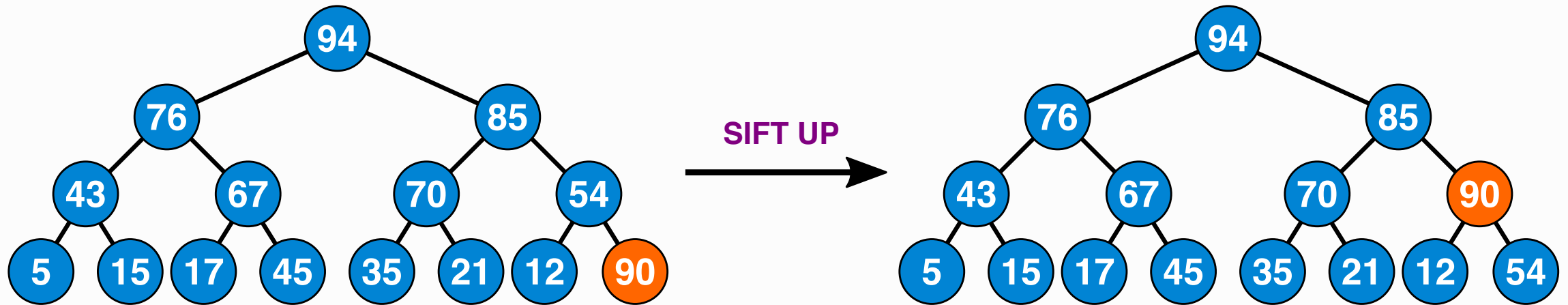
**MÁXIMO**

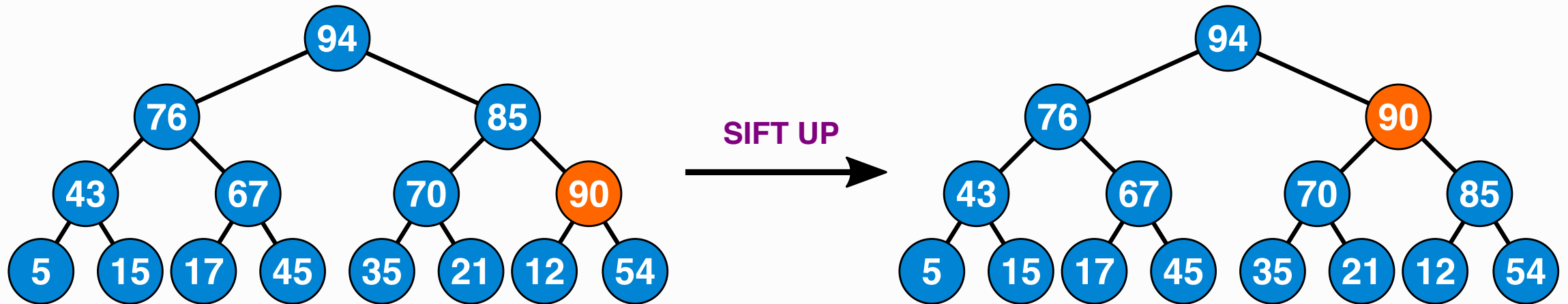


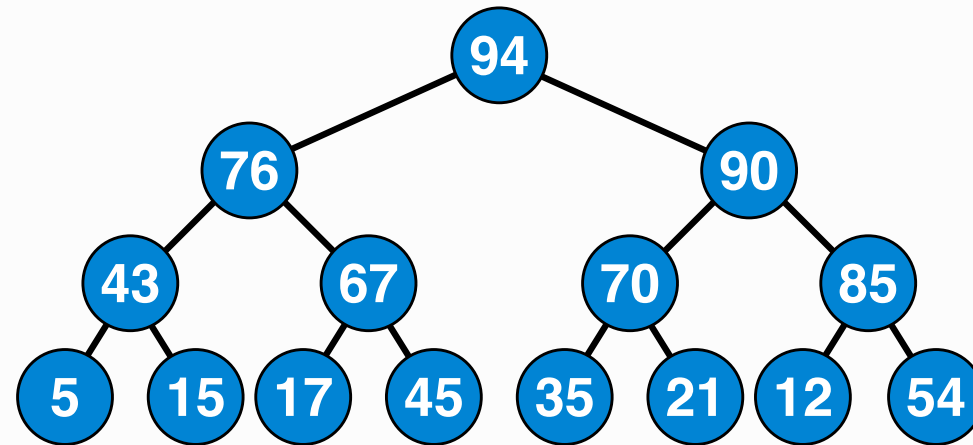
**MÍNIMO**

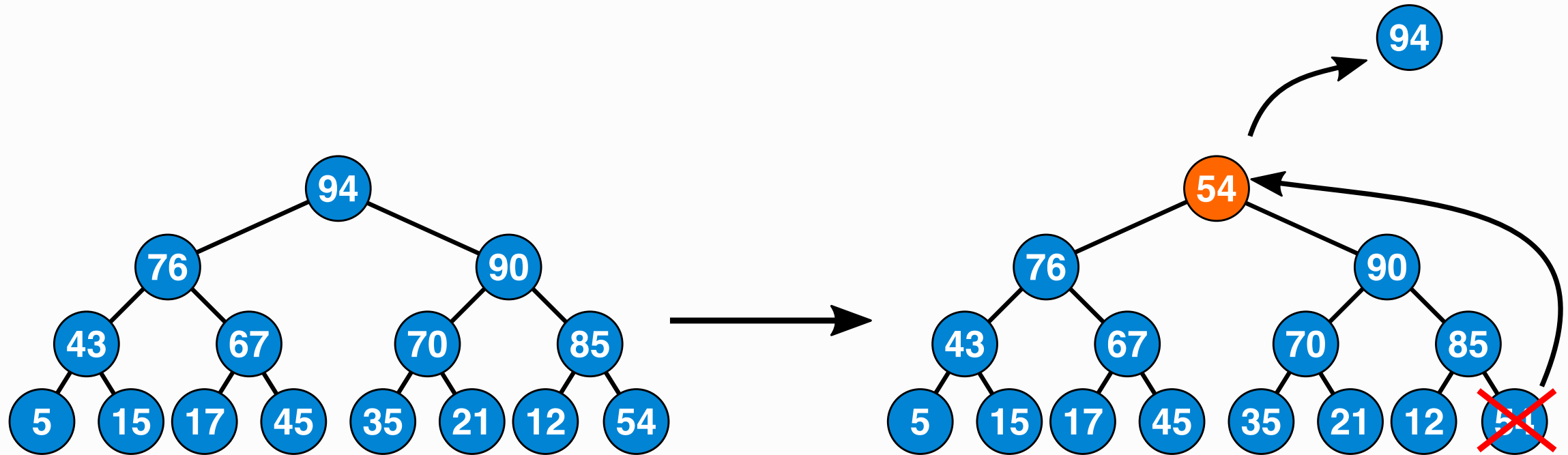


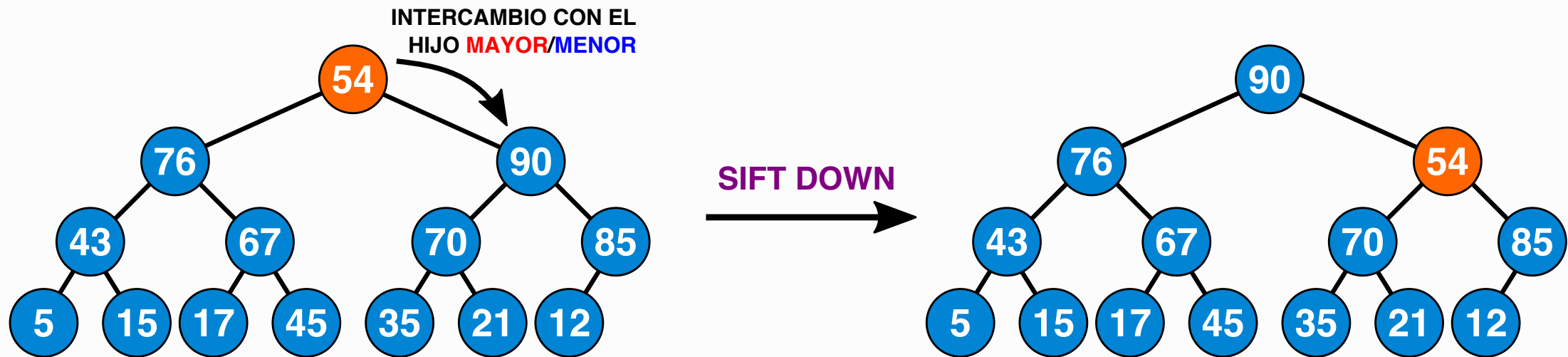




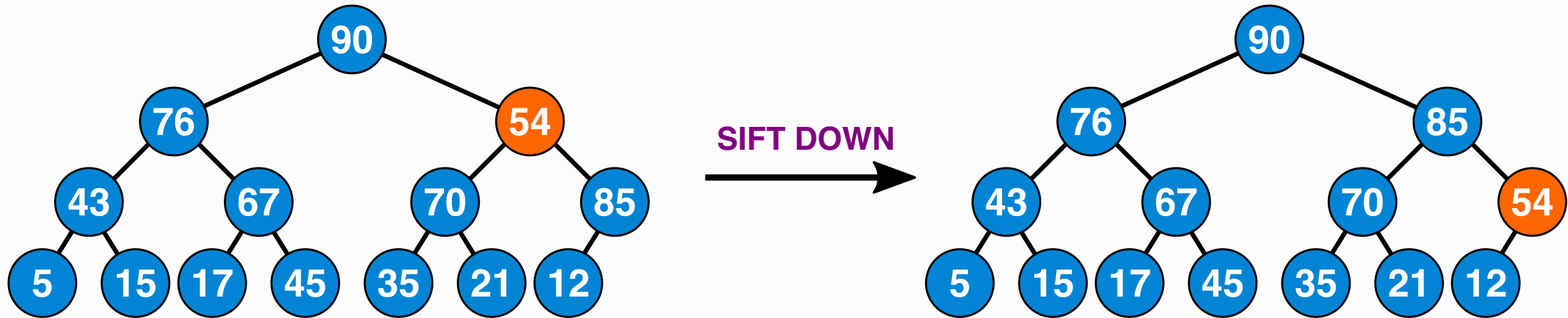


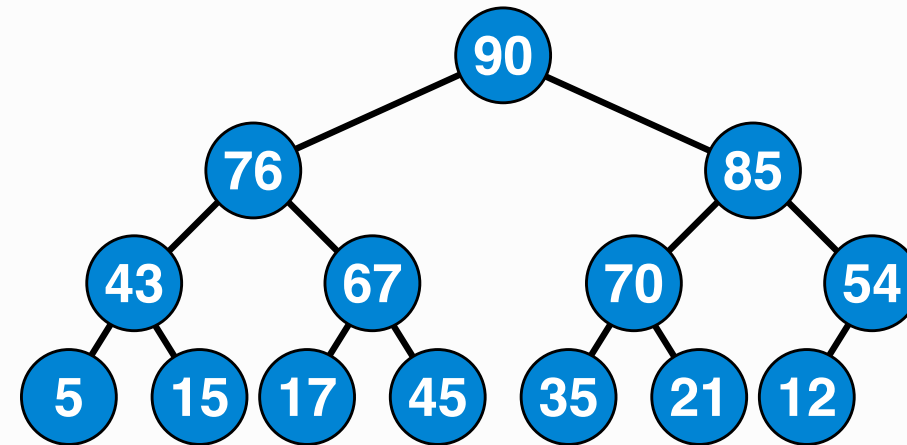












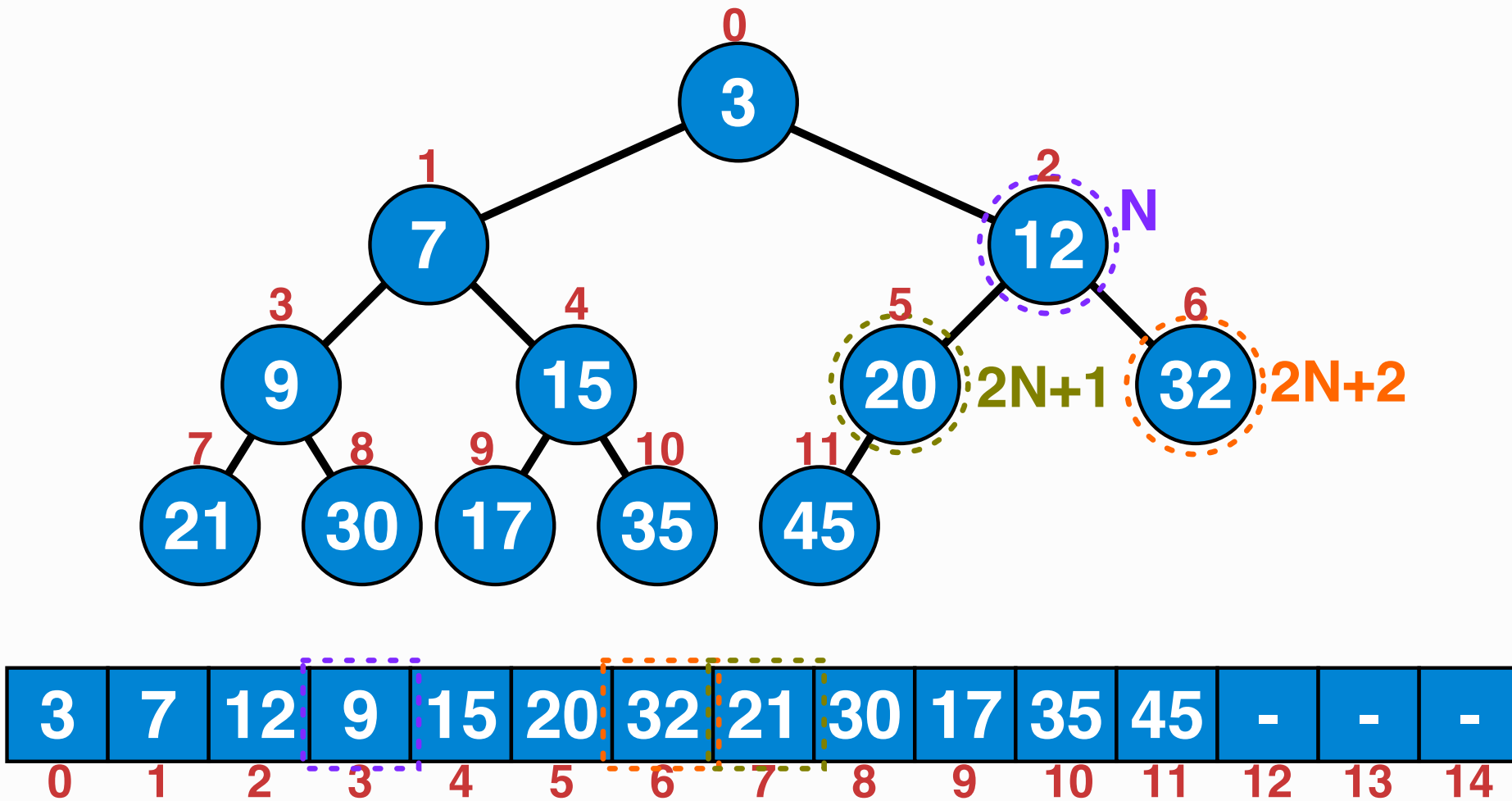
# CONSTRUCCIÓN

**INSERTAR ELEMENTOS EN UN HEAP VACÍO UNO A UNO**

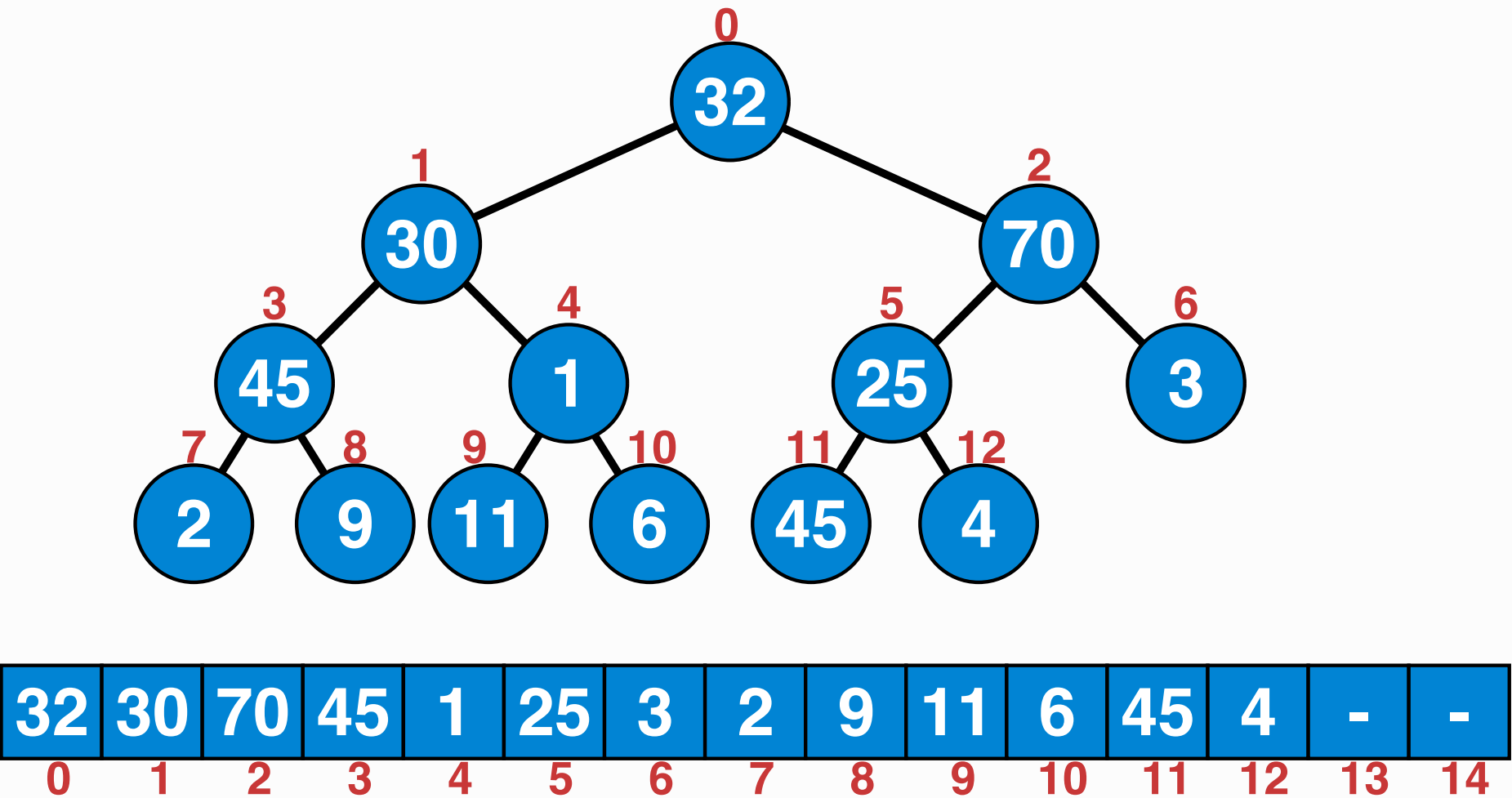
**$N$  OPERACIONES  $\text{LOG}(N)$**

**COMPLEJIDAD  $N \text{ LOG}(N)$**

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N=15  
CONSTRUIR HEAP **MINIMAL**

