BUBBLE SORT

By Prince Agarwal

[“ Hello World ”]

BUBBLE SORT

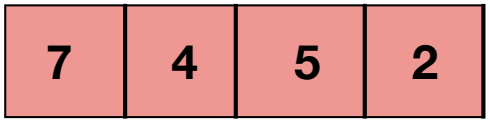
ALGORITHM :-

1) TAKE THE UNSORTED ARRAY
2) COMPARE TWO CONSECUTIVE ELEMENTS SEQUENTIALLY
3) ARRANGE THEM IN ASCENDING ORDER
4) UNTIL N-1 TIMES
5) THEN WE GOT SORTED ARRAY

BUBBLE SORT

PROCEDURE :-

UNSORTED ARRAY :-



OUR AIM :- SORT Above Array

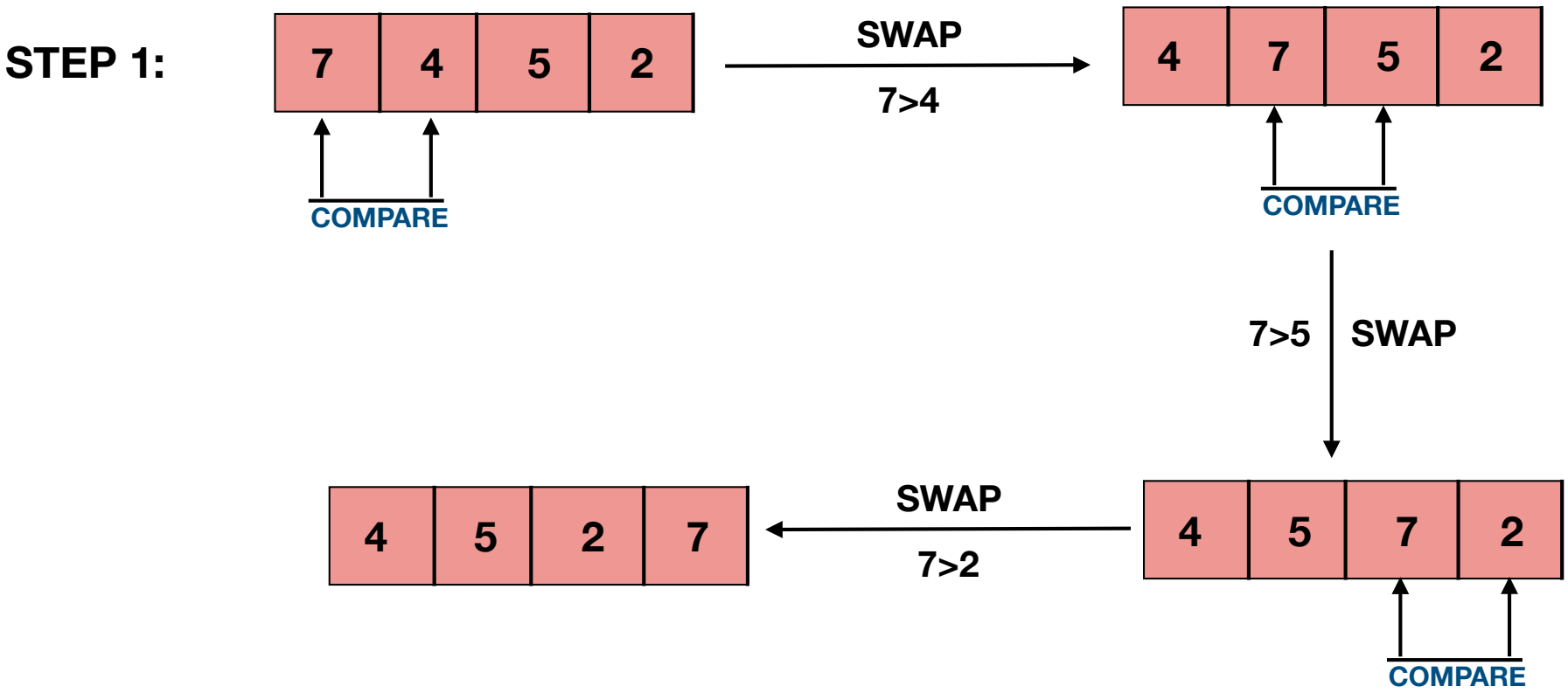
NOW,

NUMBER OF ELEMENTS = N = 4

LOOP WILL RUN N-1 TIMES

