Sortowanie przez scalanie

Algorytm - specyfikacja

Dane:

- p – liczba naturalna, indeks początkowy sortowanego zakresu
- k – liczba naturalna, indeks końcowy sortowanego zakresu
- tab – tablica do posortowania

Wynik:

- Tablica z posortowanymi wartościami

Scalanie

- Bierzemy dwie **posortowane** tablice i scalamy ją w jedną posortowaną
- Działanie: bierzemy elementy po kolei (od najmniejszego do największego) i wkładamy je do nowej tablicy

Przykład

Tablica 1:	1	3	5	9

Tablica 2:	2	4	6	7

Wynik:								

Przykład

Tablica 1:	1	3	5	9

Tablica 2:	2	4	6	7

Wynik:								

Przykład

Tablica 1:	1	3	5	9

Tablica 2:	2	4	6	7

Wynik:								

Przykład

Tablica 1:		3	5	9

Tablica 2:	2	4	6	7

Wynik:	1							

Przykład

Tablica 1:

	3	5	9

Tablica 2:

2	4	6	7

Wynik:

1							

Przykład

Tablica 1:

	3	5	9

Tablica 2:

2	4	6	7

Wynik:

1							

Przykład

Tablica 1:

	3	5	9

Tablica 2:

	4	6	7

Wynik:

1	2						

Przykład

Tablica 1:

	3	5	9

Tablica 2:

	4	6	7

Wynik:

1	2						

Przykład

Tablica 1:

	3	5	9

Tablica 2:

	4	6	7

Wynik:

1	2						

Przykład

Tablica 1:

		5	9

Tablica 2:

	4	6	7

Wynik:

1	2	3					

Przykład

Tablica 1:

		5	9

Tablica 2:

	4	6	7

Wynik:

1	2	3					

Przykład

Tablica 1:

		5	9

Tablica 2:

	4	6	7

Wynik:

1	2	3					

Przykład

Tablica 1:

		5	9

Tablica 2:

		6	7

Wynik:

1	2	3	4				

Przykład

Tablica 1:

		5	9

Tablica 2:

		6	7

Wynik:

1	2	3	4				

Przykład

Tablica 1:

		5	9

Tablica 2:

		6	7

Wynik:

1	2	3	4				

Przykład

Tablica 1:

			9

Tablica 2:

		6	7

Wynik:

1	2	3	4	5			

Przykład

Tablica 1:

			9

Tablica 2:

		6	7

Wynik:

1	2	3	4	5			

Przykład

Tablica 1:

			9

Tablica 2:

		6	7

Wynik:

1	2	3	4	5			

Przykład

Tablica 1:

			9

Tablica 2:

			7

Wynik:

1	2	3	4	5	6		

Przykład

Tablica 1:

			9

Tablica 2:

			7

Wynik:

1	2	3	4	5	6		

Przykład

Tablica 1:

			9

Tablica 2:

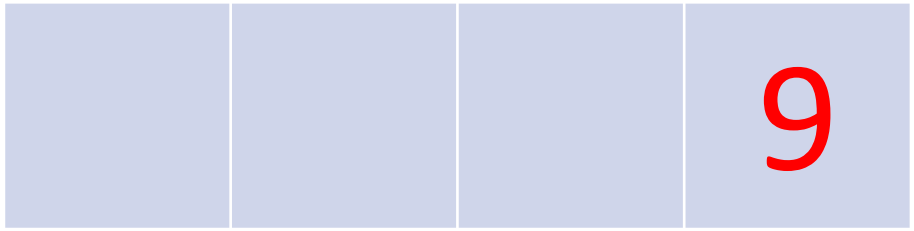
			7

Wynik:

1	2	3	4	5	6		

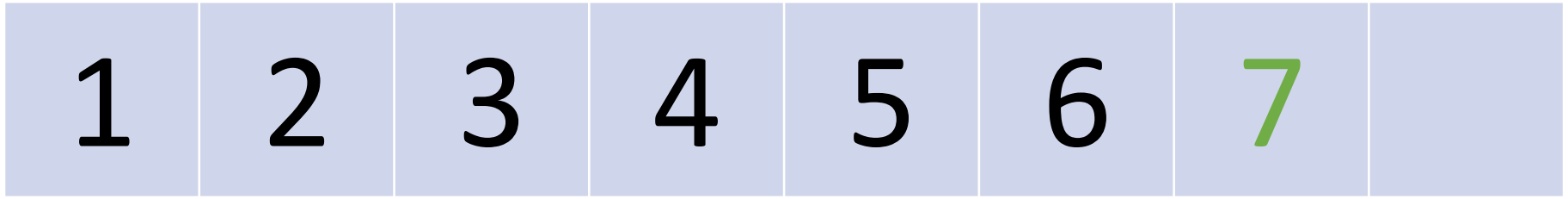
Przykład

Tablica 1:



Tablica 2:

Wynik:



Przykład

Tablica 1:

			9

Tablica 2:

Wynik:

1	2	3	4	5	6	7	

Przykład

Tablica 1:

			9

Tablica 2:

Wynik:

1	2	3	4	5	6	7	

Przykład

Tablica 1:

Tablica 2:

Wynik:

1	2	3	4	5	6	7	9

Przykład

Tablica 1:

Tablica 2:

Wynik:	1	2	3	4	5	6	7	9

Działanie algorytmu

Sortowanie przez scalanie

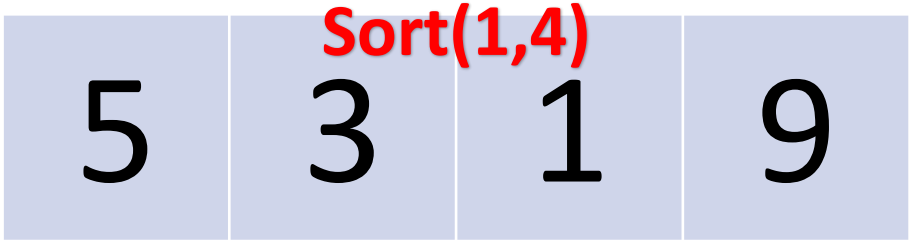
Indeksy	1	2	3	4	5	6	7	8
Wartości	5	3	1	9	6	4	2	7

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,8)

Sort(1,4)



Sort(1,8)

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Sort(1,4)

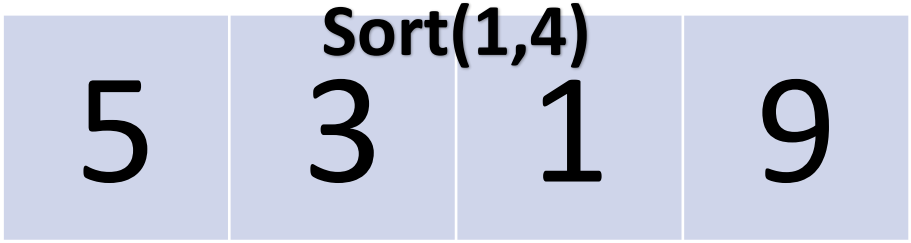
5	3	1	9

Sort(1,2)

5	3

Sort(1,8)

Sort(1,4)



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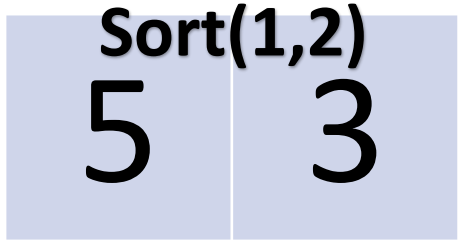

Sort(1,1)

Sort(1,8)

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Sort(1,4)

5	3	1	9

Sort(1,2)

5	3

Sort(1,1)

5

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

Sort(1,2)

5	3

5

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

Sort(1,2)

5	3

5

Sort(2,2)

3

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

Sort(1,2)

5	3

5

Sort(2,2)

3

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

Sort(1,2)

5	3

5

3

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

Sort(1,2)

5	3

Scal

5	3

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

Sort(1,2)

3	5

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

3	5

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

3	5

Sort(3,4)

1	9

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

3	5

Sort(3,4)

1	9

Sort(3,3)

1

Sort(1,8)

5	3	1	9	6	4	2	7

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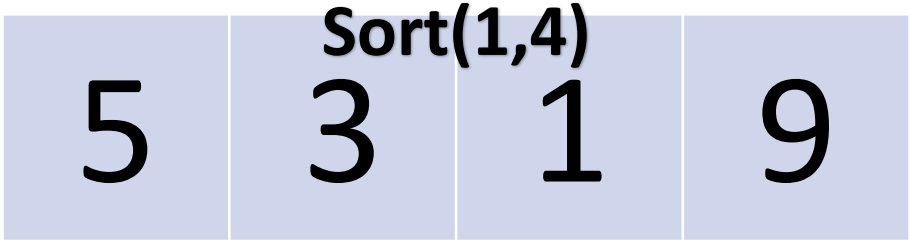
Sort(3,3)

1

Sort(1,8)

Sort(1,4)



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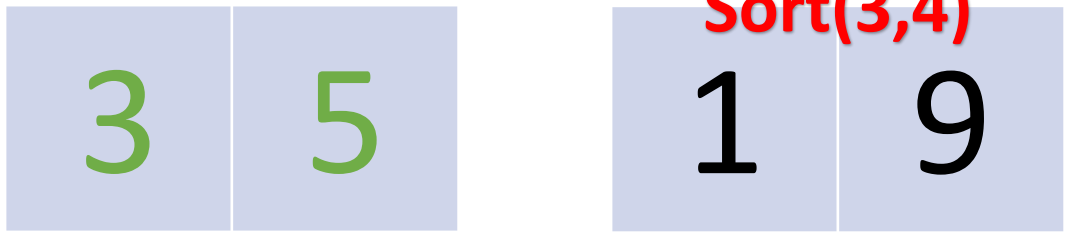
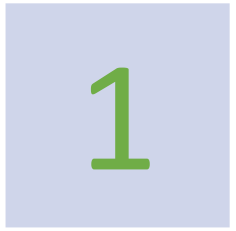
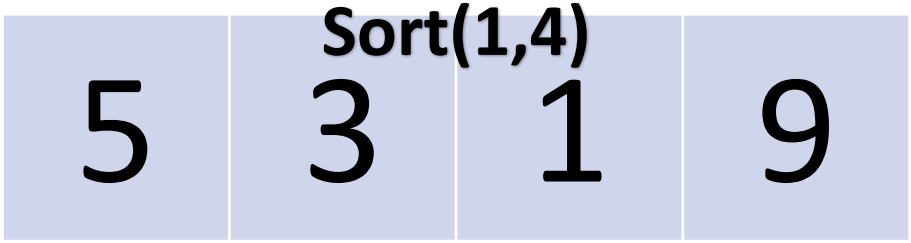
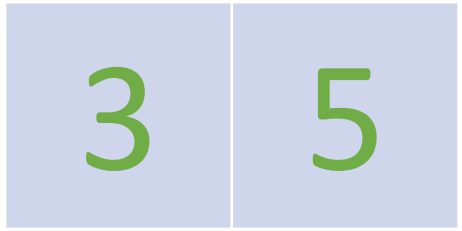




