2.Create a method to Sort unsorted array and find time complexity

STEP 1: Consider array has following number has (12,8,7,5,2).

STEP 2: compare 12,8. Since 12>8. The sorted becomes (8,12,7,5,2).

STEP 3: Now compare 12,7 .Since 12>7. The sorted becomes (8,7,12,5,2).

STEP 4: Now compare 12,5 .Since 12>5. The sorted becomes (8,7,5,12,2).

STEP 5: Now compare 12,2 .Since 12>2. The sorted becomes (8,7,5,2,12).

STEP 5: Now compare 8,7 .Since 8>7. The sorted becomes (7,8,5,2,12).

STEP 6: Now compare 8,5 .Since 8>5. The sorted becomes (7,5,8,2,12).

STEP 7: Now compare 8,2 .Since 8>2. The sorted becomes (7,5,2,8,12).

STEP 8: Now compare 7,5 .Since 7>5. The sorted becomes (5,7,2,8,12).

STEP 9: Now compare 7,2 .Since 7>5. The sorted becomes (5,2,7,8,12).

STEP 10: Now compare 5,2 .Since 5>2. The sorted becomes (2,5,7,8,12).

COMPARISION AND SWAP FOR THE 1st PASS:

(1+3)+(1+3)+(1+3)+(1+3) = 16 Steps.

COMPARISION AND SWAP FOR THE 2nd PASS:

(1+3)+(1+3)+(1+3) = 12 Steps.

COMPARISION AND SWAP FOR THE 3st PASS:

(1+3)+(1+3) = 8 Steps.

COMPARISION AND SWAP FOR THE 4st PASS:

(1+3) = 4 Steps.

TIME COMPLEXITY IS :

16+12+8+4 = 4(4+3+2+1) [FOR 5 ELEMENTS]

4(n-1+n-2+………3+2+1) [FOR n ELEMENTS] Time complexity for loop inside lop is usually O(n^2).