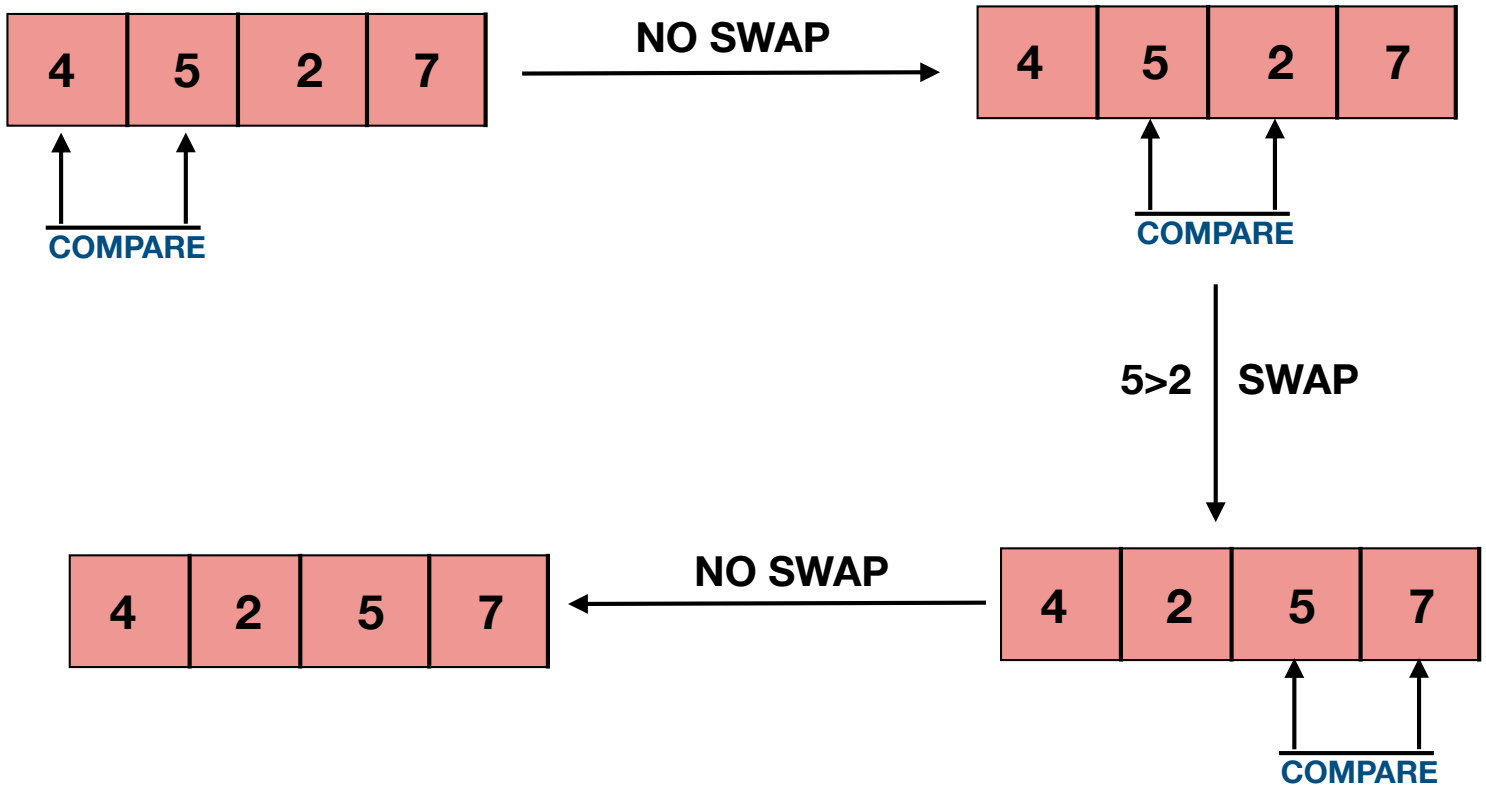
IT MEANS, IN THIS CASE LOOP WILL RUN 3 TIMES

BUBBLE SORT

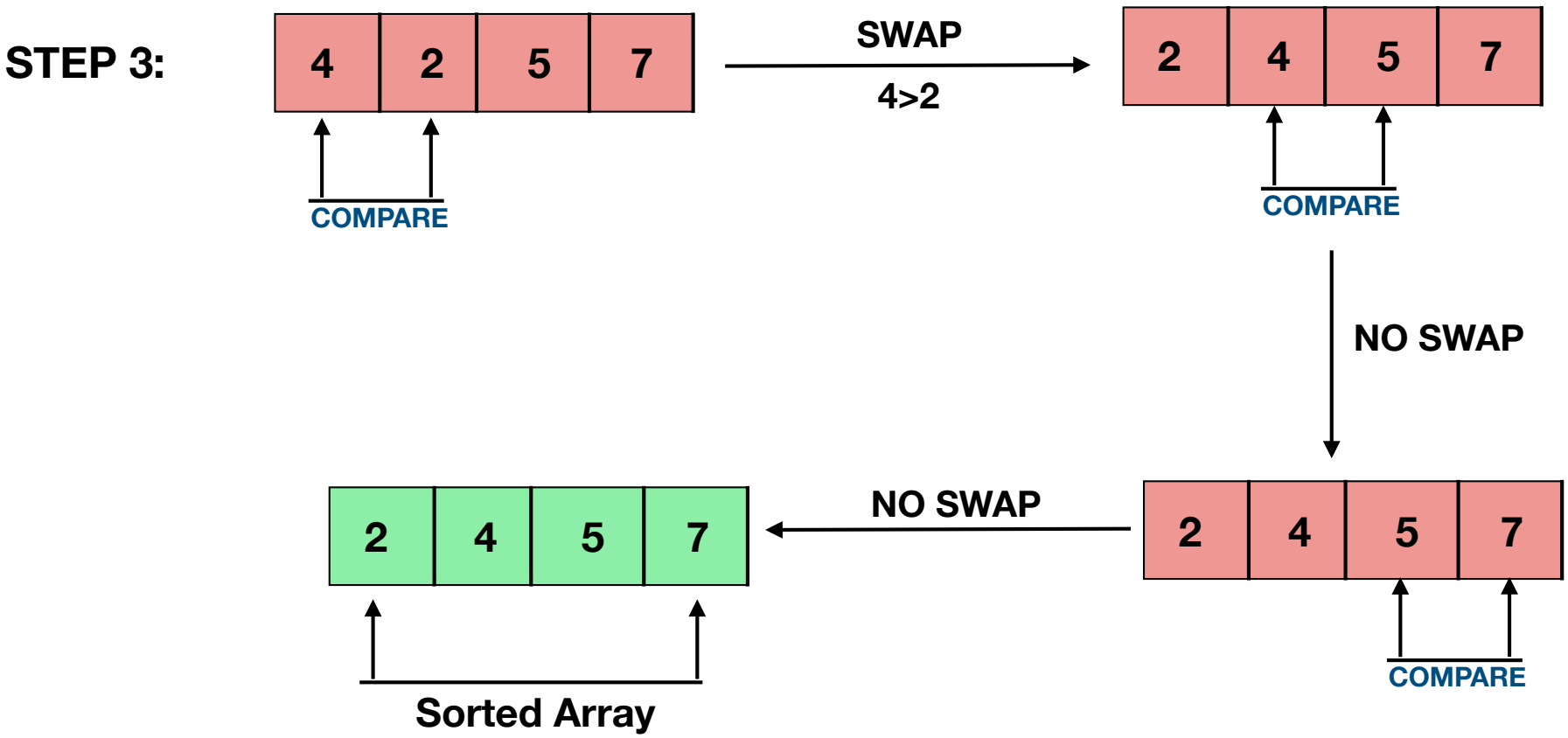

STEP 1:
7
4
5
2
COMPARE
SWAP
7>4
4
7
5
2
COMPARE
7>5
SWAP
4
5
2
7
SWAP
7>2
4
5
7
2
COMPARE

BUBBLE SORT

STEP 2:



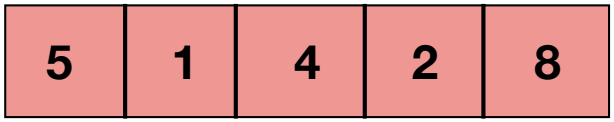
BUBBLE SORT


STEP 3:
4
2
5
7
COMPARE
SWAP
4>2
2
4
5
7
COMPARE
NO SWAP
2
4
5
7
COMPARE
NO SWAP
2
4
5
7
Sorted Array

BUBBLE SORT

EXAMPLE 2 :

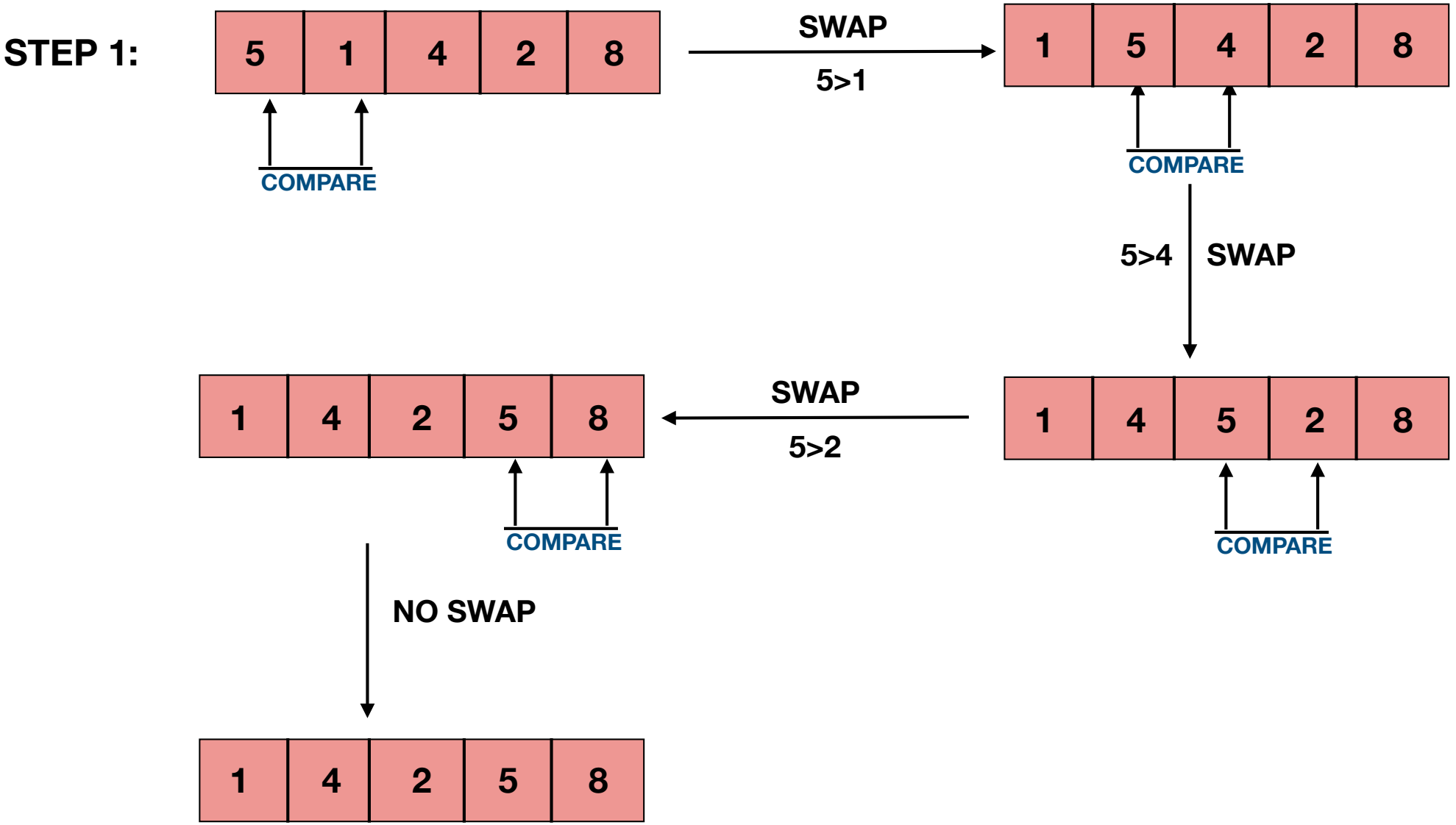
UNSORTED ARRAY :-



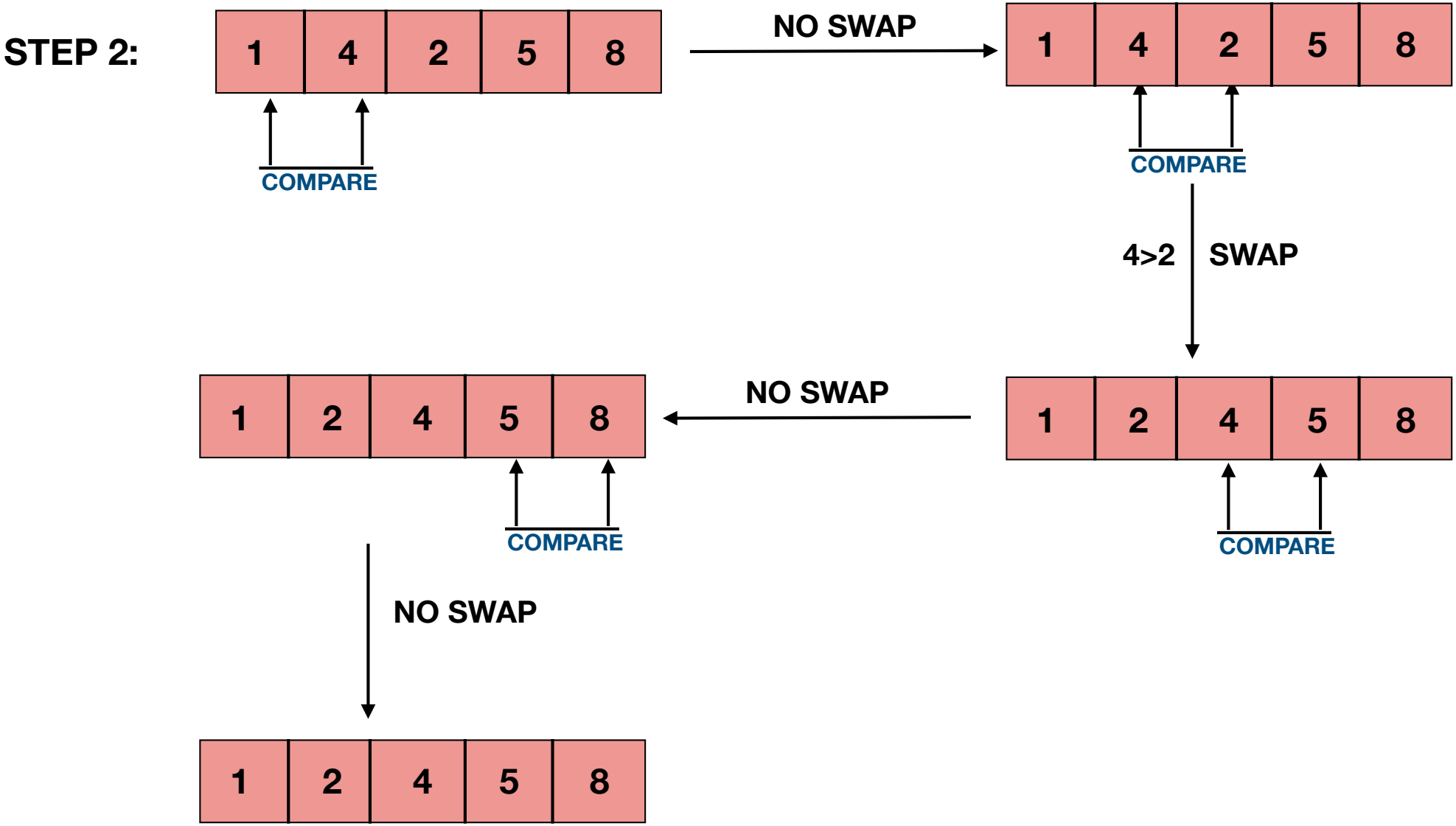
OUR AIM :- **SORT Above Array**

HERE, LOOP WILL RUN 4 TIMES