Sort(1,8)

Sort(1,4)





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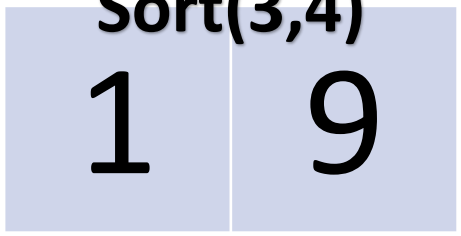

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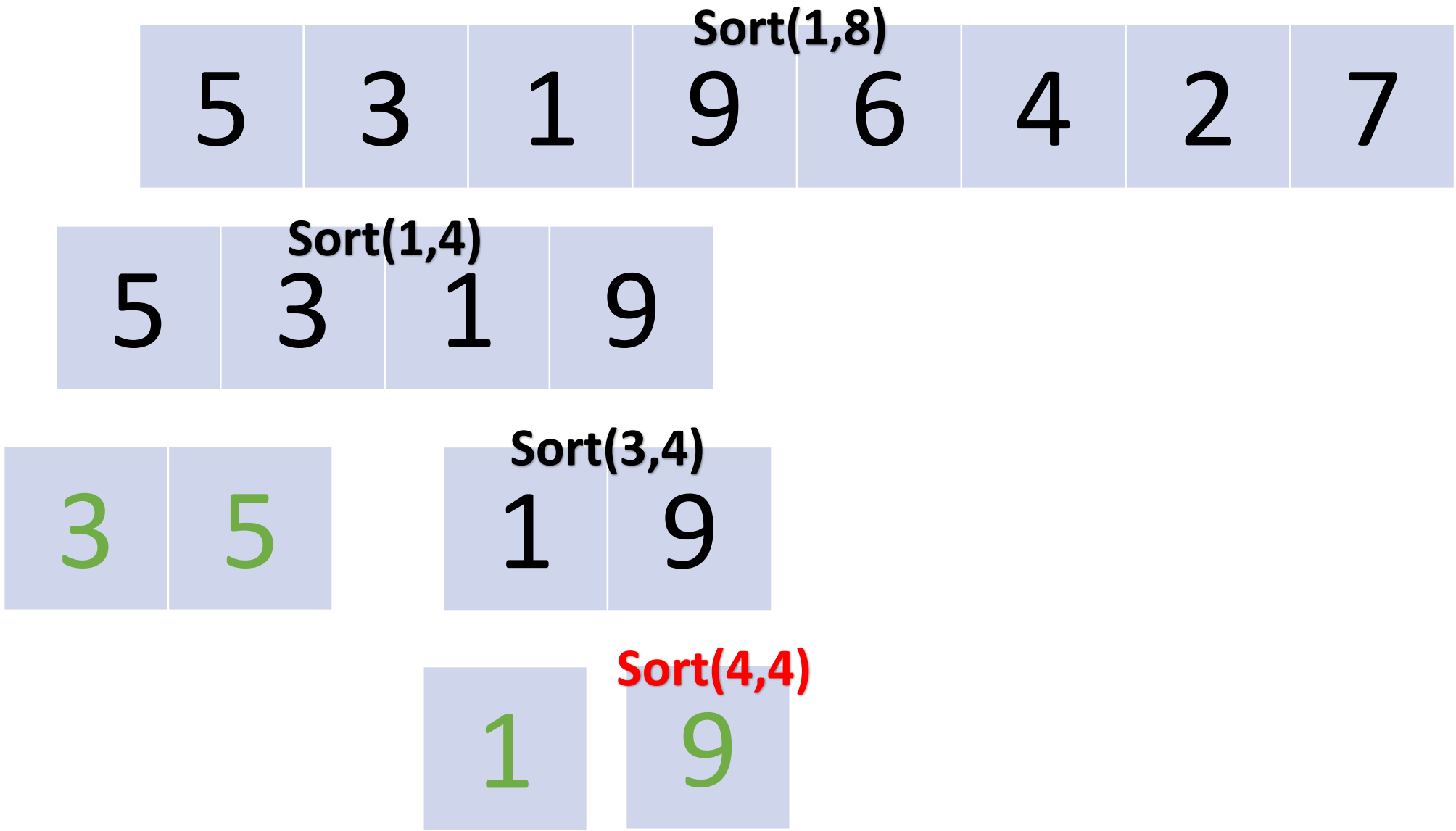
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Sort(1,4)
5 3 1 9
3 5
Sort(3,4)
1 9
Sort(4,4)
1 9