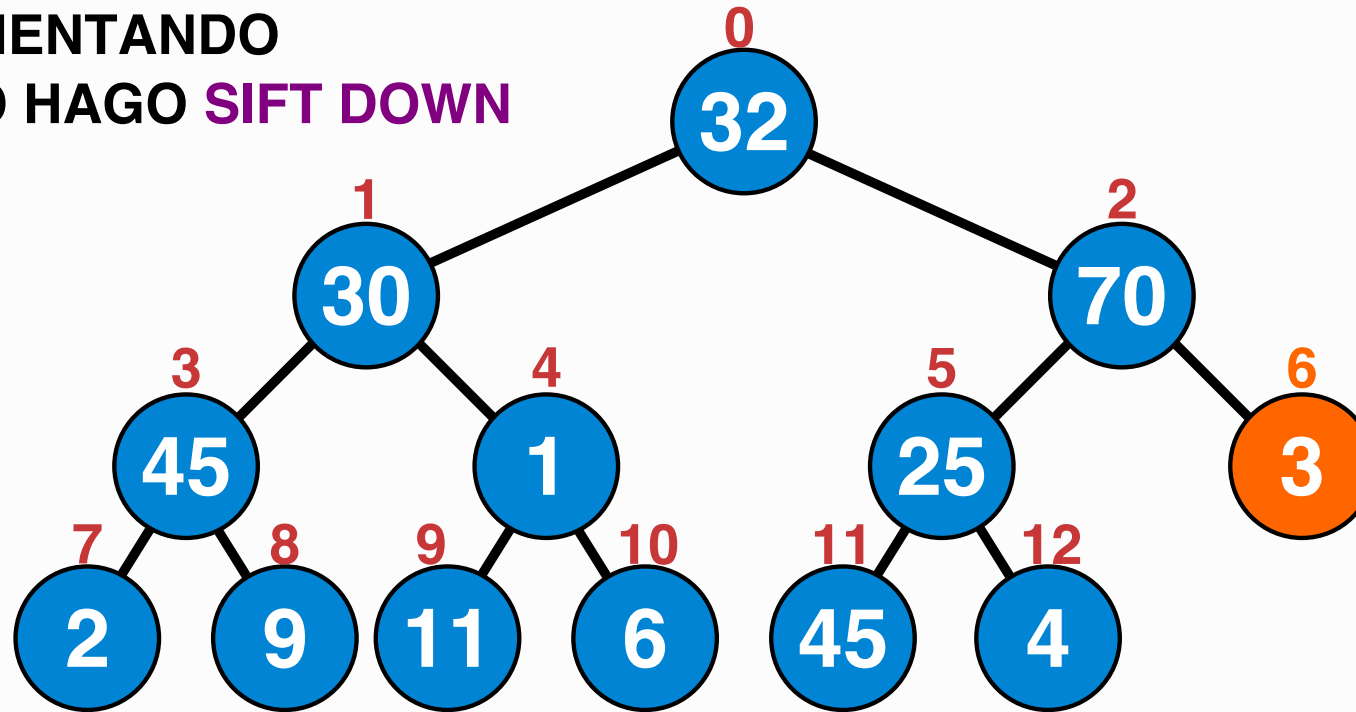


N=15

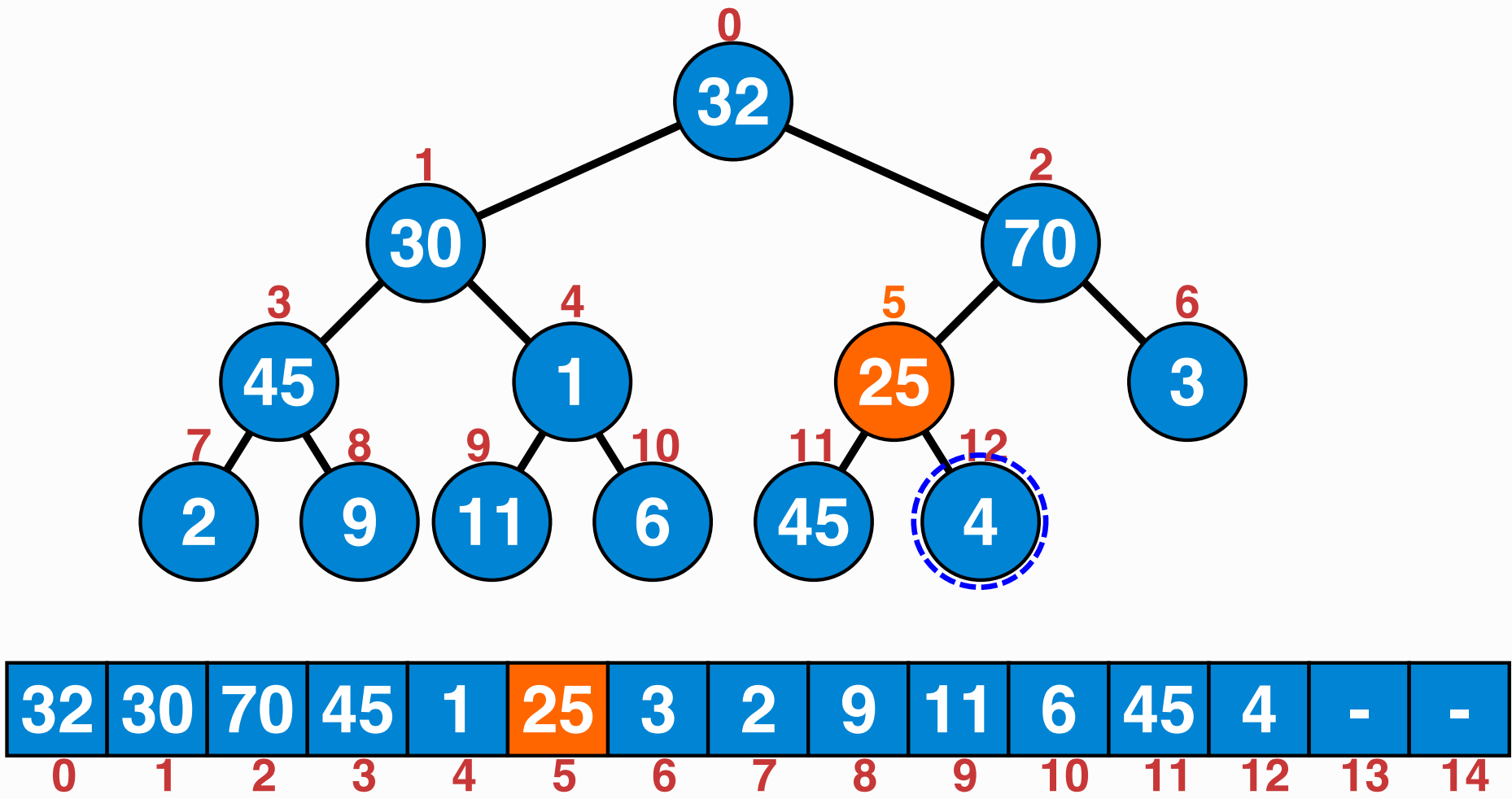
EMPIEZO DESDE  $I = \lfloor (N-1)/2 \rfloor = 6$

Y VOY DECREMENTANDO

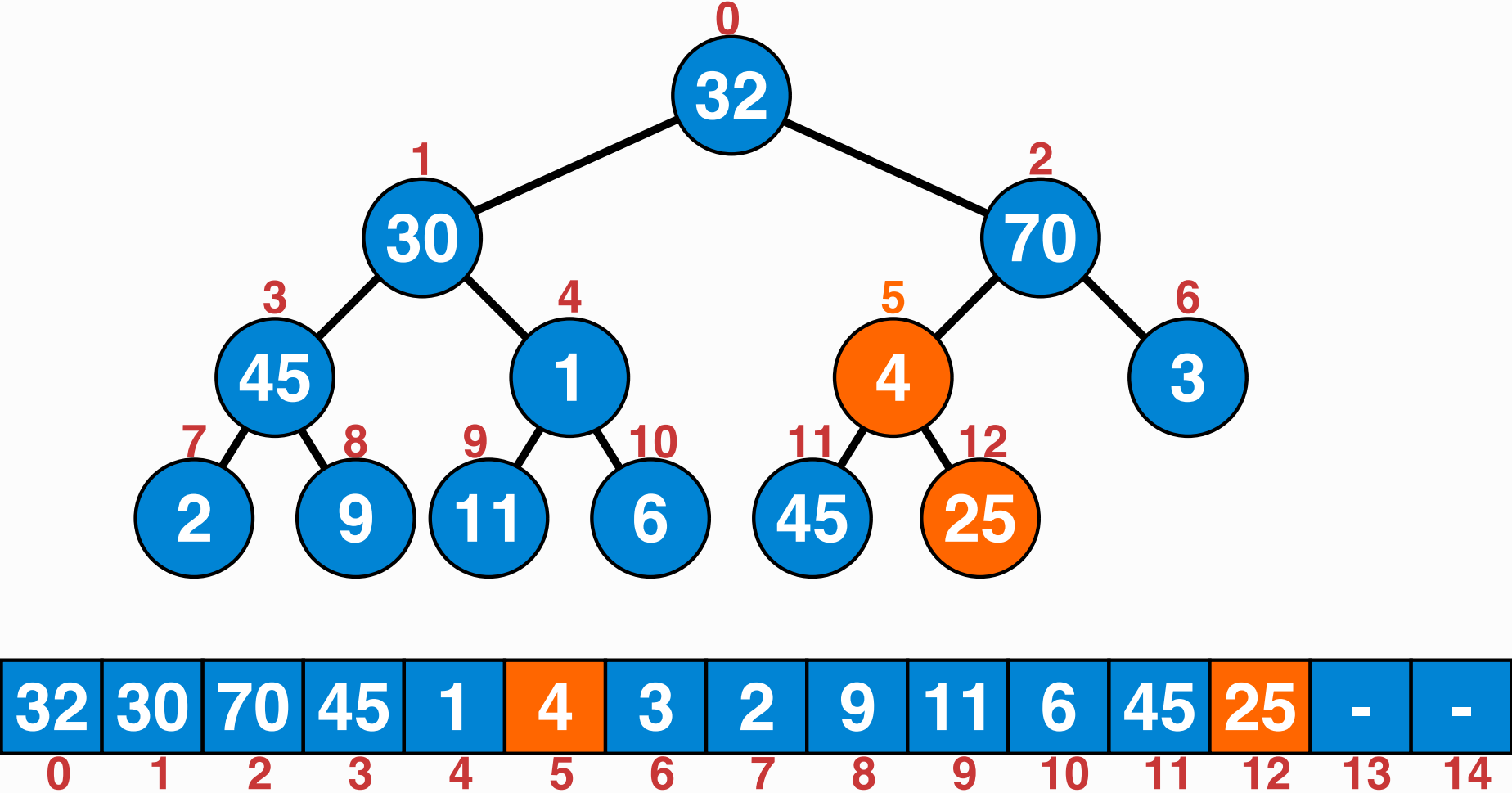
EN CADA PASO HAGO **SIFT DOWN**

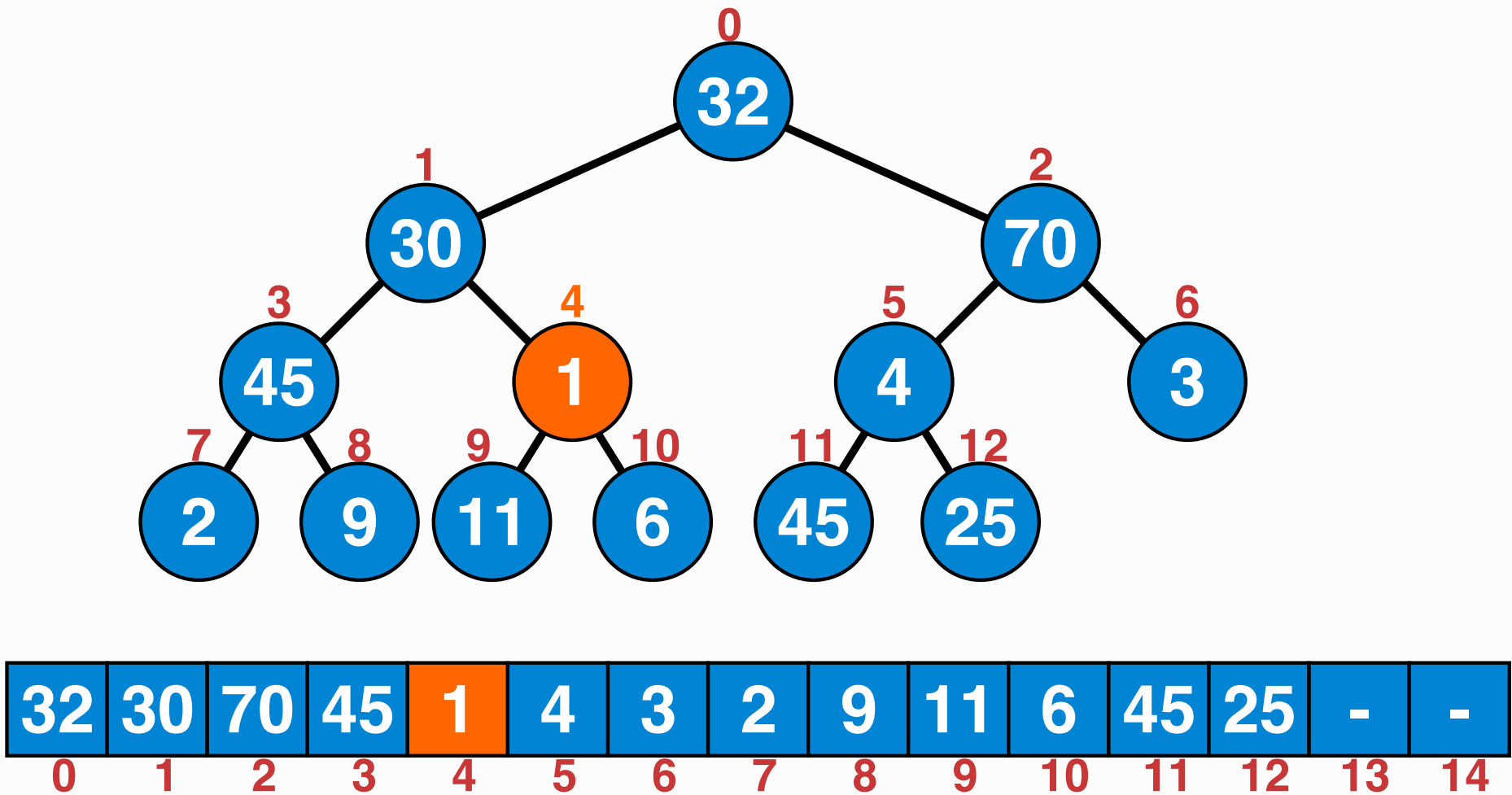


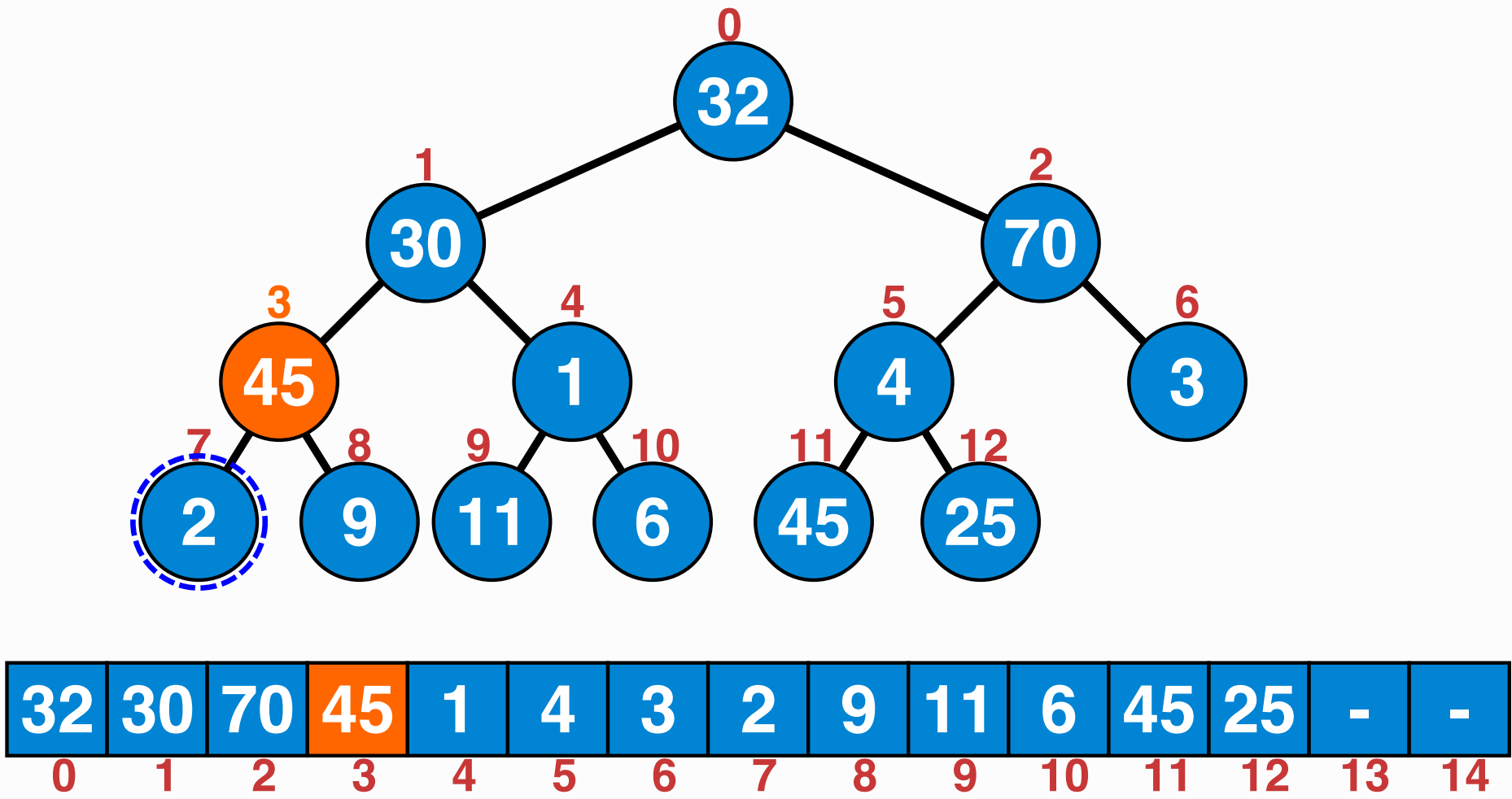
32	30	70	45	1	25	3	2	9	11	6	45	4	-	-
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

