```
mergesort(A, p, r) {
  if (p < r) {
    q = floor((p + r)/2)
    mergesort(A, p, q)
    mergesort(A, q + 1, r)
    merge(A, p, q, r)
  }
}
```

2	8	9	3	7	8
p		q			r

```
merge(A, p, q, r) {
  n1 = q - p + 1
  n2 = r - q
  let L[1..n1+1] and R[1..n2+1] be new arrays
  for i = 1 to n1 {
    L[i] = A[p + i - 1]
  }
  for j = 1 to n2 {
    R[j] = A[q + j]
  }
  L[n1 + 1] = infinity
  R[n2 + 1] = infinity
  i = 1
  j = 1
  for k = p to r {
    if L[i] <= R[j] {
      A[k] = L[i]
      i++
    } else {
      A[k] = R[j]
      j++
    }
  }
}
```