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

3	5

Sort(3,4)

1	9

1	9

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

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3	5

Sort(3,4)

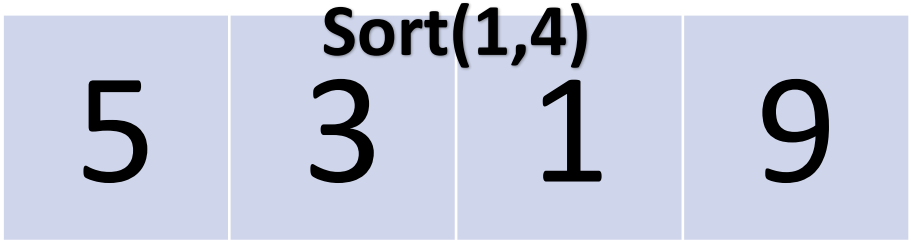
1	9

Scal

1	9

Sort(1,8)

Sort(1,4)



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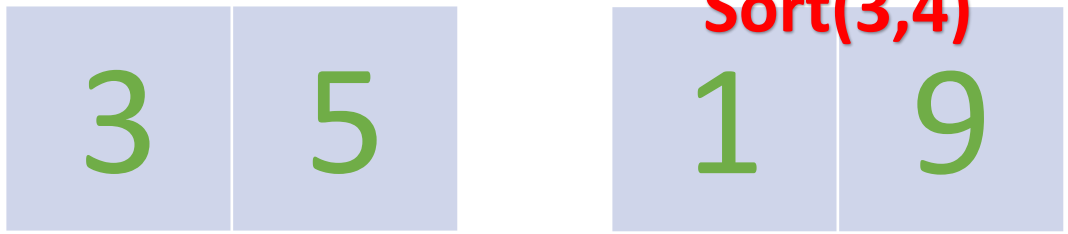

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

3	5

1	9

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

5	3	1	9

Scal

3	5

1	9

Sort(1,8)

5	3	1	9	6	4	2	7

Sort(1,4)

1	3	5	9

Sort(1,8)

5	3	1	9	6	4	2	7

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Sort(1,8)

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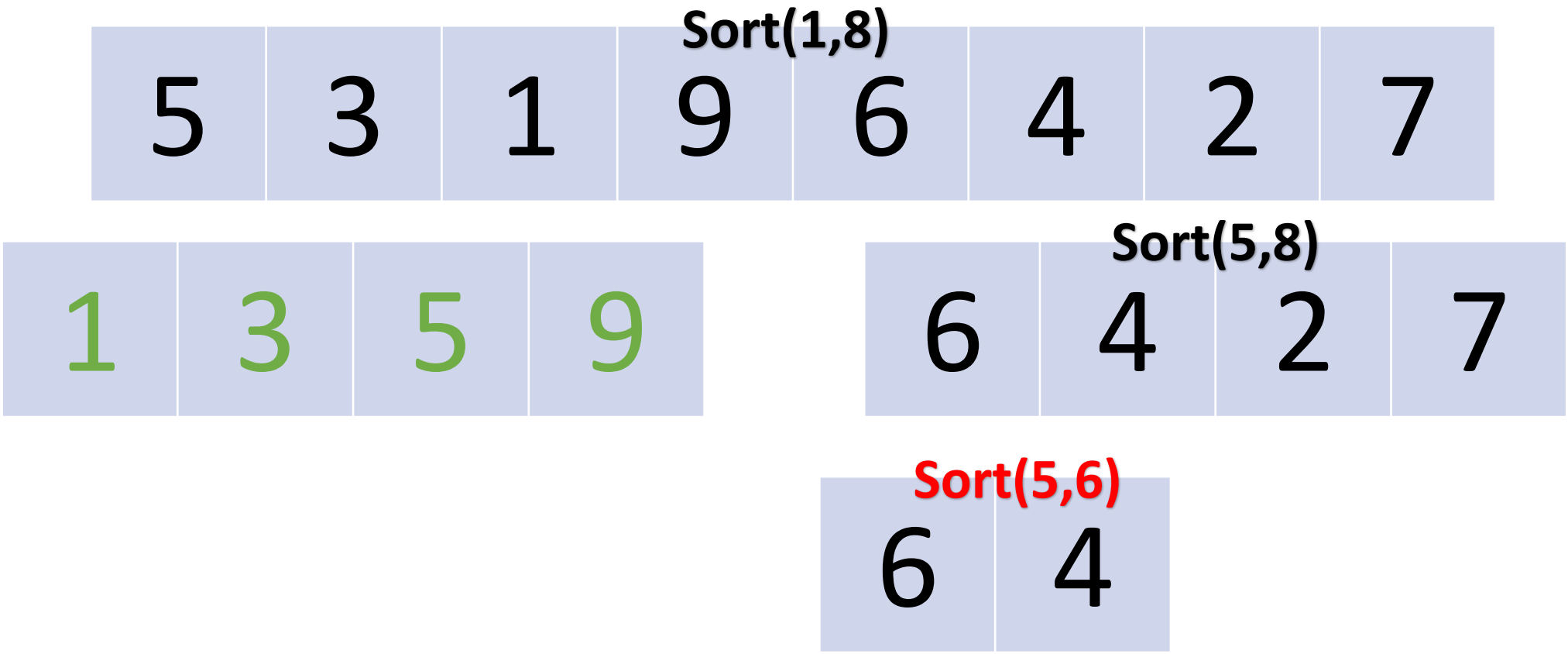
1	3	5	9