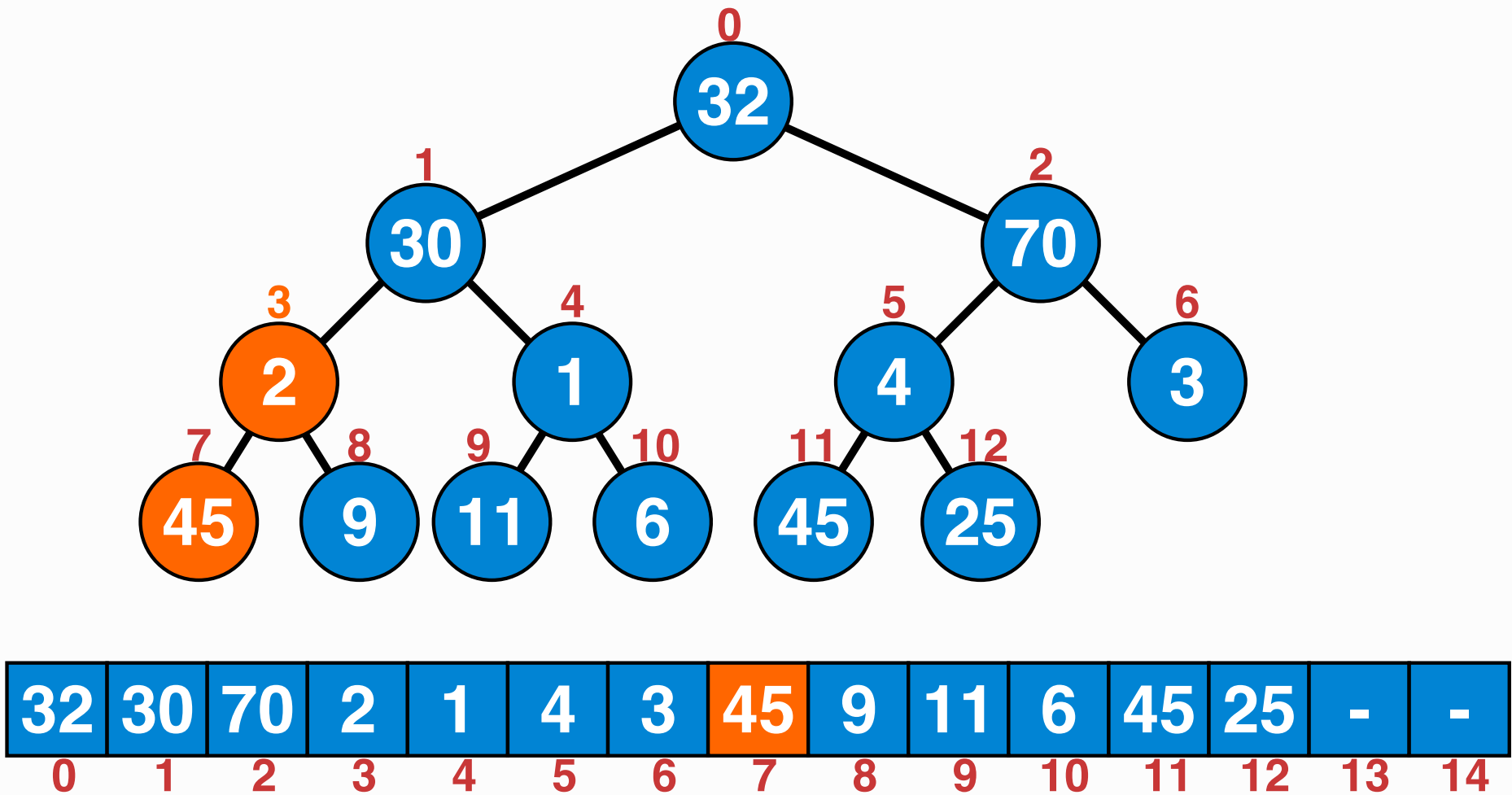


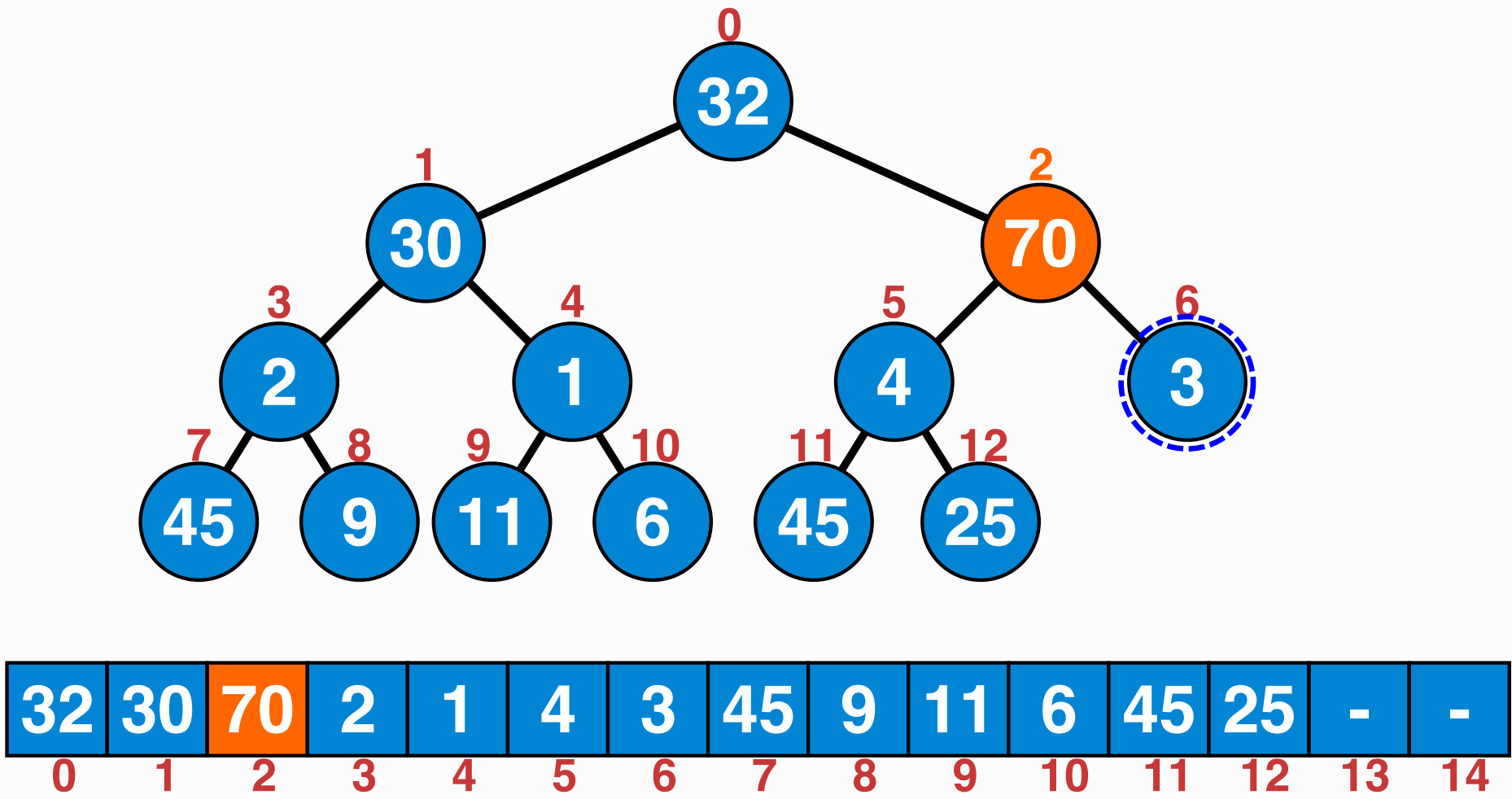


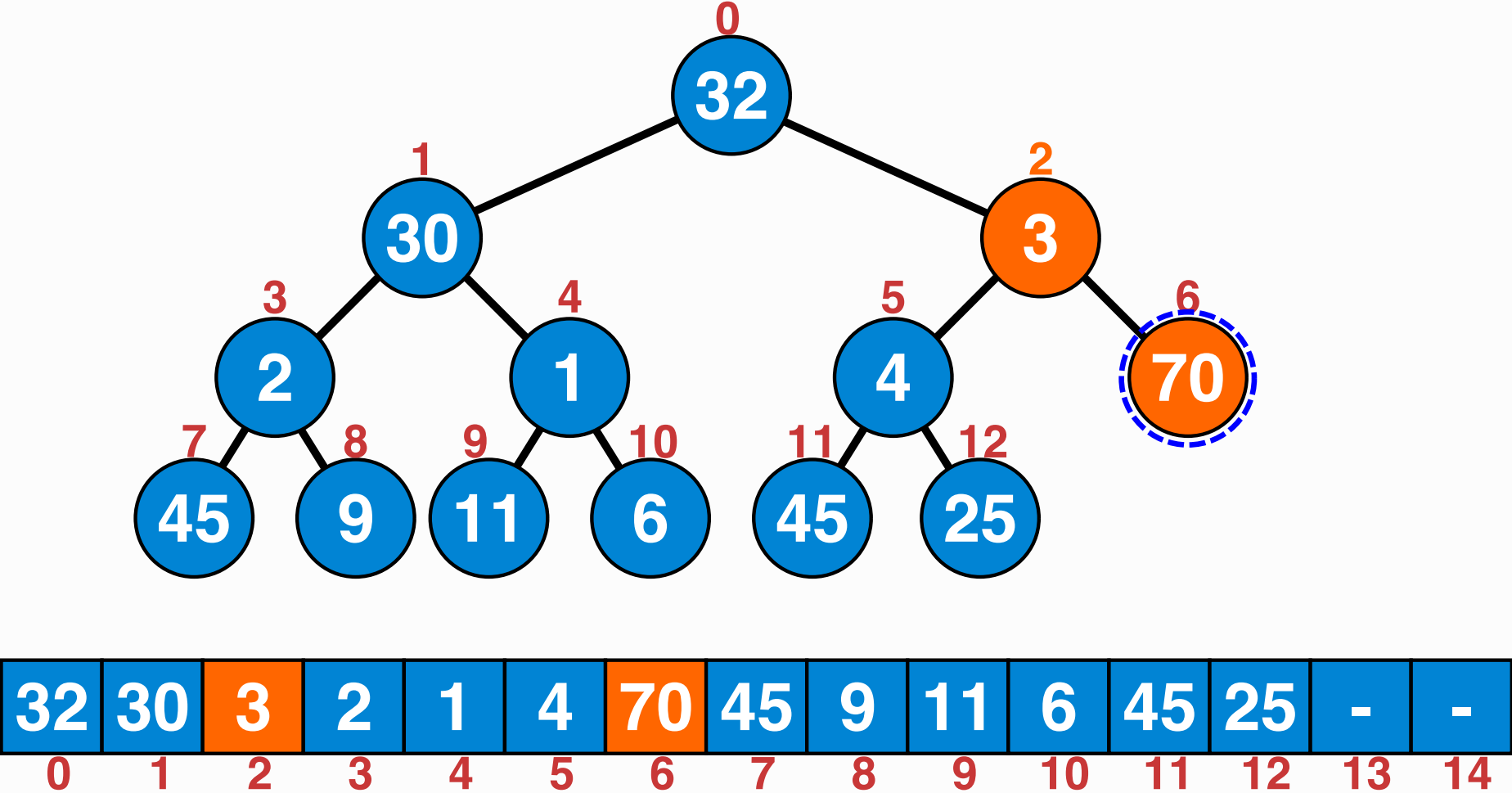


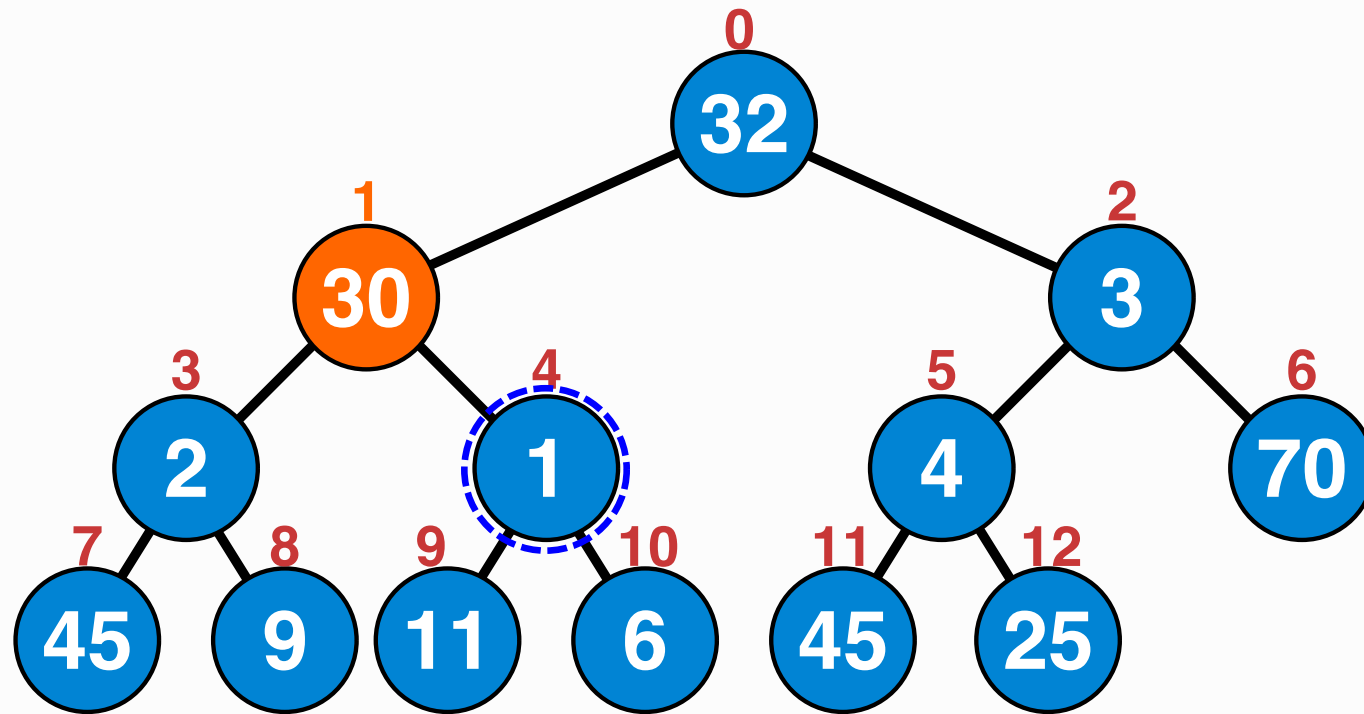




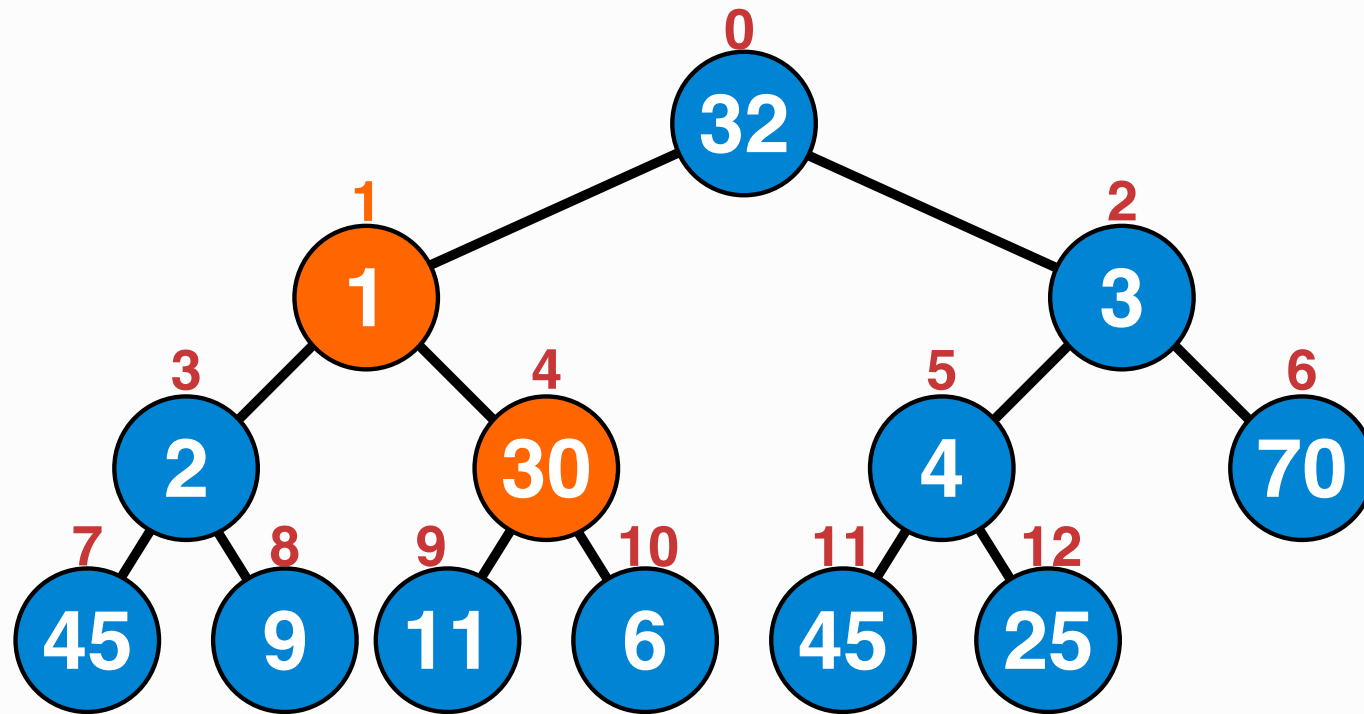






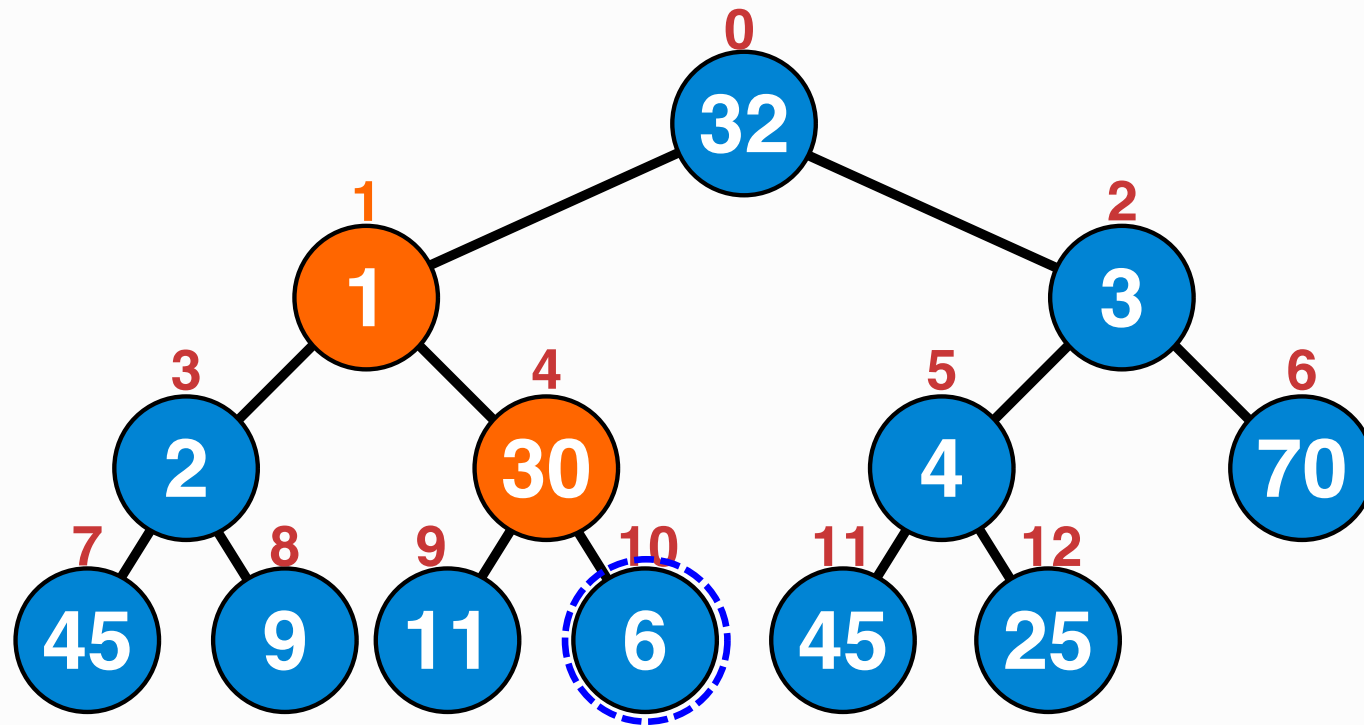


