

Merge Sort. $[8, 5, 2, 9 | 5, 6, 3] \rightarrow (6-0)/2+0=3$

$[8, 5 | 2, 9] [5, 6 | 3] \rightarrow (3-0)/2+0=1 ; (6-4)/2+4=5$

$[8 | 5] [2 | 9] [5 | 6] [3] \rightarrow 0 ; 2 ; 4$

↓
 ↗
 new
 $[8] [5] [2] [9] [5] [6] [3]$ Time: $N \log(N)$

$[5, 8] [2, 9] [5, 6] [3]$
 ↗ ↘ ↗ ↘

$[2, 5, 8, 9] [3, 5, 6]$
 ↗ ↘

$[2, 3, 5, 5, 6, 8, 9]$