

# Appendix A

---

## Heap Sort

```
Procedure Heapsort(A) {  
  BuildHeap(A)  
  for i <- length(A) downto 2 {  
    exchange A[1] <-> A[i]  
    heapsize <- heapsize - 1  
    Heapify(A, 1)  
  }  
}
```

```
Procedure BuildHeap(A) {  
  heapsize <- length(A)  
  for i <- floor( length/2 ) downto 1  
    Heapify(A, i)  
}
```

```
Procedure Heapify(A, i) {  
  le <- left(i)  
  ri <- right(i)  
  if (le <= heapsize) and (A[le] > A[i])  
    largest <- le  
  else  
    largest <- i  
  if (ri <= heapsize) and (A[ri] > A[largest])  
    largest <- ri  
  if (largest != i) {  
    exchange A[i] <-> A[largest]  
    Heapify(A, largest)  
  }  
}
```