Analyze Performance

Let arr.length = n;. The First for loop for (int i=0; I < arr.length- 1;i++) is executed n-1 times ( from 0 to n-2). The Second for loop for (int k = start; k <= end; k++), when i=0, start=0 and end=n-1, so the second loop executed n times. As I incremented of the iteration of second loop is decremented by 1 with respect to two conditions.

case 1: switcher<2 ---> end=end-1

case 2; switcher>=2 and switcher<4 ----> start=start+1;

Since the second loop is dependent on start and end so in both the case the we can see that the number of iterations is decremented by 1;

Time complexity = O(2+3+...... + n-2 + n-1 + n)

=O ( n(n+1)2-1)

= O(n2)

The best, worst, and average case is O(n2).