Sort(5,8)

6	4	2	7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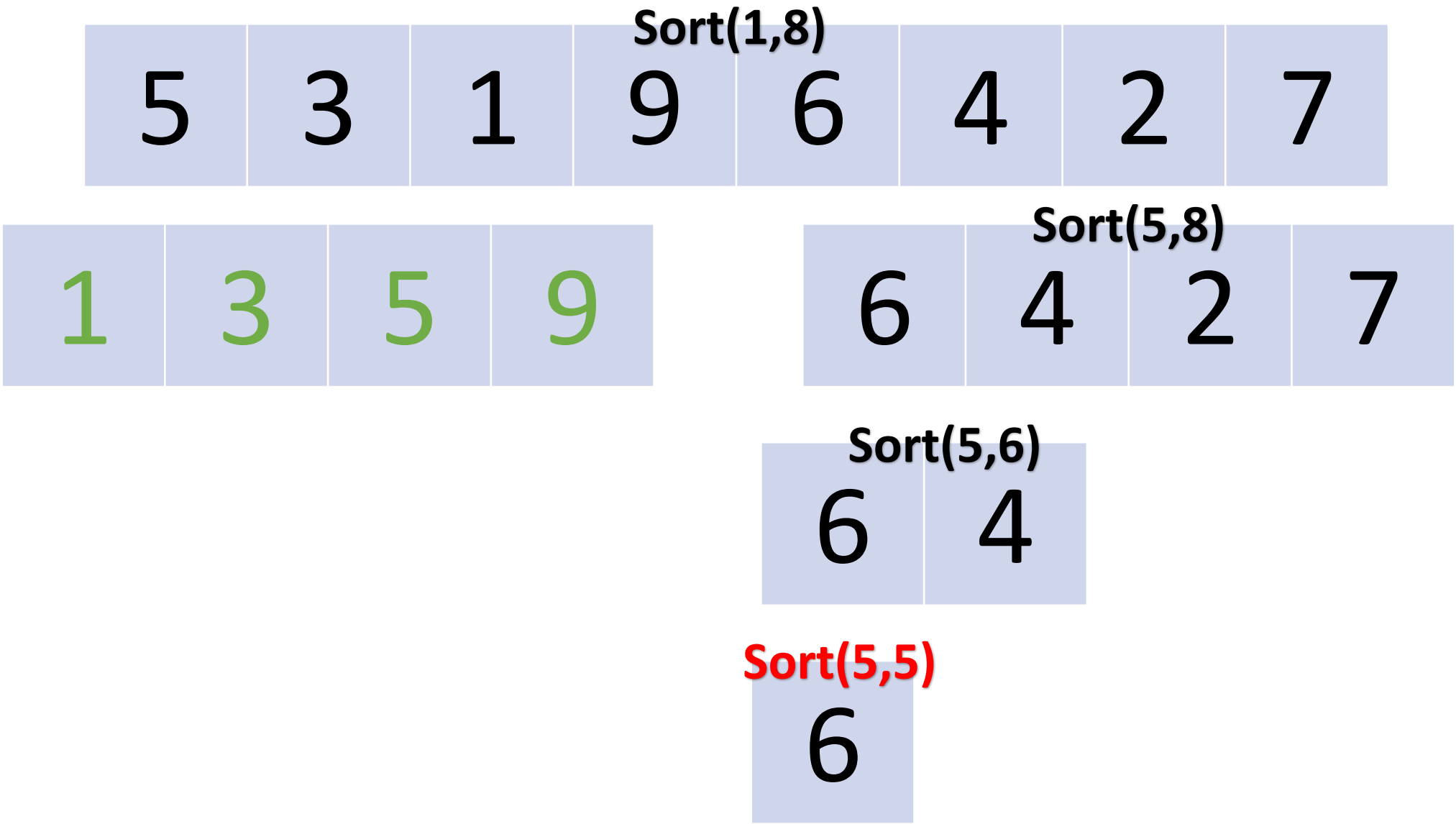
1 3 5 9
Sort(5,8)
6 4 2 7
Sort(5,6)
6 4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Sort(5,8)
6 4 2 7
Sort(5,6)
6 4
Sort(5,5)