32	30	3	2	1	4	70	45	9	11	6	45	25	-	-
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

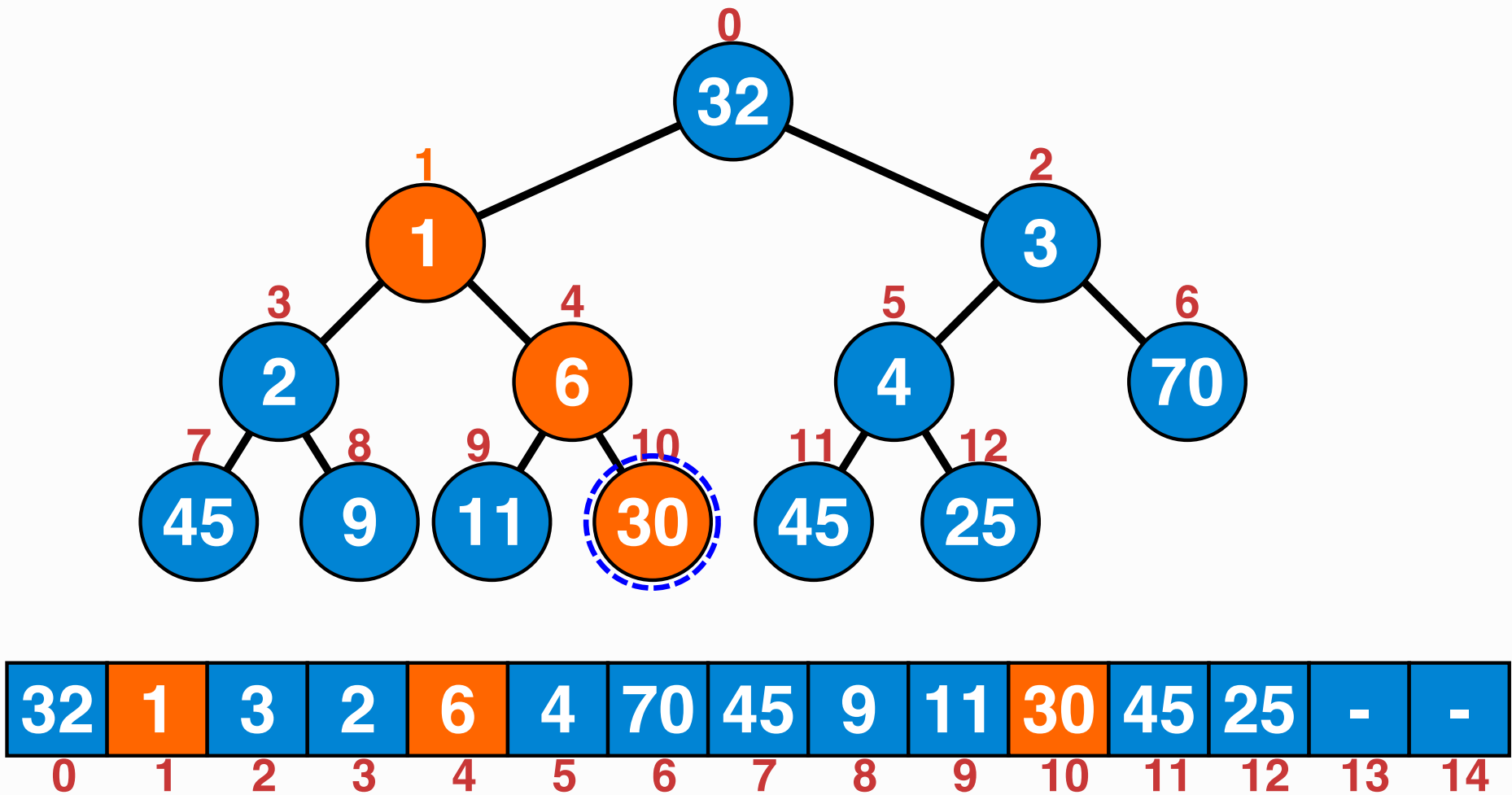


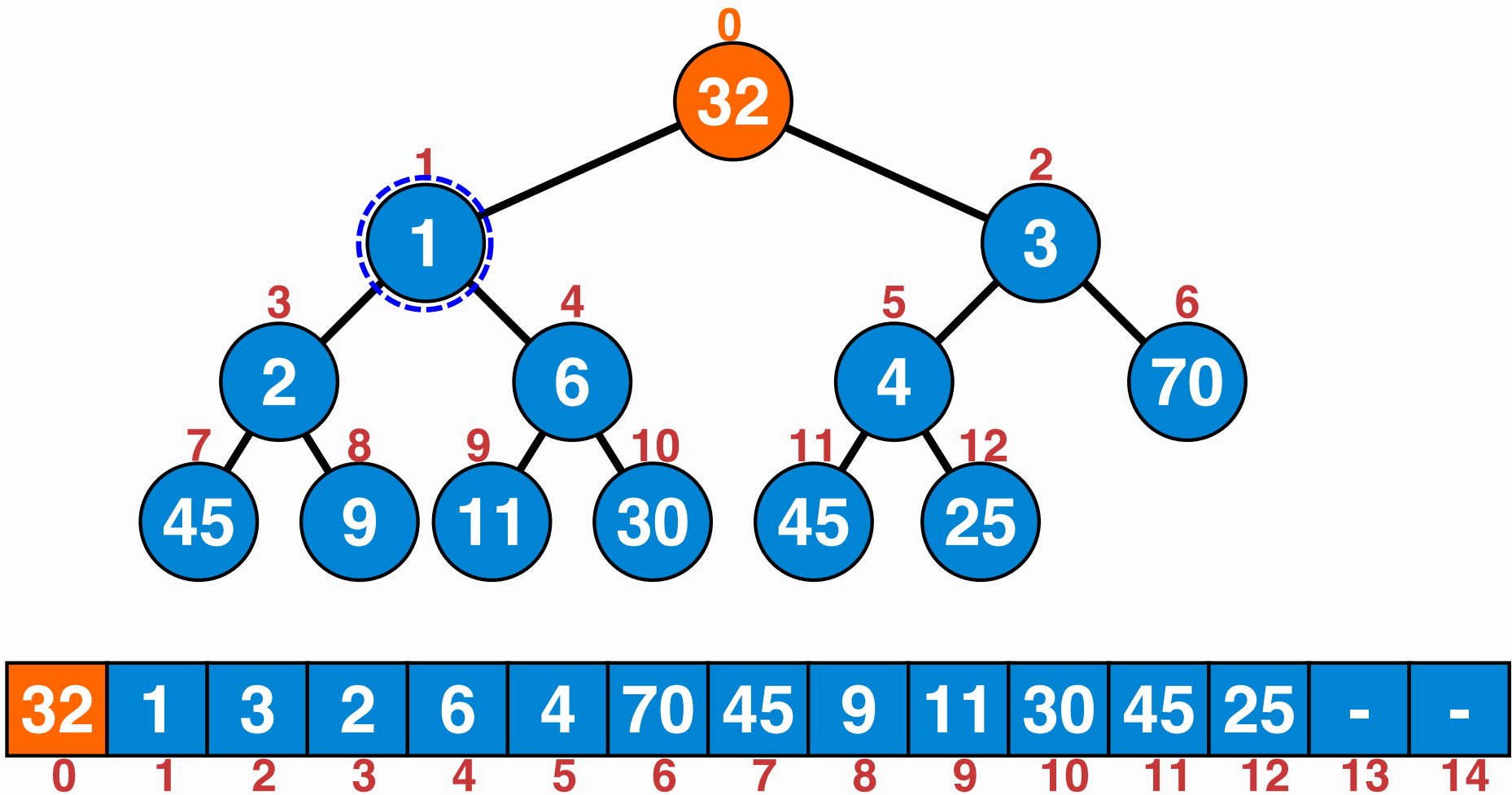
32	1	3	2	30	4	70	45	9	11	6	45	25	-	-
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