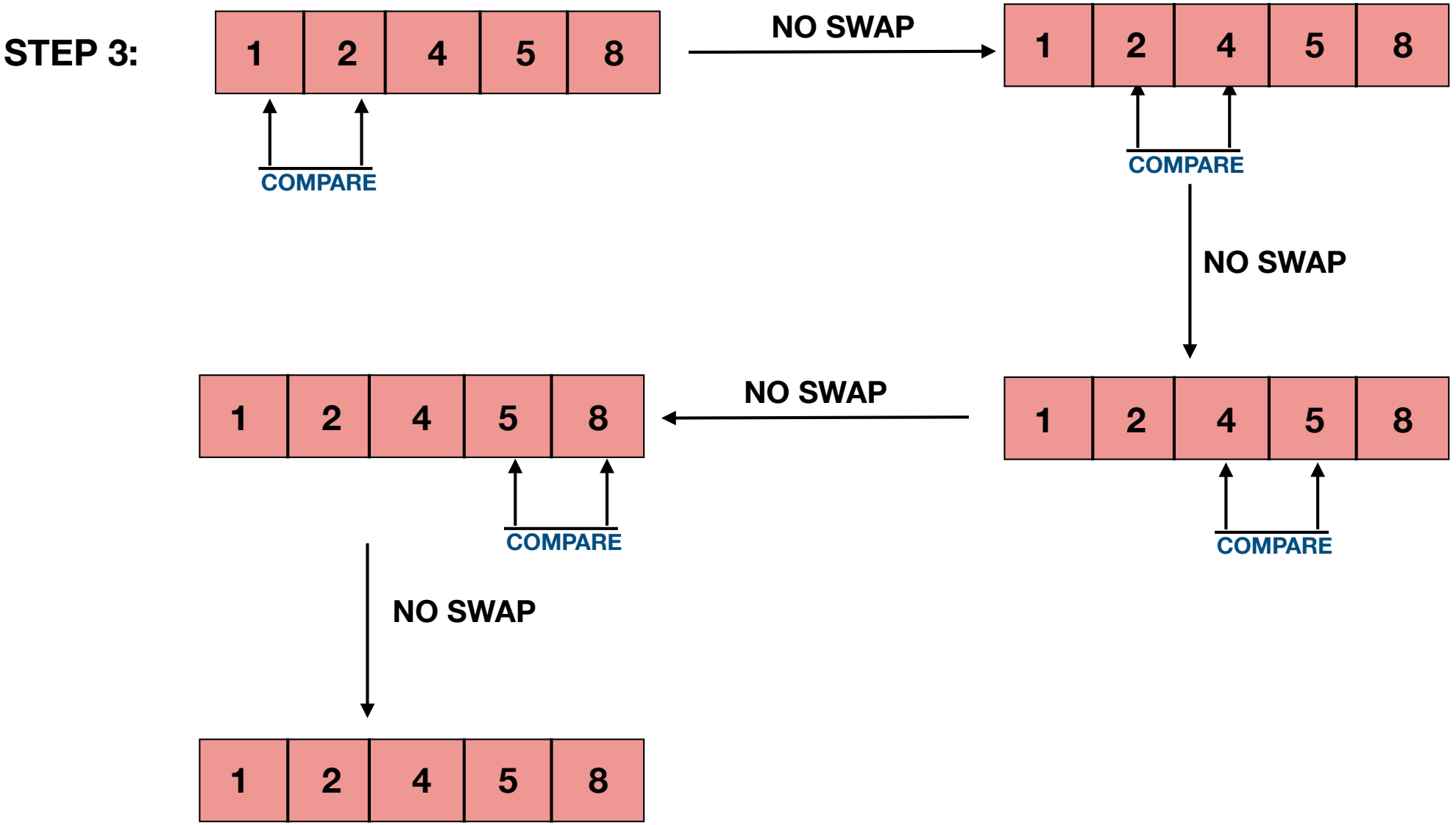
BUBBLE SORT


STEP 1:
5 1 4 2 8
COMPARE
SWAP
5>1
1 5 4 2 8
COMPARE
5>4
SWAP
1 4 5 2 8
COMPARE
SWAP
5>2
1 4 2 5 8
COMPARE
NO SWAP
1 4 2 5 8

