

Analisis y Diseño de Algoritmos

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Heap

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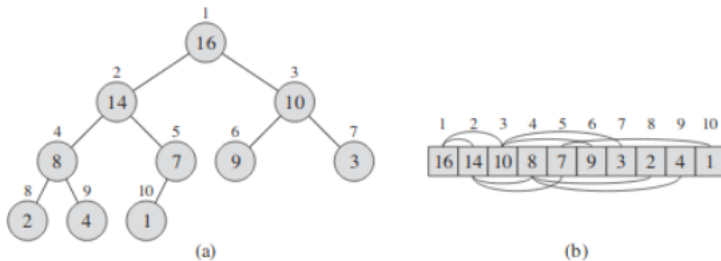


Figure 1: Tomada del libro Cormen, Introduction to Algorithms

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PARENT(i)

1 **return** $\lfloor i/2 \rfloor$

LEFT(i)

1 **return** $2i$

RIGHT(i)

1 **return** $2i + 1$

Figure 2: Tomada del libro Cormen, Introduction to Algorithms

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```
MAX-HEAPIFY(A, i)
1  l = LEFT(i)
2  r = RIGHT(i)
3  if  $l \leq A.heap-size$  and  $A[l] > A[i]$ 
4      largest = l
5  else largest = i
6  if  $r \leq A.heap-size$  and  $A[r] > A[largest]$ 
7      largest = r
8  if largest  $\neq i$ 
9      exchange  $A[i]$  with  $A[largest]$ 
10     MAX-HEAPIFY(A, largest)
```

Figure 3: Tomada del libro Cormen, Introduction to Algorithms

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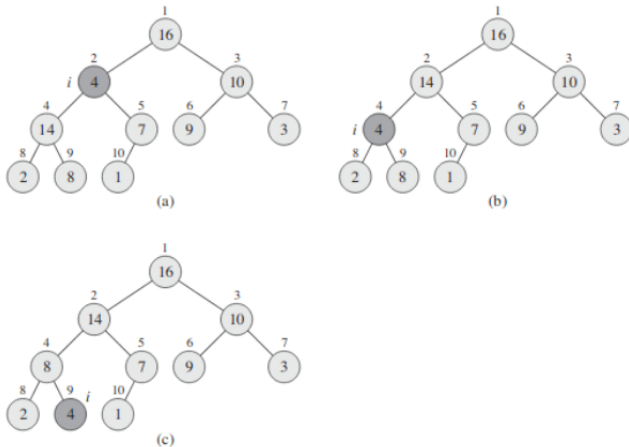


Figure 4: Tomada del libro Cormen, Introduction to Algorithms

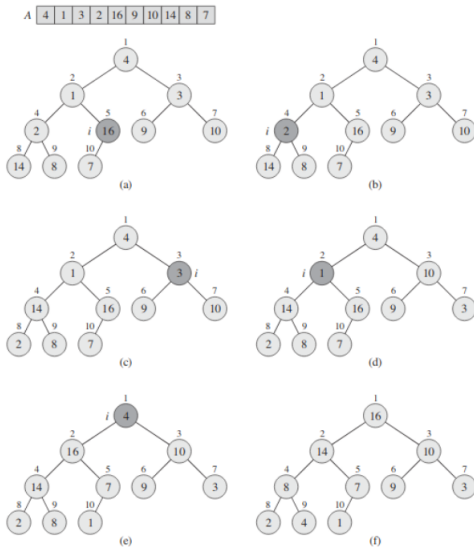
```
BUILD-MAX-HEAP(A)  
1  A.heap-size = A.length  
2  for i =  $\lfloor A.length/2 \rfloor$  downto 1  
3      MAX-HEAPIFY(A, i)
```

Figure 5: Tomada del libro Cormen, Introduction to Algorithms

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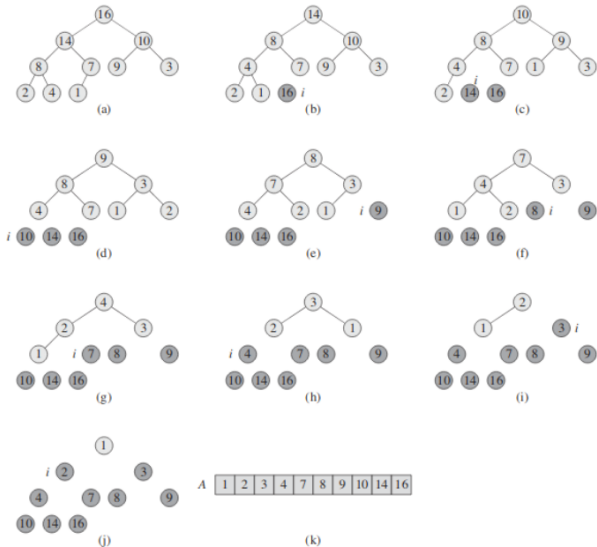
```
HEAPSORT(A)  
1  BUILD-MAX-HEAP(A)  
2  for i = A.length downto 2  
3      exchange A[1] with A[i]  
4      A.heap-size = A.heap-size - 1  
5      MAX-HEAPIFY(A, 1)
```

Figure 7: Tomada del libro Cormen, Introduction to Algorithms

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Heapsort

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Gracias