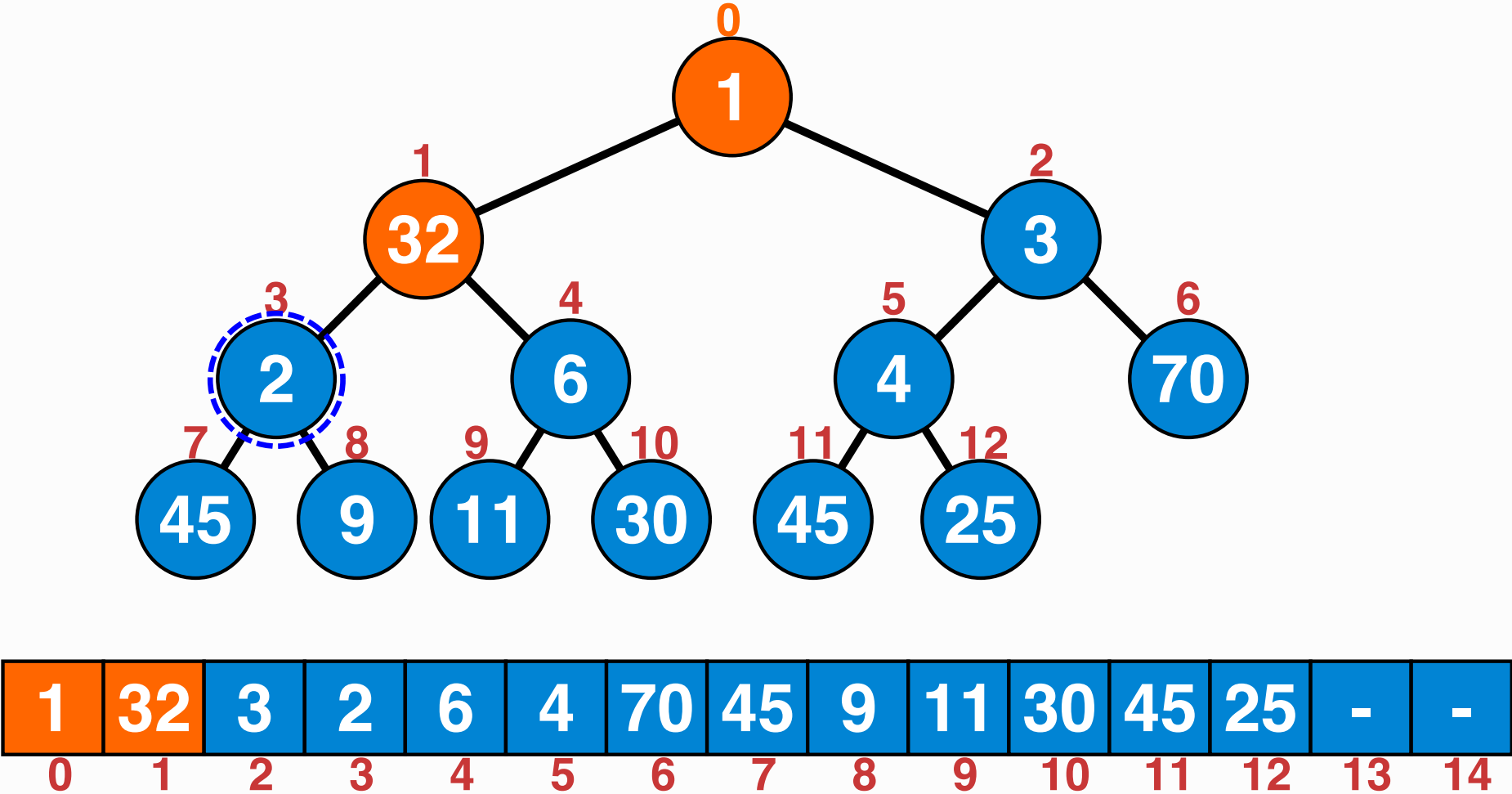


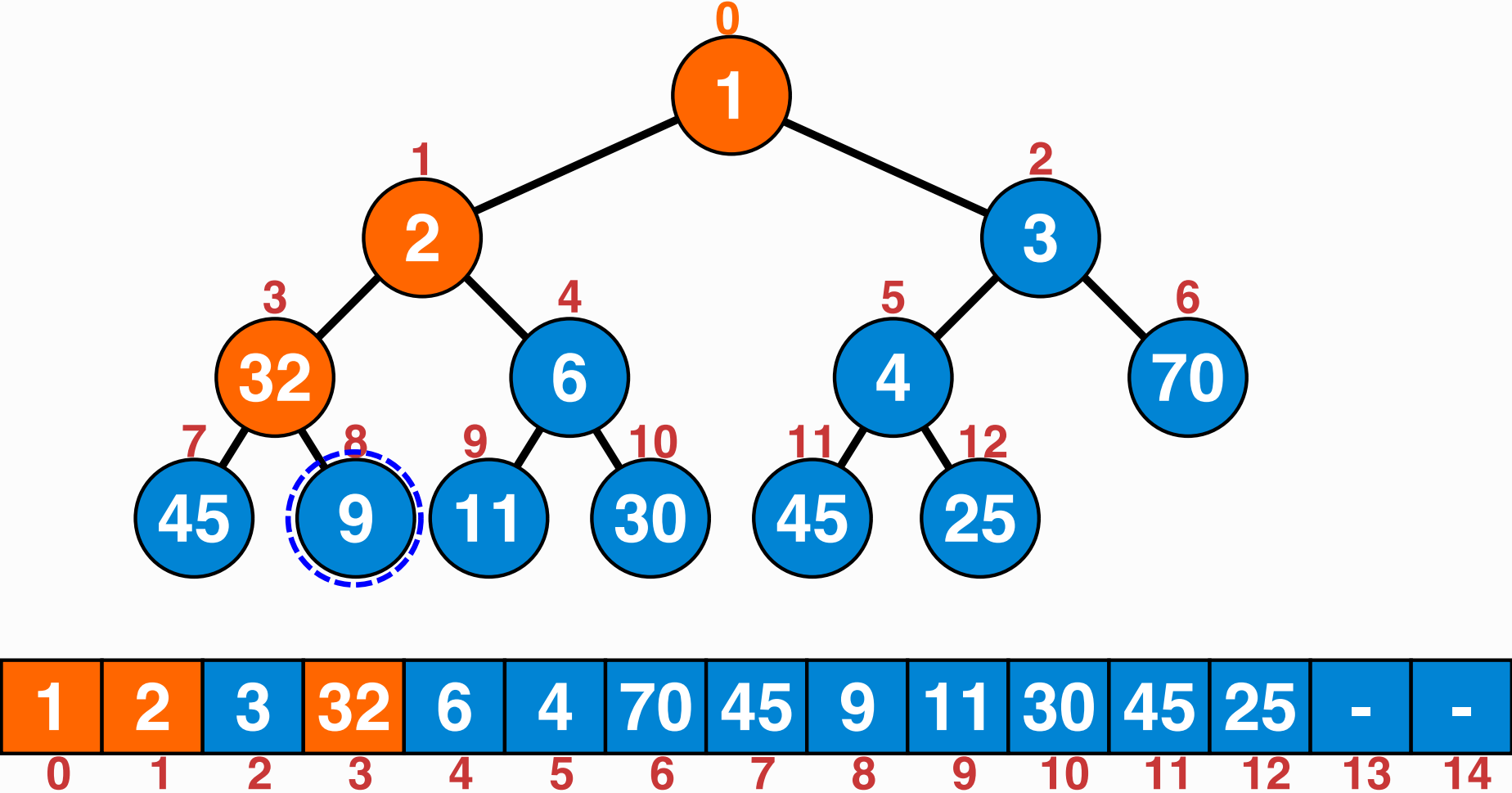


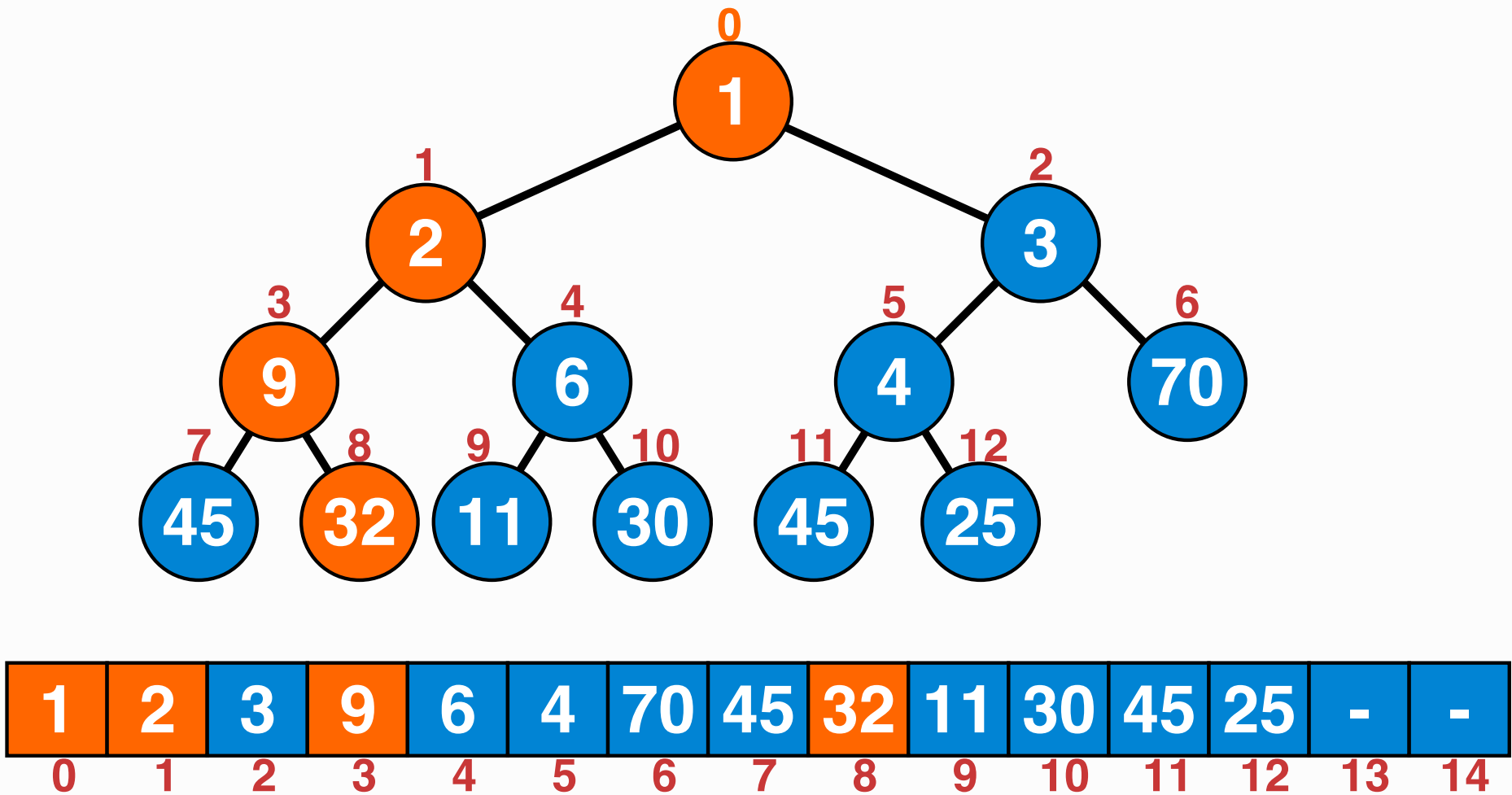
32	1	3	2	30	4	70	45	9	11	6	45	25	-	-
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

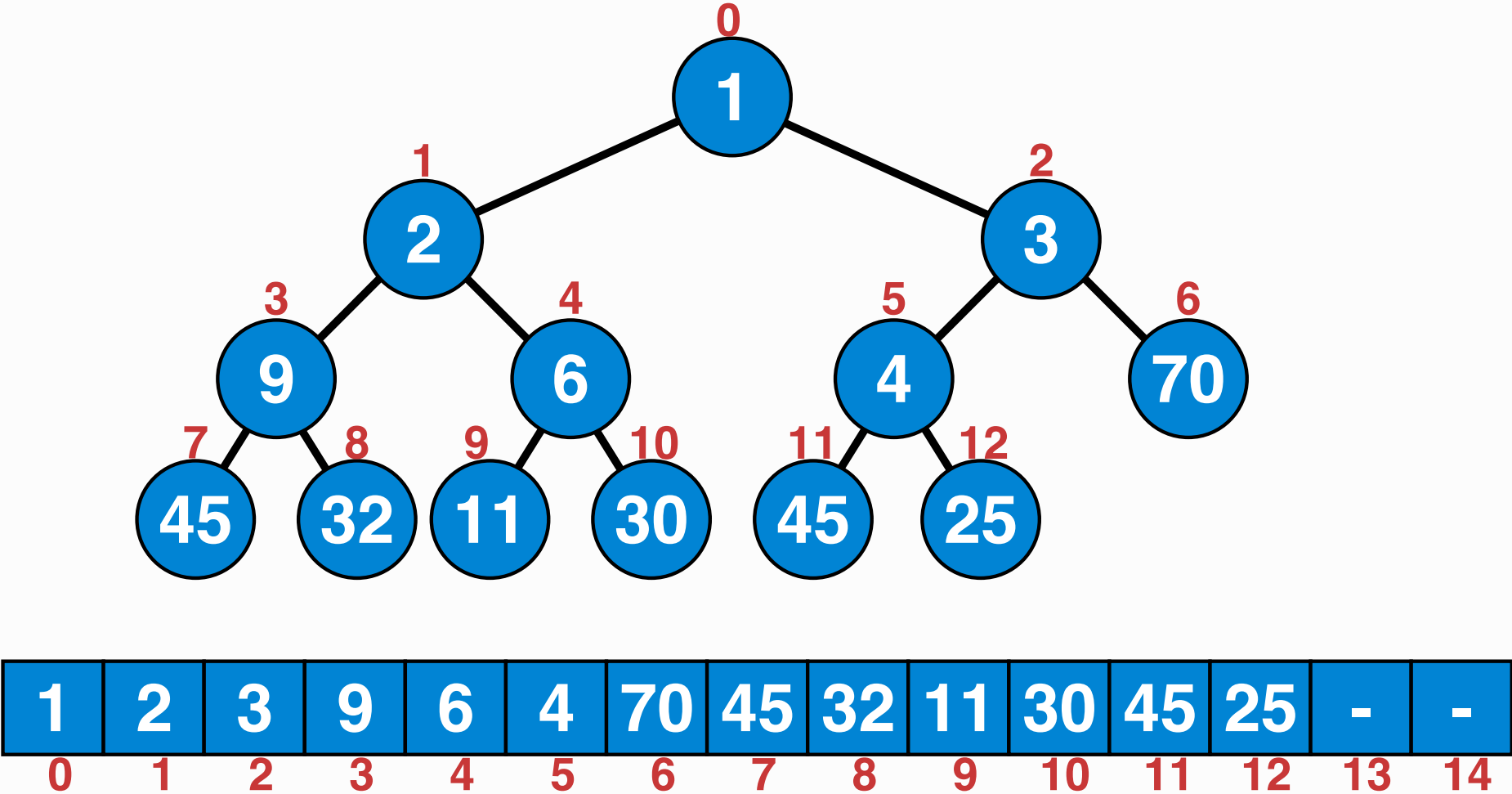






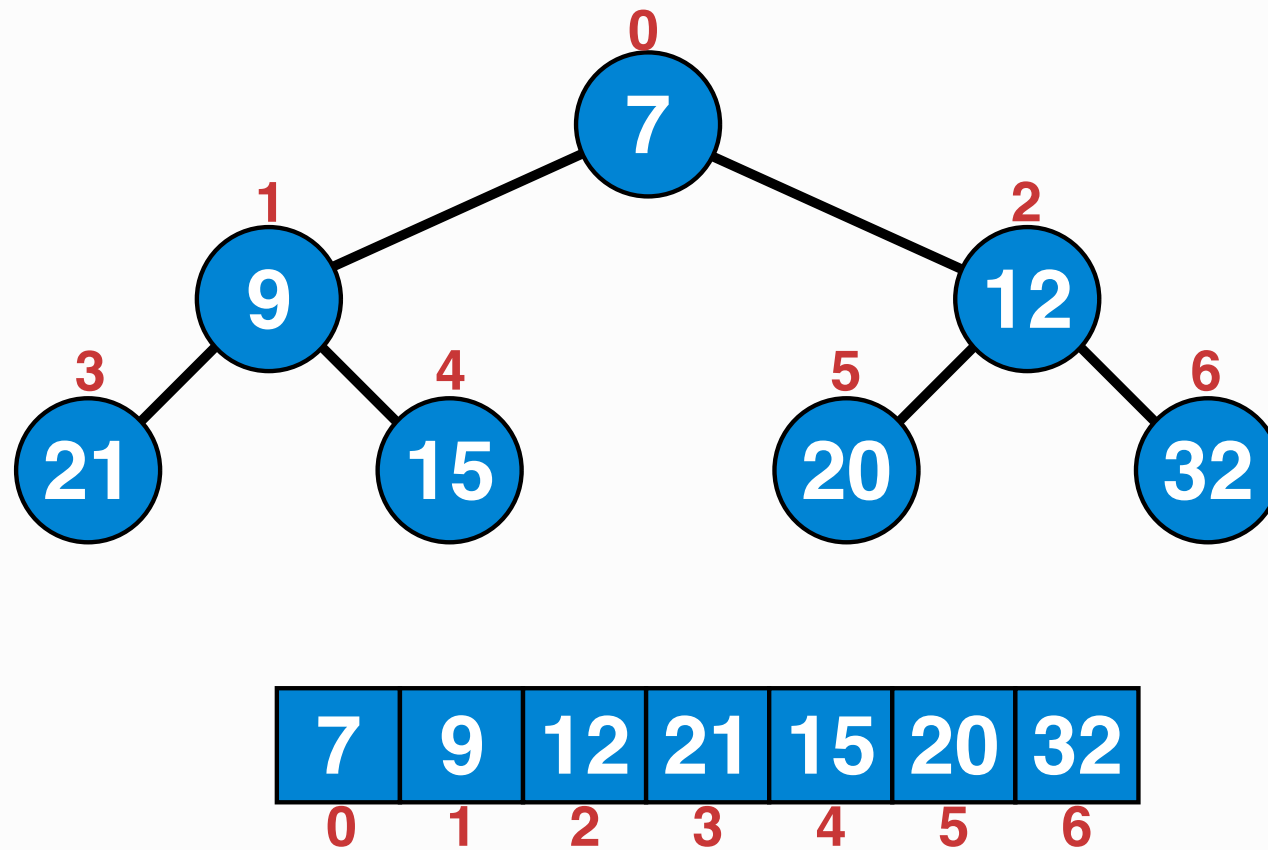




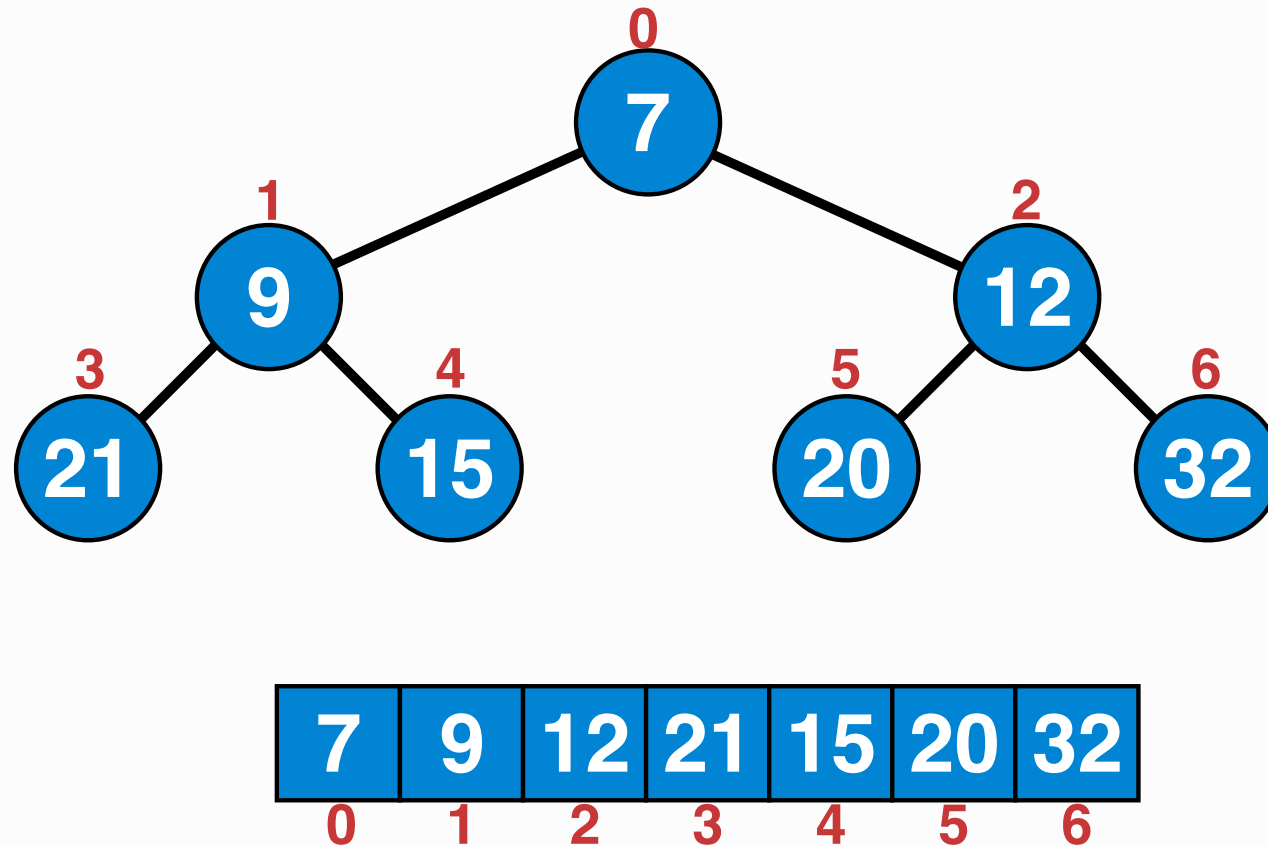


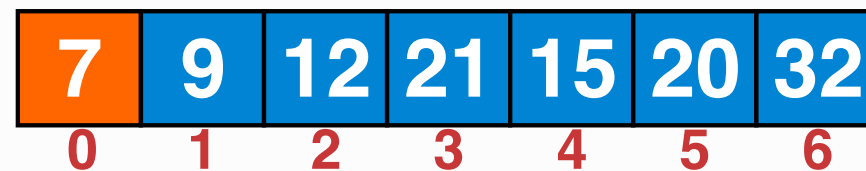
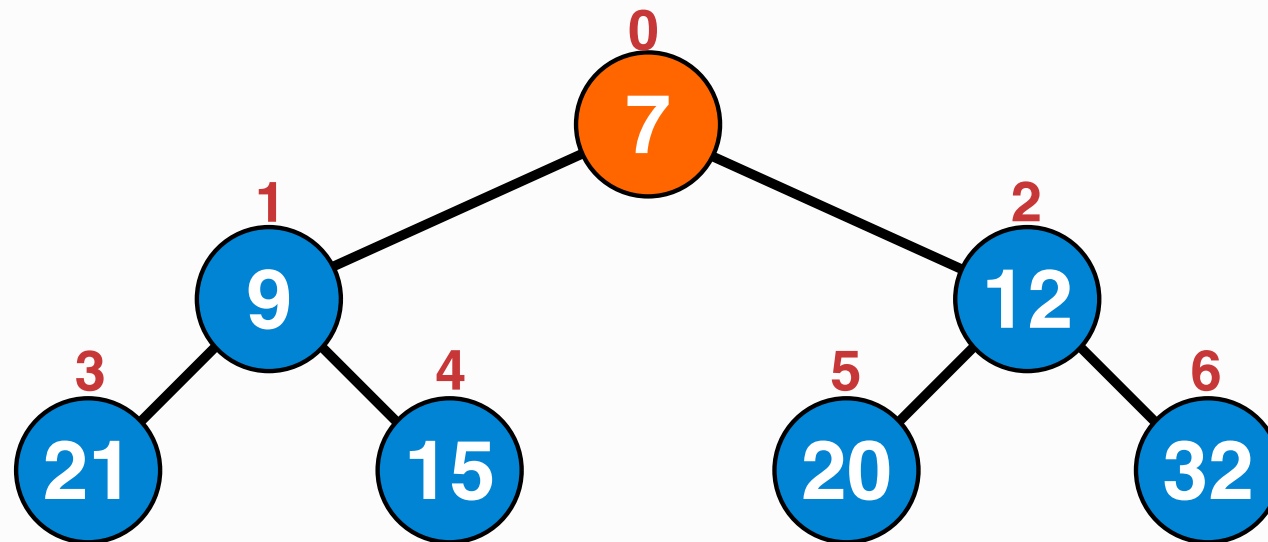
# HEAPSORT

