

27.03.2020

4. Merge Sort

Write pseudo code for merge sort algorithm. Show how merge sort is done in the array $[14, 7, 3, 12, 9, 11, 6, 2, 15]$.

Pseudo code:

procedure mergesort ($A[]$, left, right)

if (left == right) return;

else:

mid = $(\text{left} + \text{right}) / 2$

mergesort (A , left, mid)

mergesort (A , mid+1, right)

merge (A , left, mid, right)

procedure merge ($A[]$, left, mid, right)

$j = 0$

$l = \text{left}$

$u = \text{mid} + 1$

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while ($l < mid+1$ and $u < right+1$):

if $A[l] < A[u]$:

$B[j] = A[l]$

$l = l+1$

$j = j+1$

else:

$B[j] = A[u]$

$u = u+1$

$j = j+1$

while ($l < mid+1$):

$B[j++] = A[l++]$

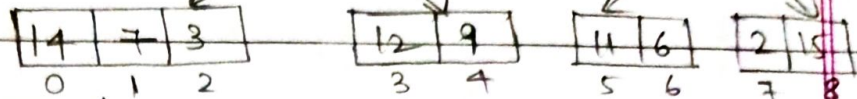
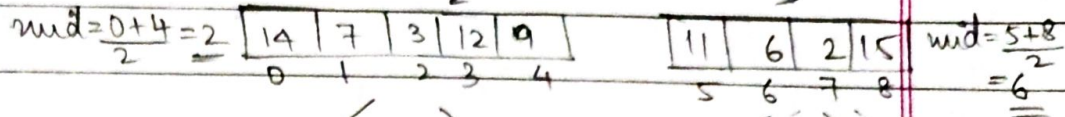
while ($u < right+1$):

$B[j++] = A[u++]$

$l = left$

for $j = 0$ to $n-1$:

$A[l++] = B[j]$



$mid = \frac{0+2}{2} = 1$

$mid = \frac{3+4}{2} = 3$

$mid = 5$

$mid = 7$

