פסאודו קוד של רוטינות לשיעור בתאריך 27 בפברואר 2008

```
HEAPIFY(A, i)
l ← LEFT(i)
r ← RIGHT(i)
if l ≤ heap-size[A] and A[l] > A[i]
   then largest ← l
   else largest ← i
if r ≤ heap-size[A] and A[r] > A[largest]
   then largest ← r
if largest != i
   then exchange A[i] ←→ A[largest]
         HEAPIFY(A,largest)
```

```
BUILD-HEAP(A)
heap-size[A] ← length[A]
for i  ← ⌊length(A)/2⌋ downto 1
      do HEAPIFY(A, i)
```

```
HEAPSORT(A)
BUILD-HEAP(A)
for i ← length[A] downto 2
      do exchange A[1] ←→ A[i]
         heap-size[A] ← heap-size[A] -1
         HEAPIFY(A, 1)
```

```
HEAP-EXTRACT-MAX(A)
if heap-size[A] < 1
   then error "heap underflow"
max ← A[1]
A[1] ← A[heap-size[A]]
heap-size[A] ← heap-size[A] - 1
HEAPIFY(A, 1)
return max
```

```
HEAP-INSERT(A,key)
heap-size[A] ← heap-size[A] + 1
i ← heap-size[A]
while i > 1 and A[PARENT(i)] < key
    do A[i] ← A[PARENT(i)]
       i ← PARENT(i)
A[i] ← key
```

```
PARTITION(A,p,r)
x ← A[p]
i ← p - 1
j ← r + 1
while TRUE
    do repeat j ← j - 1
         until A[j] ≤  x
       repeat i ← i + 1
         until A[i] ≥ x
       if i < j
           then exchange A[i] ←→ A[j]
           else return j
```