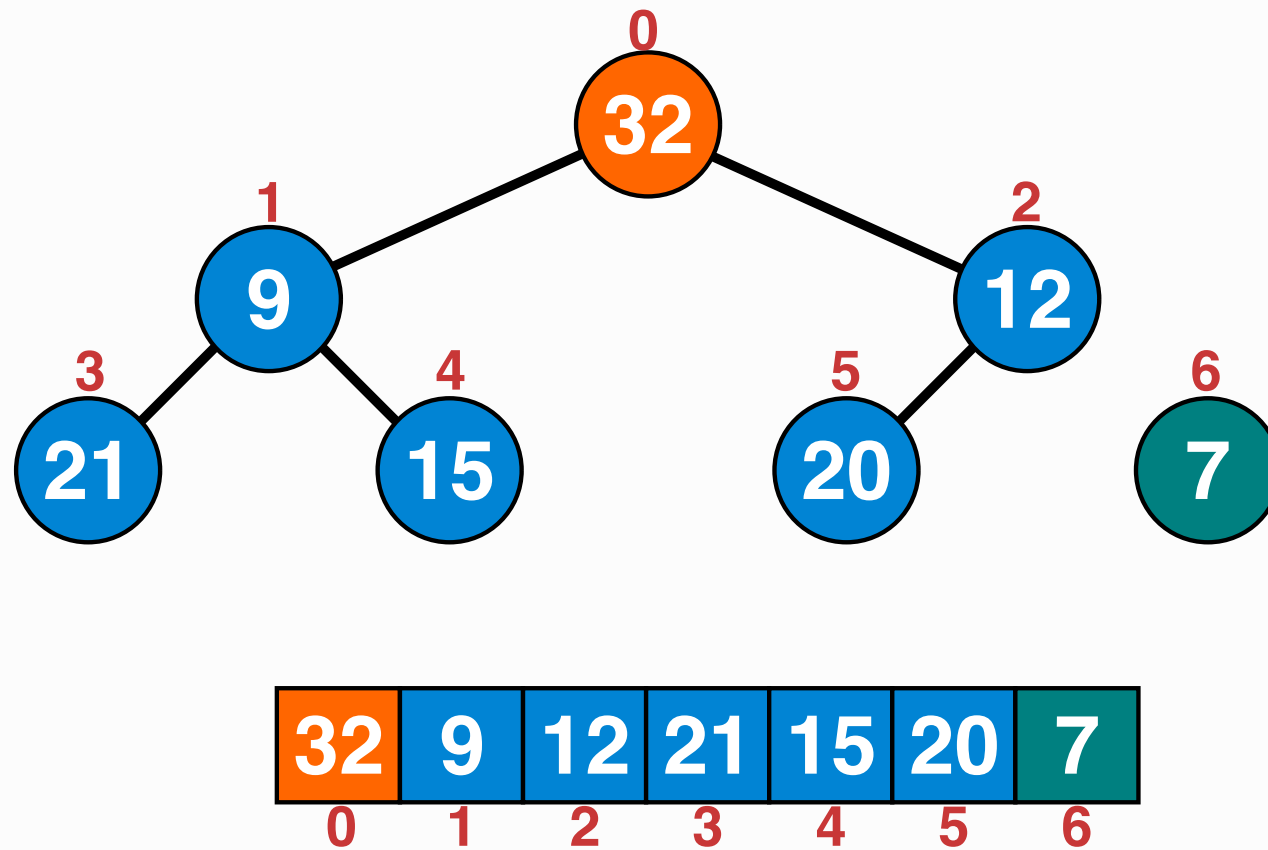


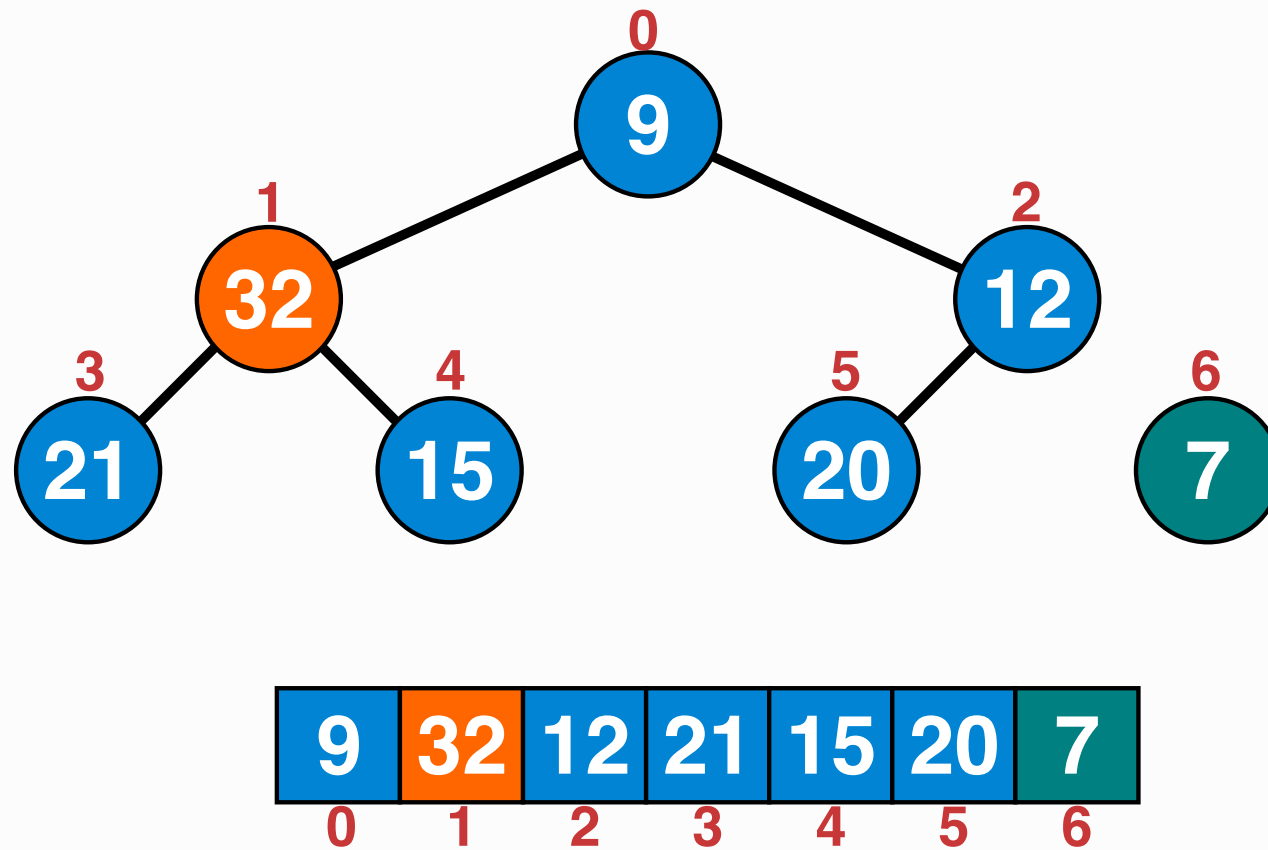


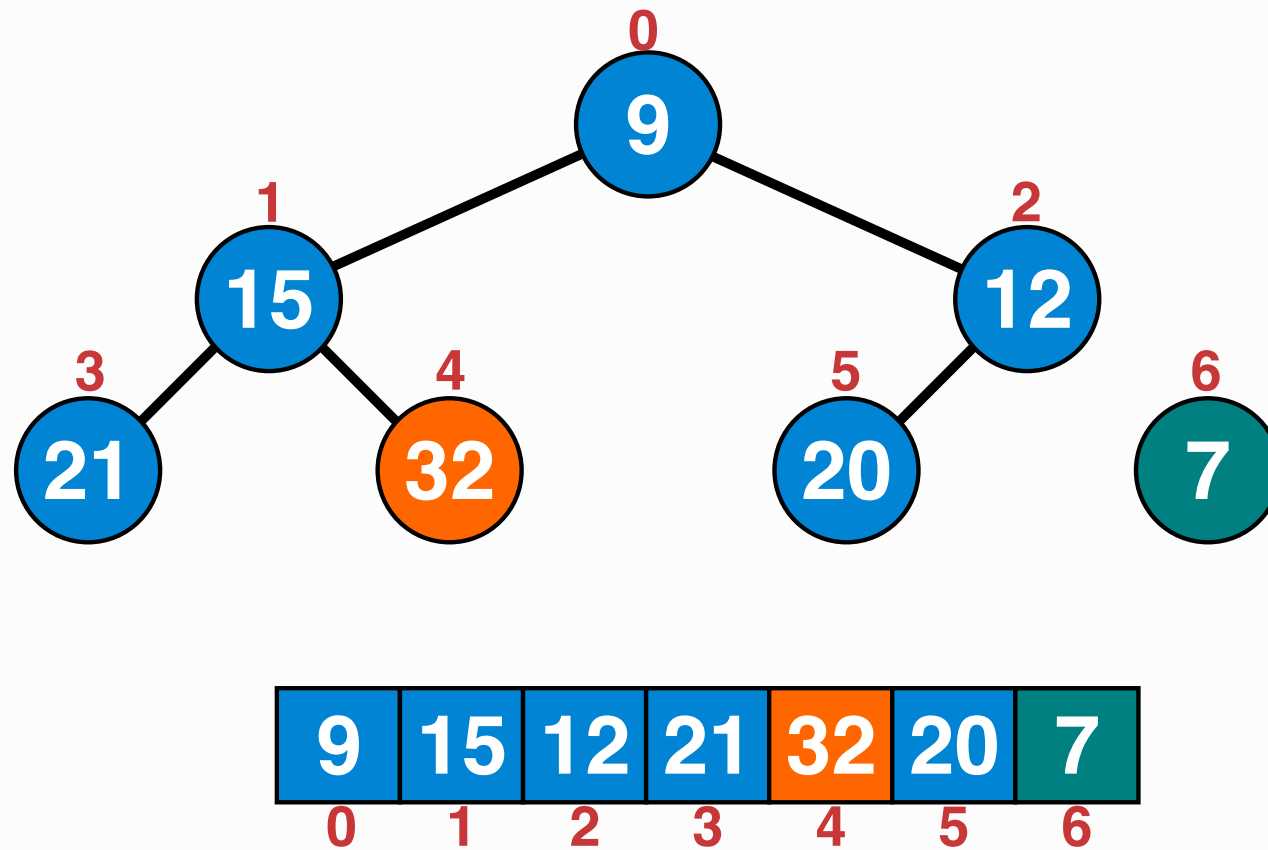
**EXTRAIGO LA RAIZ Y REACOMODO EL HEAP HASTA QUEDARME SIN ELEMENTOS. SI LO HAGO INPLACE EN UN ARRAY MANDO EL ELEMENTO EXTRAIDO COMO ÚLTIMO ELEMENTO Y DISMINUYO EL TAMAÑO DEL HEAP EN 1.**