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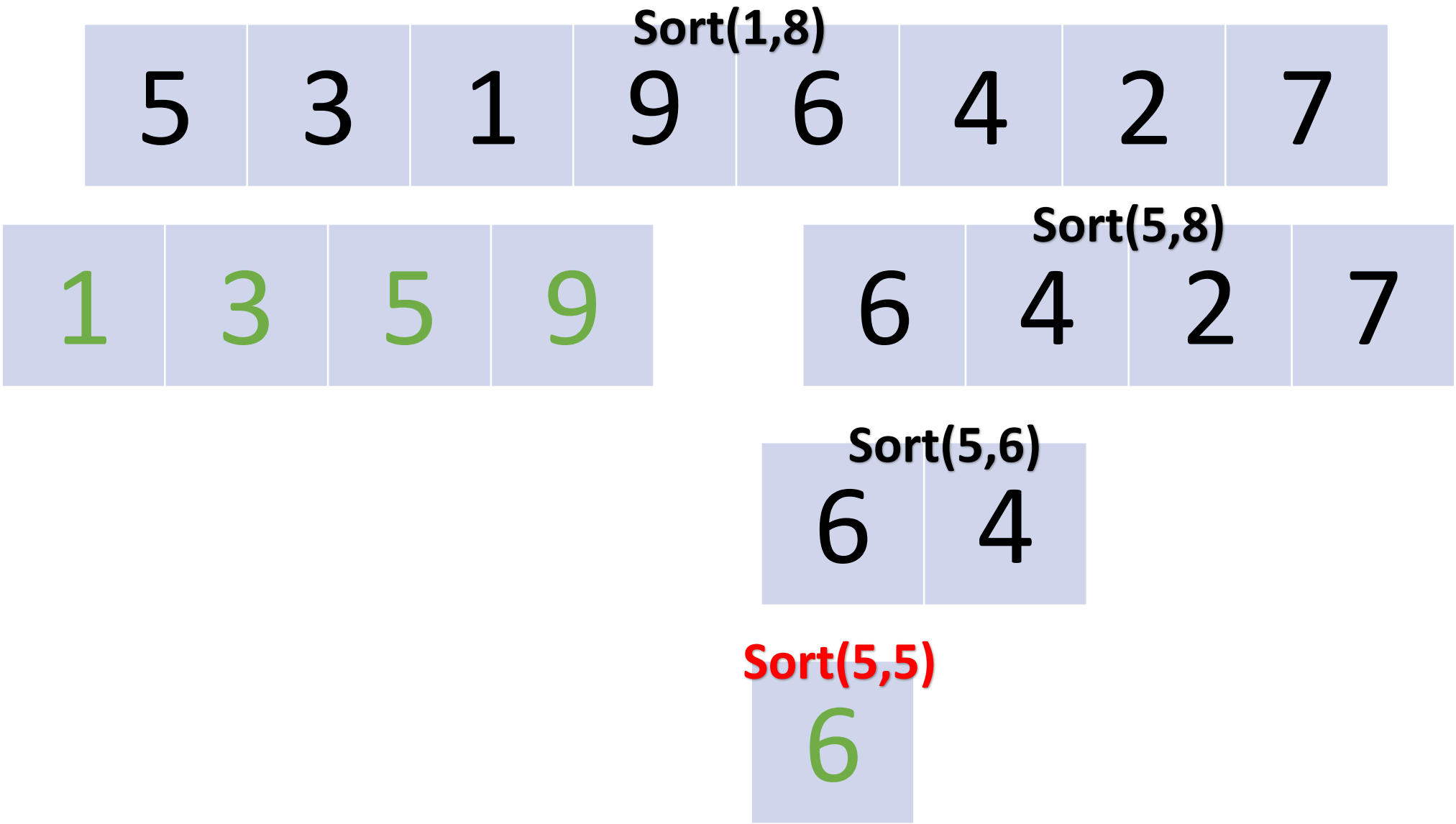
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Sort(5,6)
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Sort(5,5)