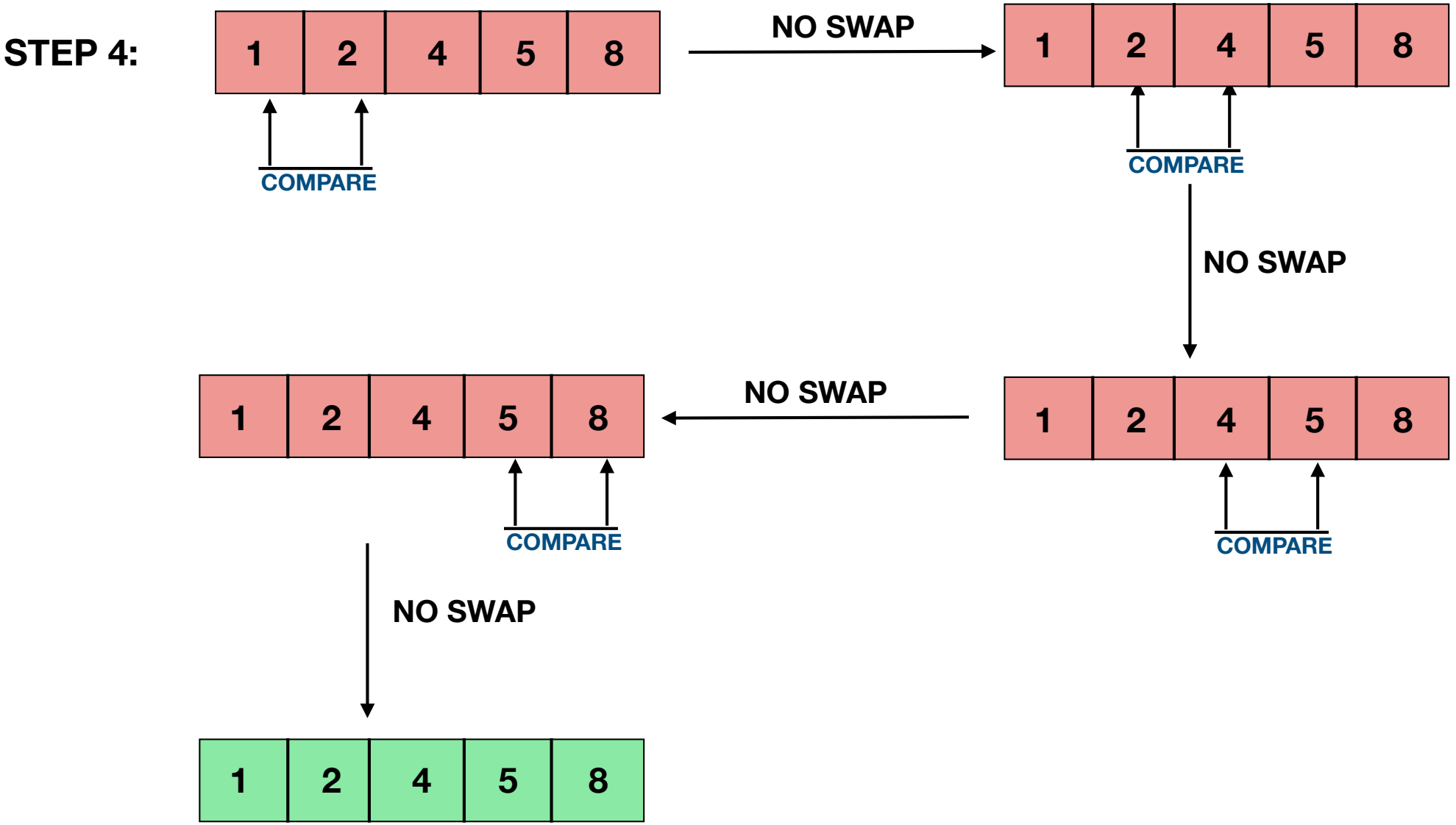
BUBBLE SORT


STEP 2:
1 4 2 5 8
COMPARE
NO SWAP
1 4 2 5 8
COMPARE
4>2
SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8