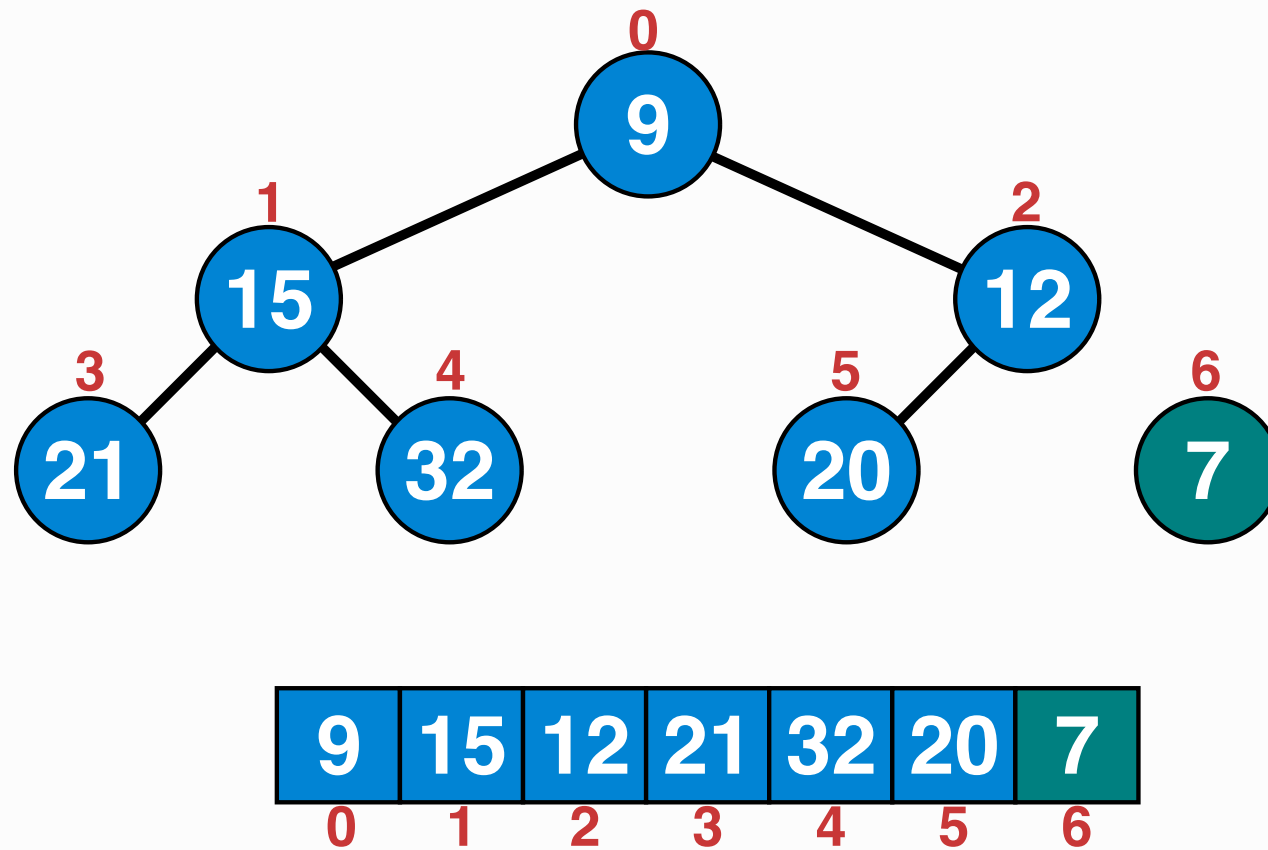


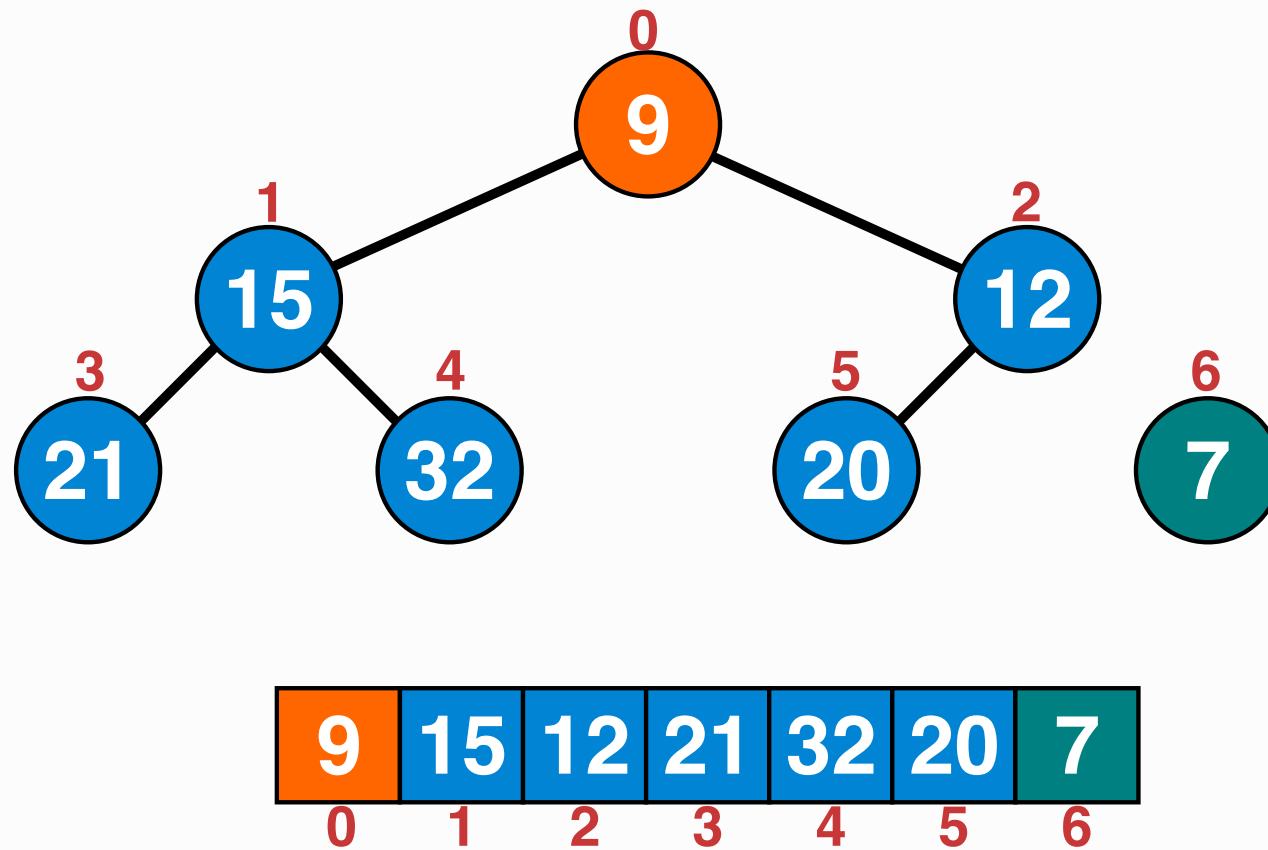




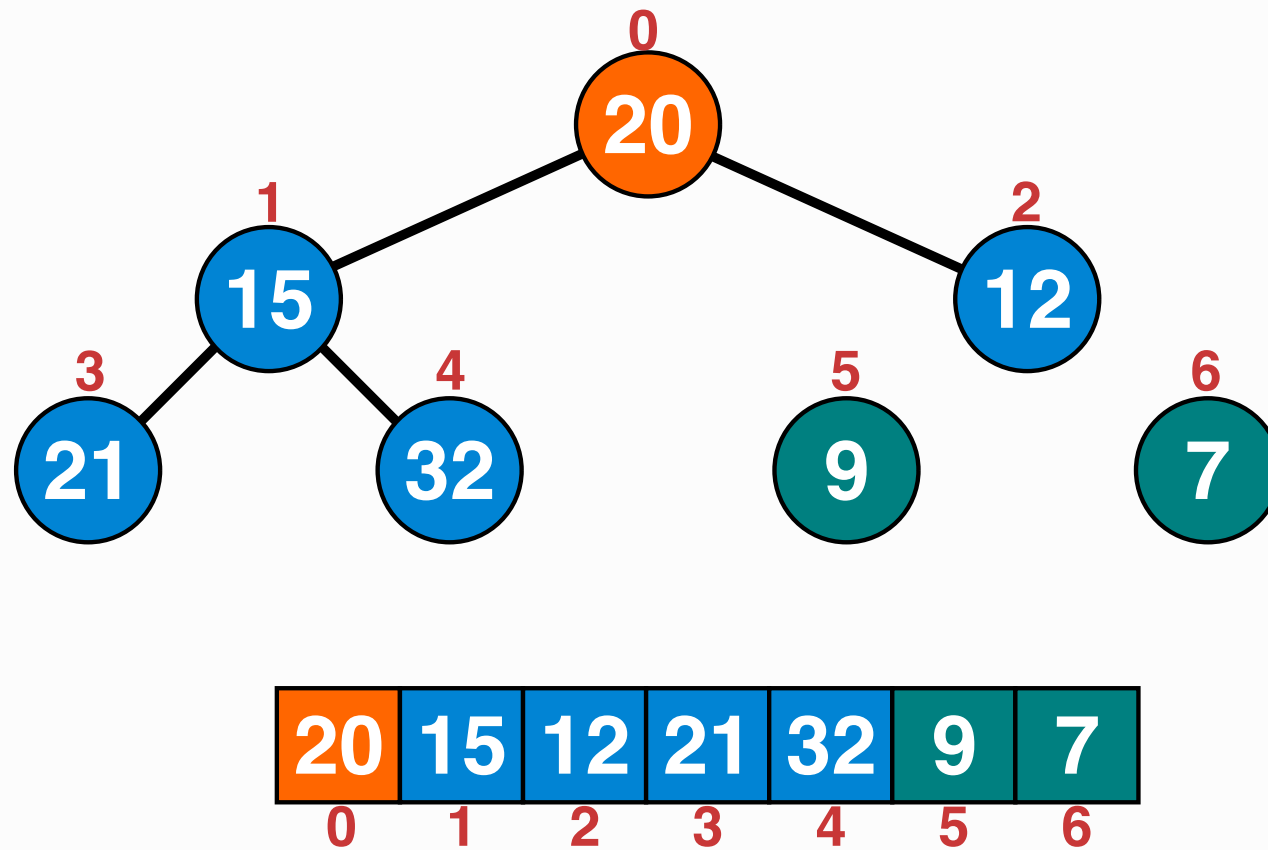


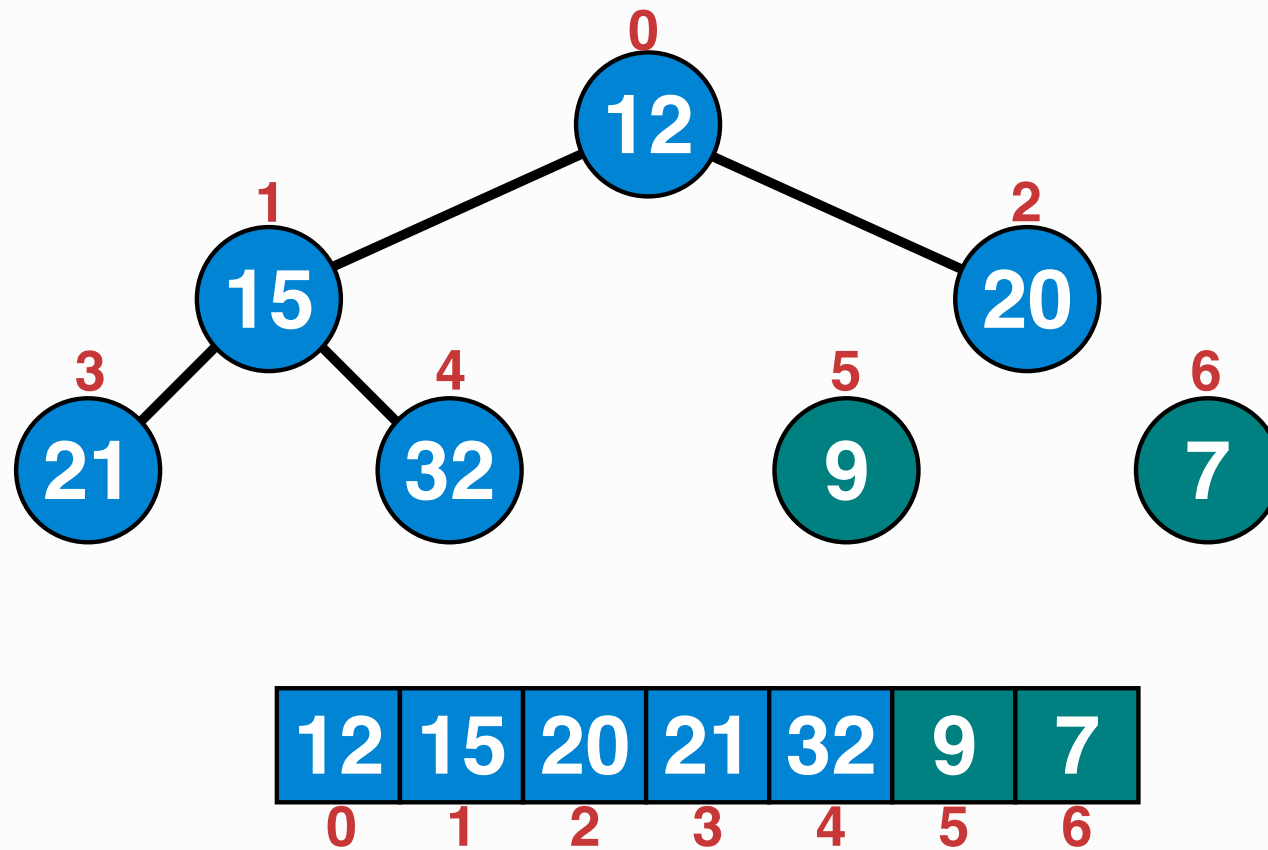


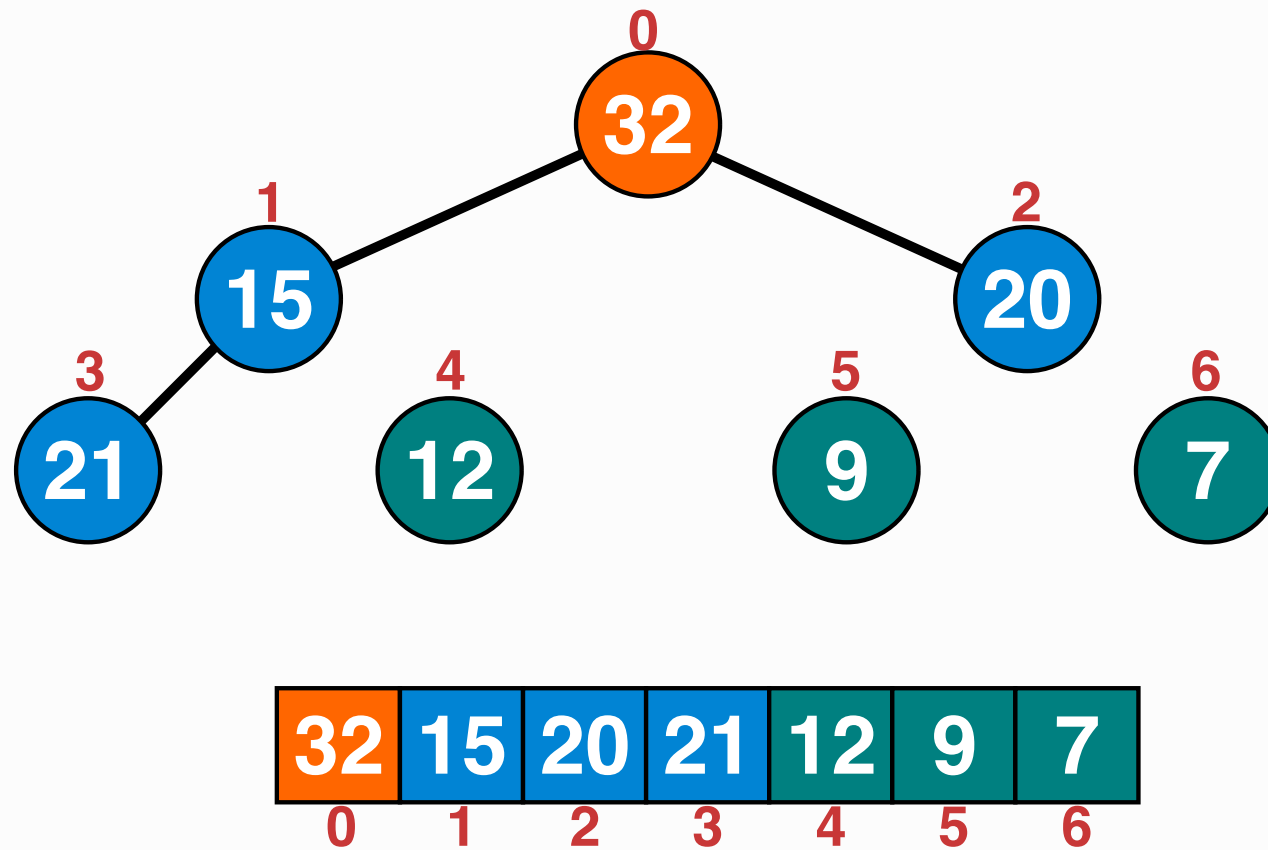


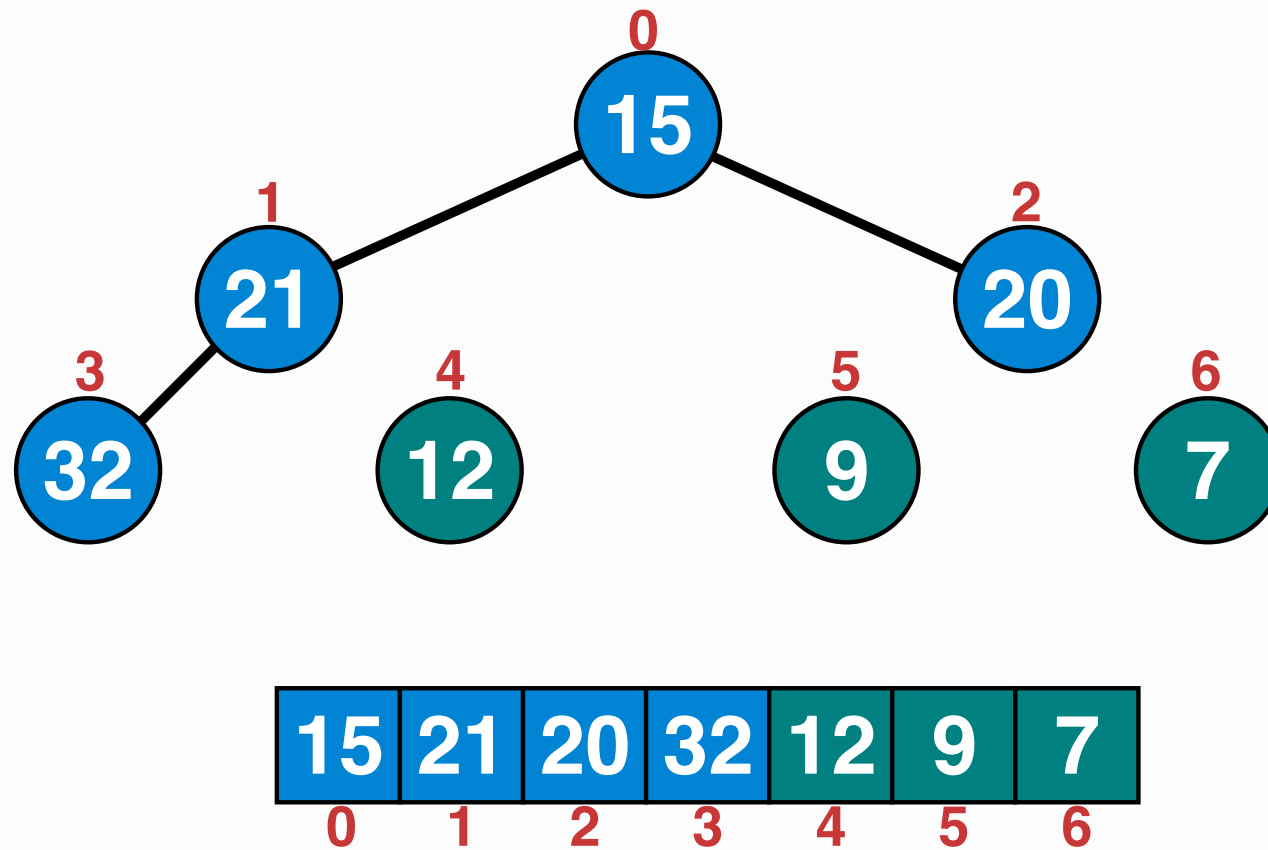


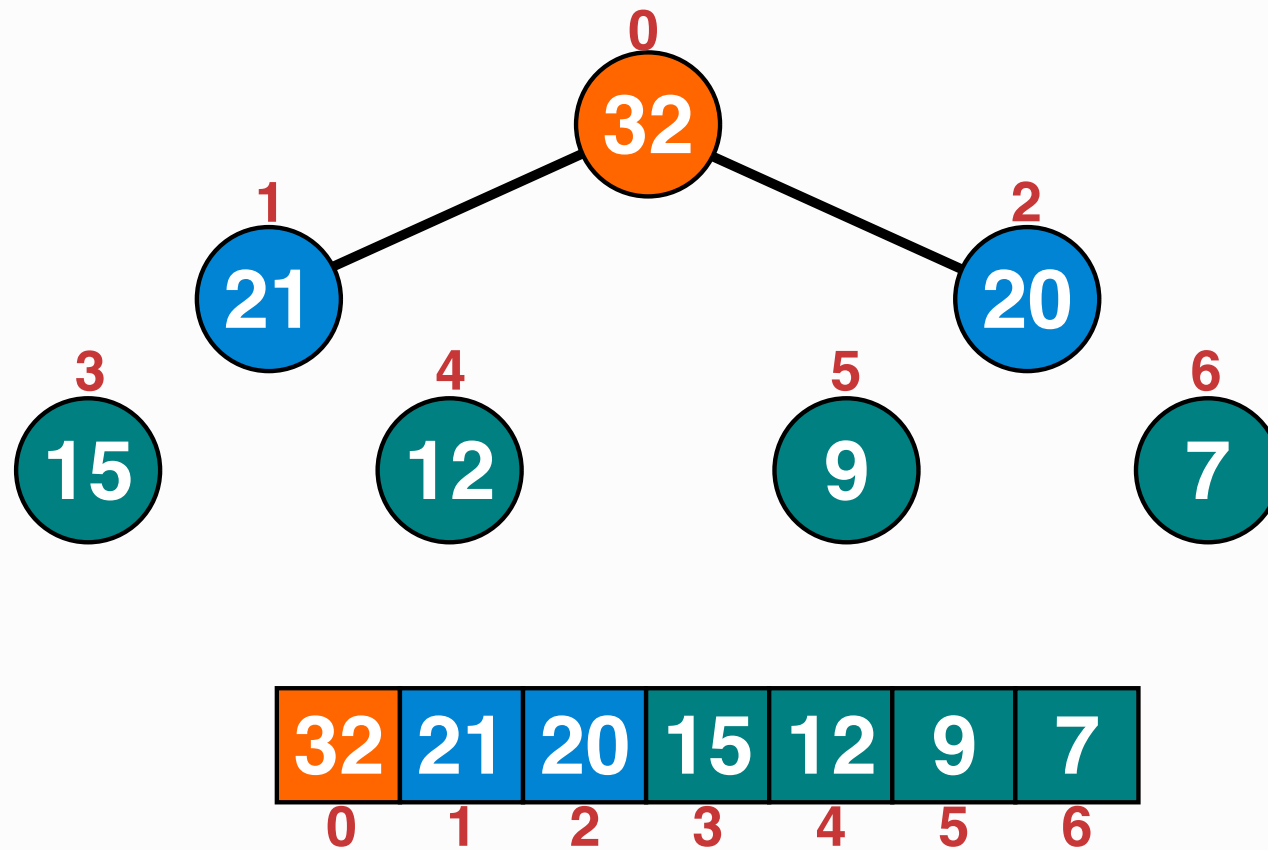


