
Algorithm 1 Merge(A, p, q, r)

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1   $n_1 = q - p + 1$ ;  
2   $n_2 = r - q$ ;  
3  Let  $L[1..n_1]$  and  $R[1..n_2]$  be new arrays  
4  for  $i = 1$  to  $n_1$   
5       $L[i] = A[p + i - 1]$ ;  
6  for  $j = 1$  to  $n_2$   
7       $R[j] = A[q + i]$ ;  
8   $i = 1$ ;  
9   $j = 1$ ;  
10  $k = p$ ;  
11 while  $i < n_1$  and  $j < n_2$   
12     if  $L[i] \leq R[j]$   
13          $A[k] = L[i]$ ;  
14          $i++$ ;  
15     else  
16          $A[k] = R[j]$ ;  
17          $j++$ ;  
18      $k++$ ;  
19 if  $j == n_2$   
20     for  $m = k$  to  $r$   
21          $A[m] = L[i]$ ;  
22      $i++$ ;
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