BUBBLE SORT


STEP 3:
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8

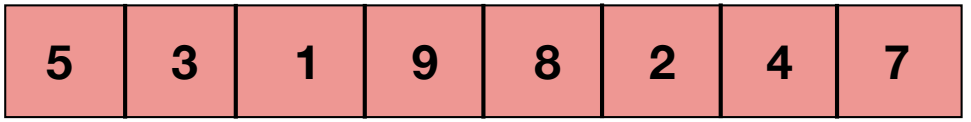
BUBBLE SORT


STEP 4:
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8
COMPARE
NO SWAP
1 2 4 5 8

BUBBLE SORT

EXAMPLE 3 :

UNSORTED ARRAY :-



OUR AIM :- **SORT Above Array**

HERE, LOOP WILL RUN 7 TIMES

BUBBLE SORT

UNSORTED ARRAY :-

5	3	1	9	8	2	4	7

		0	1	2	3	4	5	6	7
i = 0	j								
	0	5	3	1	9	8	2	4	7
	1	3	5	1	9	8	2	4	7
	2	3	1	5	9	8	2	4	7
	3	3	1	5	9	8	2	4	7
	4	3	1	5	8	9	2	4	7
	5	3	1	5	8	2	9	4	7
	6	3	1	5	8	2	4	9	7
i = 1	0	3	1	5	8	2	4	7	9
	1	1	3	5	8	2	4	7	
	2	1	3	5	8	2	4	7	
	3	1	3	5	8	2	4	7	
	4	1	3	5	2	8	4	7	
	5	1	3	5	2	4	8	7	
i = 2	0	1	3	5	2	4	7	8	
	1	1	3	5	2	4	7		
	2	1	3	5	2	4	7		
	3	1	3	2	5	4	7		
	4	1	3	2	4	5	7		
i = 3	0	1	3	2	4	5	7		
	1	1	3	2	4	5			
	2	1	2	3	4	5			
	3	1	2	3	4	5			
i = 4	0	1	2	3	4	5			
	1	1	2	3	4				
	2	1	2	3	4				
i = 5	0	1	2	3	4				
	1	1	2	3					
i = 6	0	1	2	3					
		1	2						

BUBBLE SORT

FINALLY,

SORTED ARRAY :-

1	2	3	4	5	7	8	9

i = 0	j	0	1	2	3	4	5	6	7
	0	5	3	1	9	8	2	4	7
	1	3	5	1	9	8	2	4	7
	2	3	1	5	9	8	2	4	7
	3	3	1	5	9	8	2	4	7
	4	3	1	5	8	9	2	4	7
	5	3	1	5	8	2	9	4	7
	6	3	1	5	8	2	4	9	7
i =1	0	3	1	5	8	2	4	7	9
	1	1	3	5	8	2	4	7	
	2	1	3	5	8	2	4	7	
	3	1	3	5	8	2	4	7	
	4	1	3	5	2	8	4	7	
	5	1	3	5	2	4	8	7	
i = 2	0	1	3	5	2	4	7	8	
	1	1	3	5	2	4	7		
	2	1	3	5	2	4	7		
	3	1	3	2	5	4	7		
	4	1	3	2	4	5	7		
i = 3	0	1	3	2	4	5	7		
	1	1	3	2	4	5			
	2	1	2	3	4	5			
	3	1	2	3	4	5			
i = 4	0	1	2	3	4	5			
	1	1	2	3	4				
	2	1	2	3	4				
i = 5	0	1	2	3	4				
	1	1	2	3					
i = 6	0	1	2	3					
		1	2						

BUBBLE SORT

TIME COMPLEXITY

1) Time Complexity = O (n^2)

Number of Elements = N

Loop will run on N-1 Times

Hence, Time complexity = N * (N-1) = O (N^2)

Home Work Question :-

25	11	9	2	55	4	26	7

SORT this Array By using BUBBLE SORT

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“ If you feel any problem then comments in my video
I will reply as soon as possible “

- Prince Agarwal