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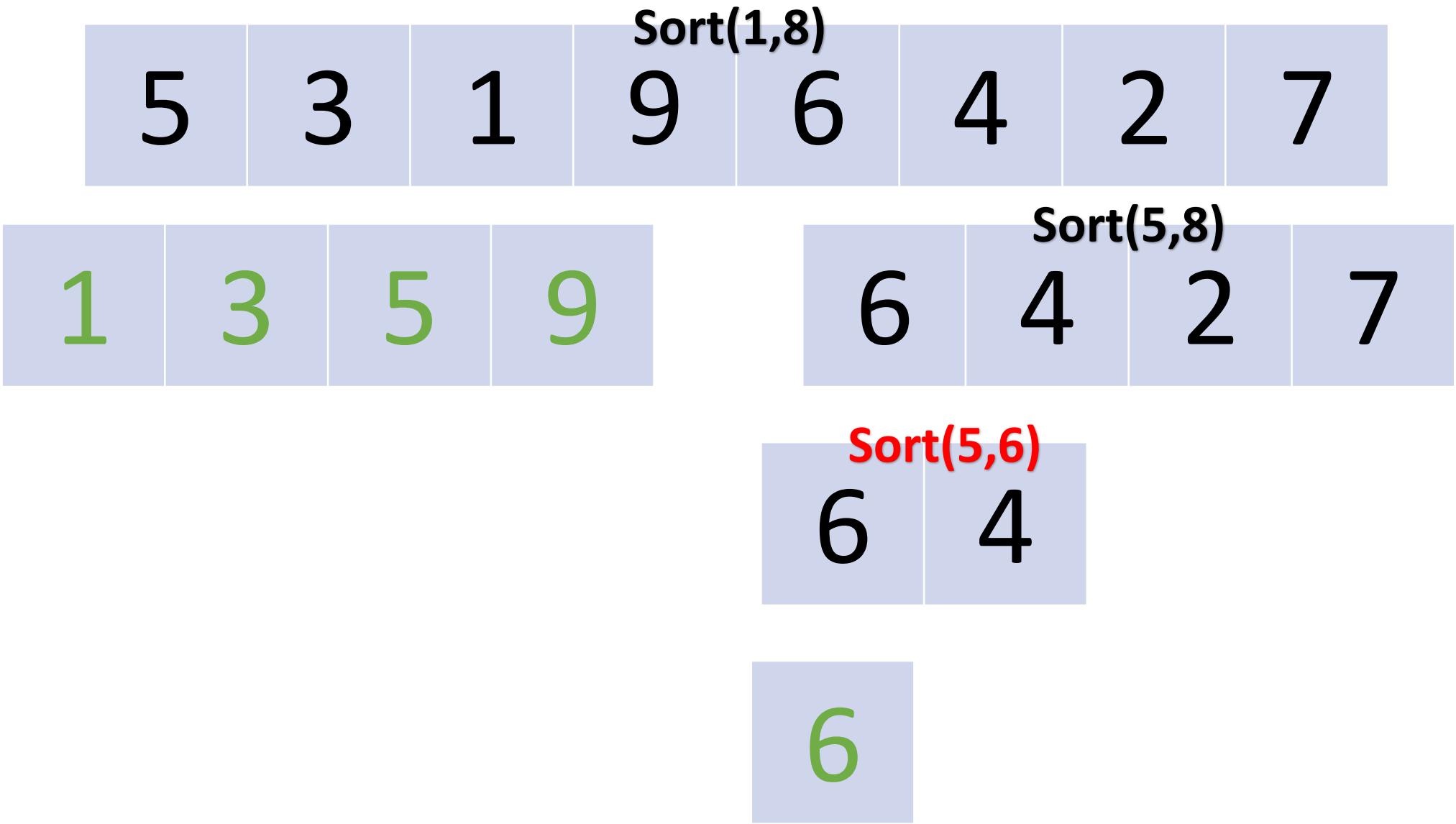
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Sort(5,8)
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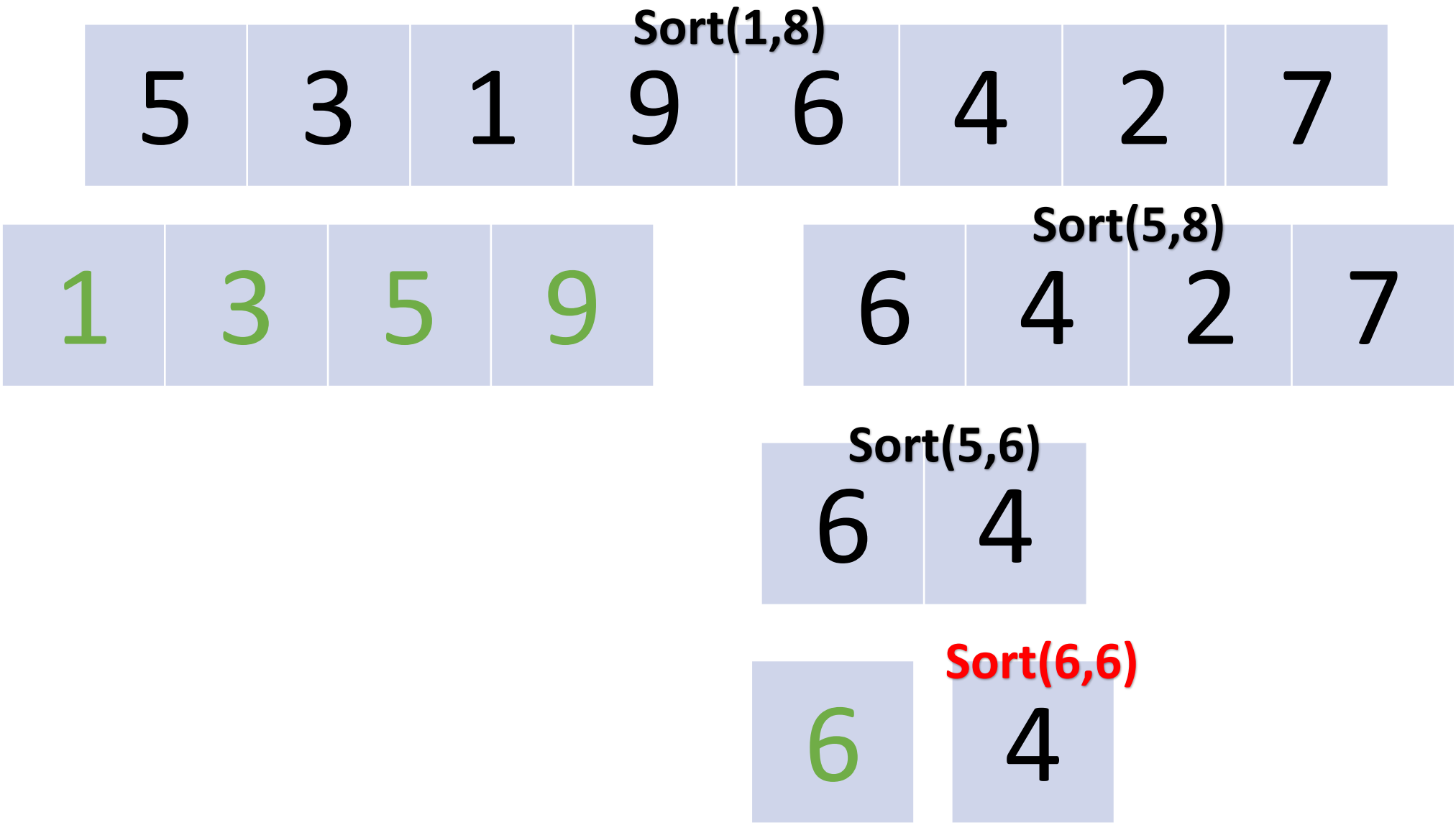
Sort(5,6)
6 4
6