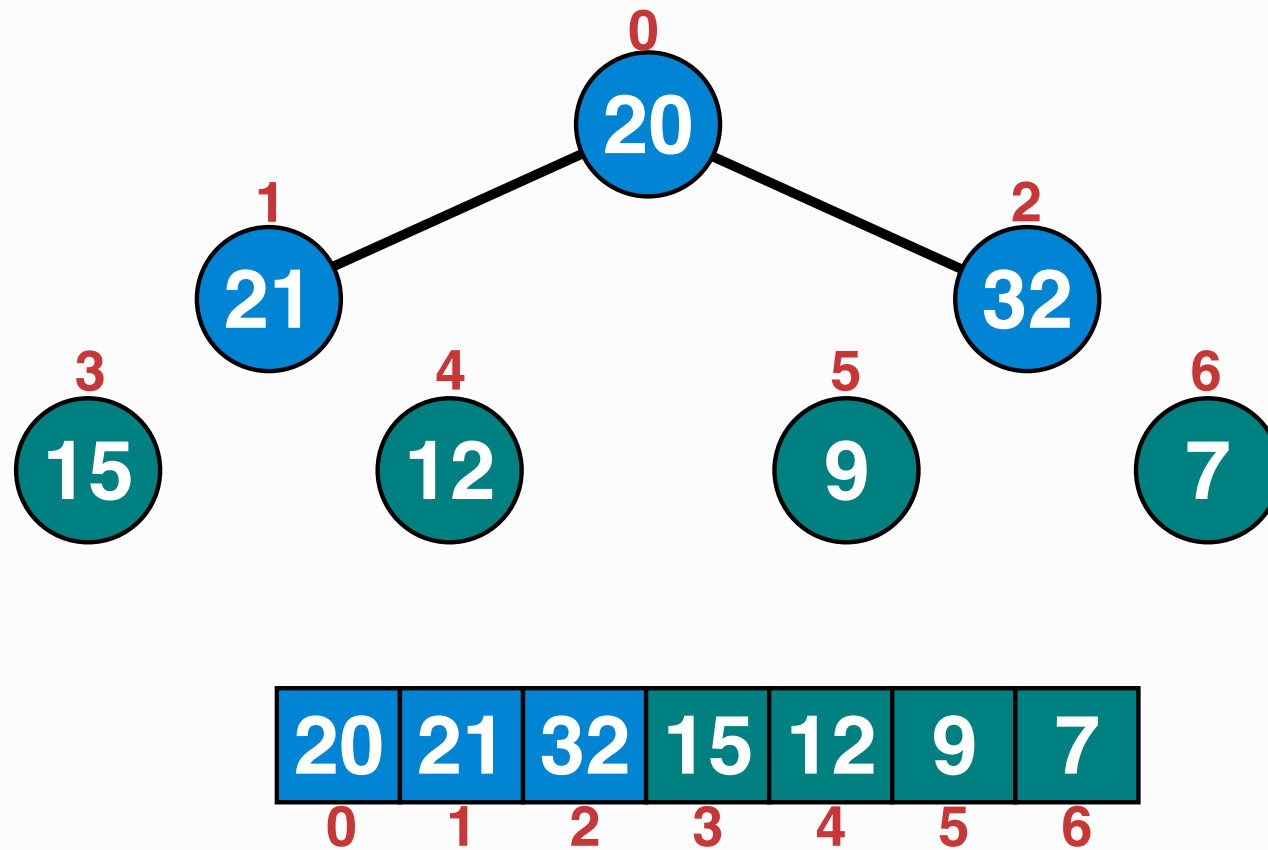


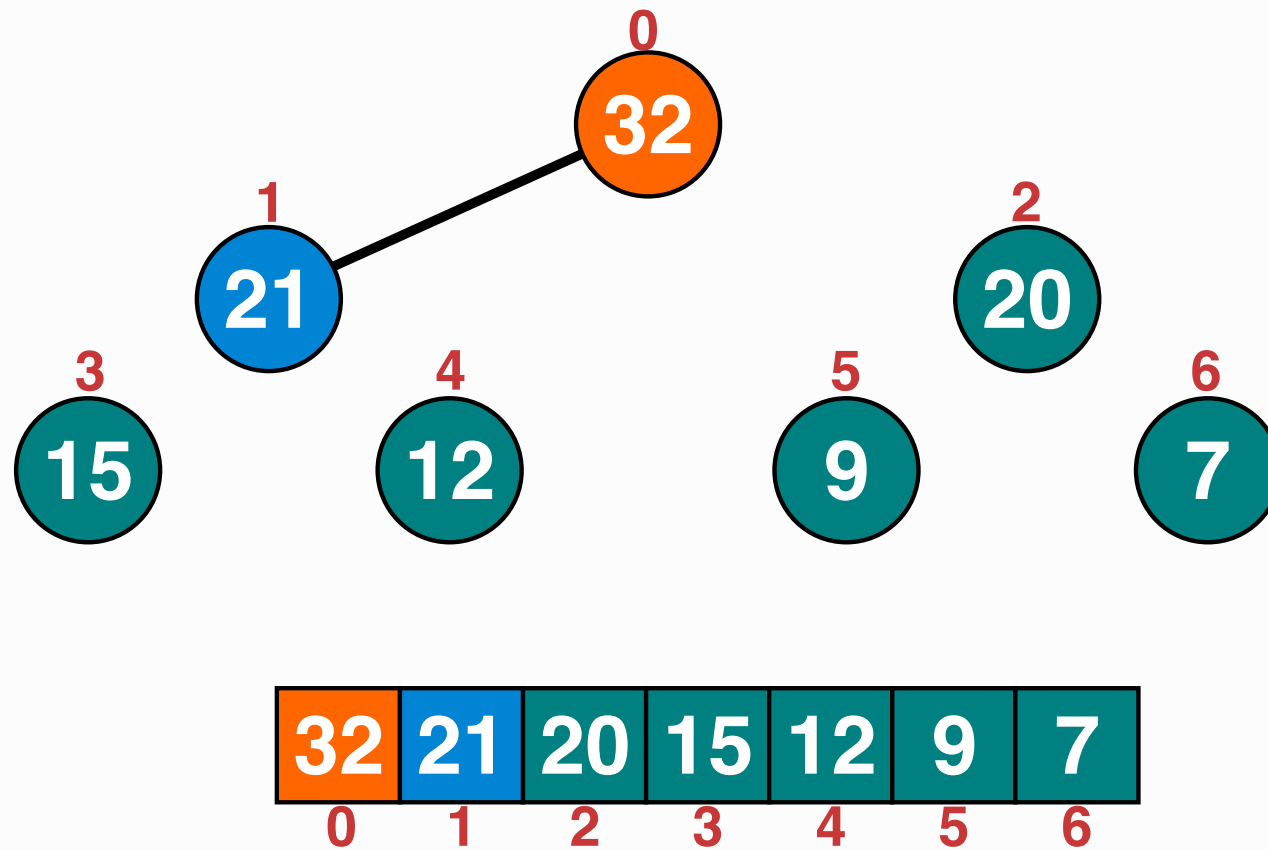


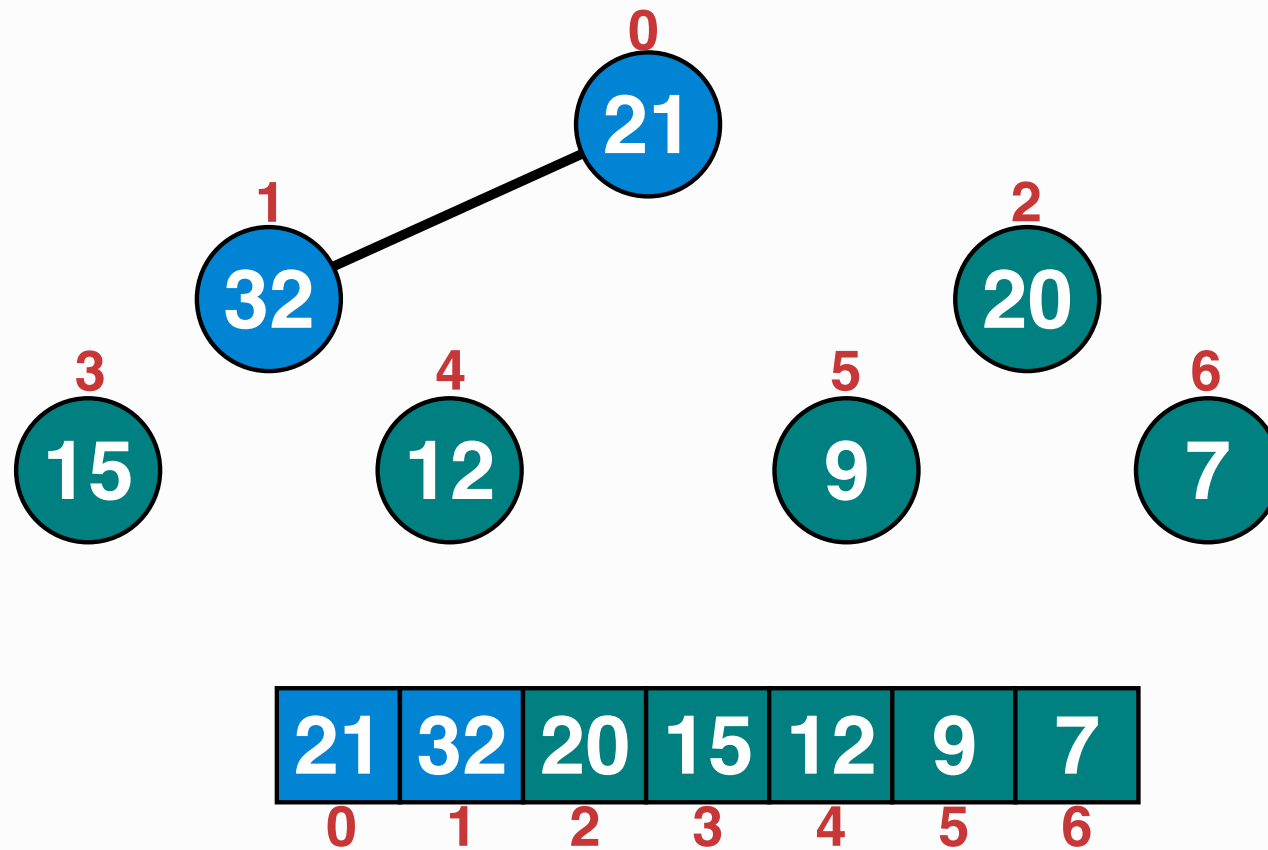




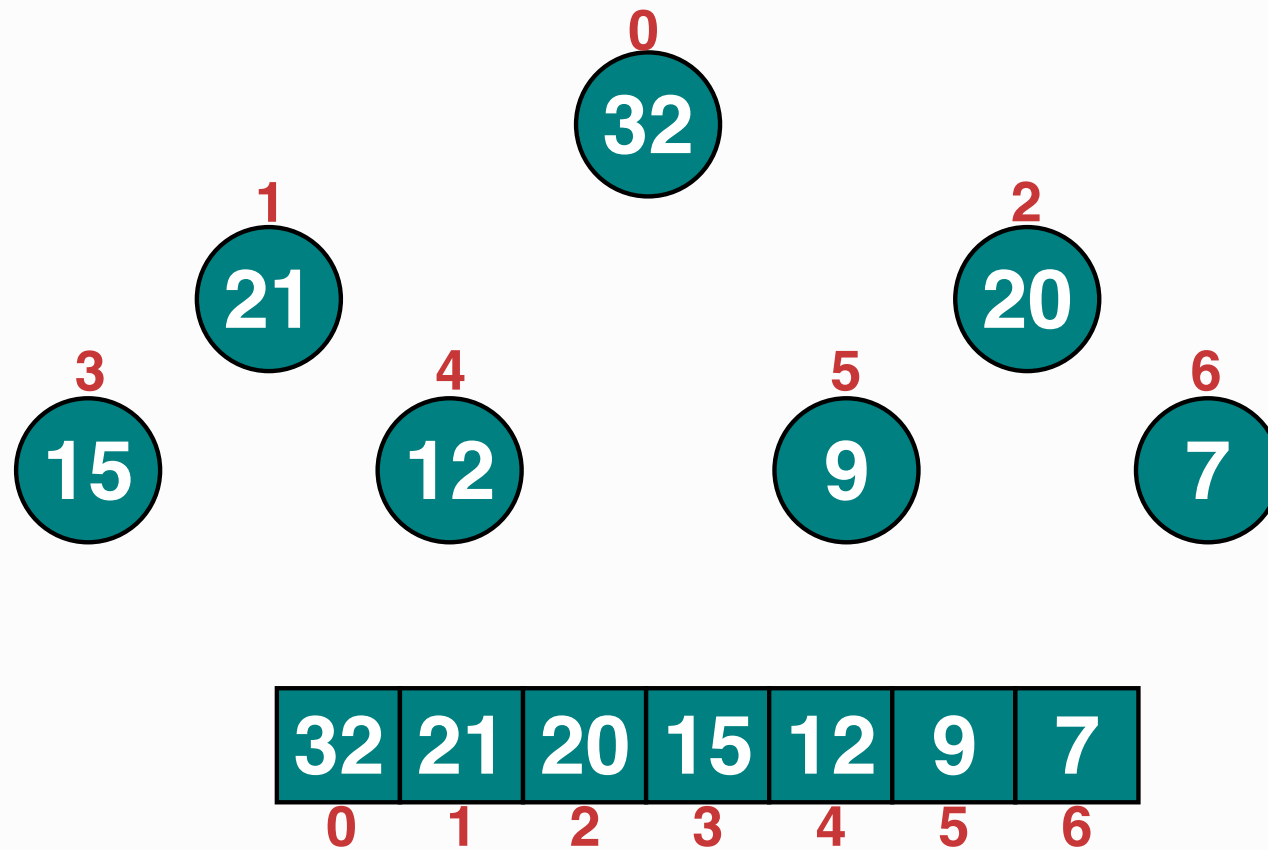


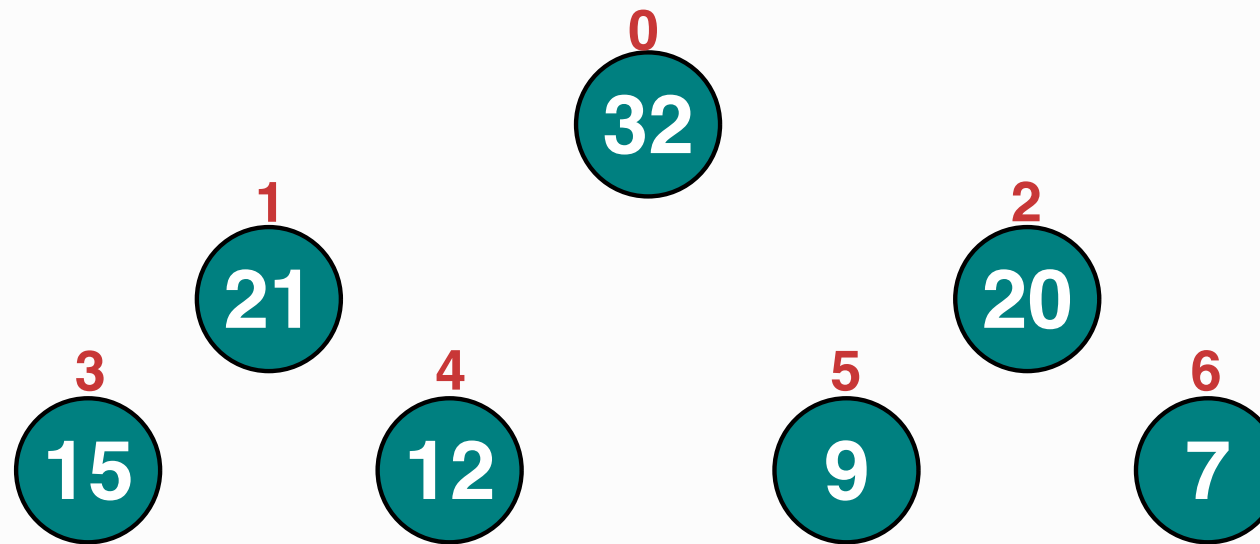












**$O(N \log N)$**

# COLAS CON PRIORIDAD

# ¿PREGUNTAS?

# FIN



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