Sort(1,8)
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Sort(5,6)
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6
Sort(6,6)
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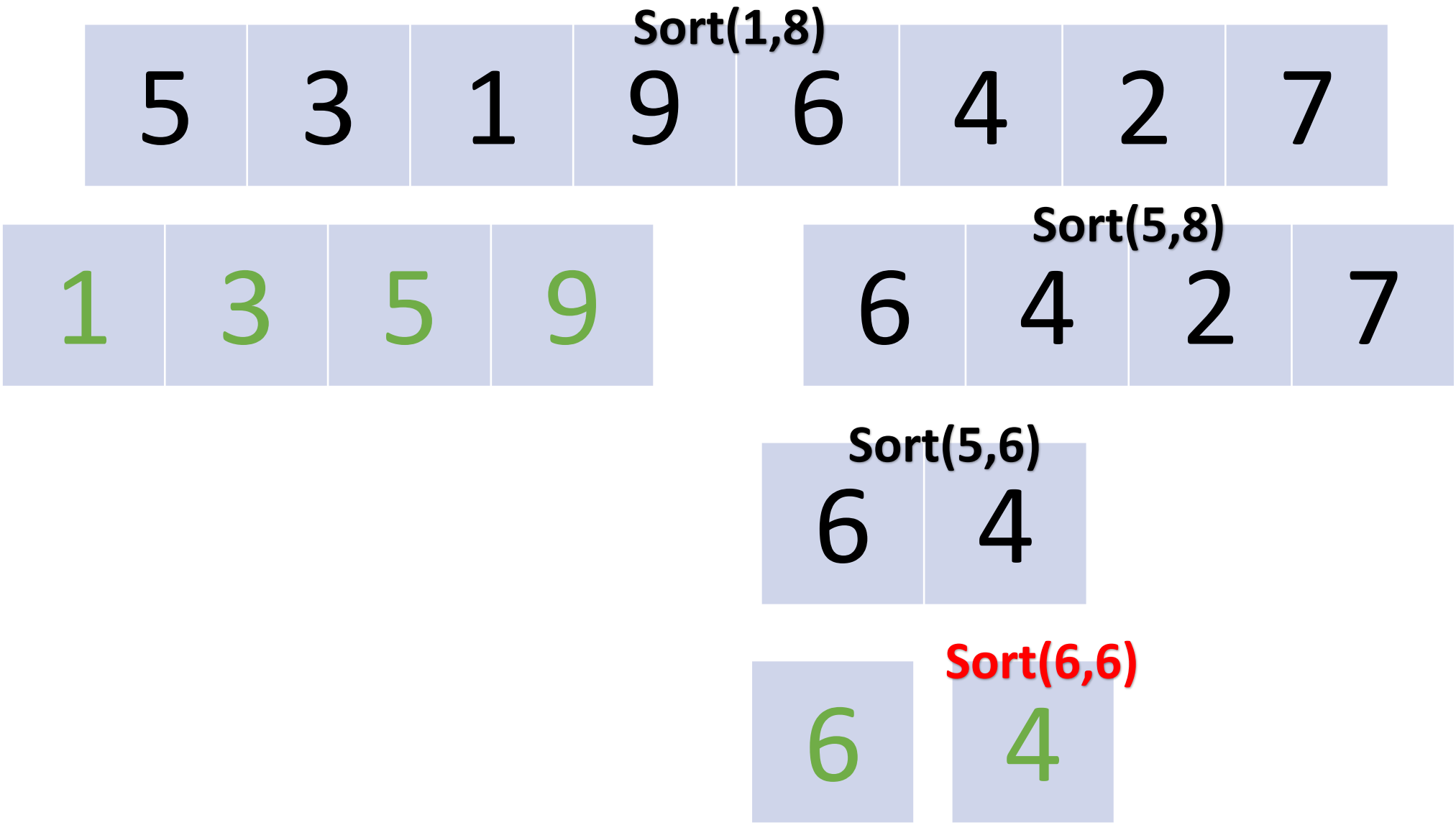
Sort(1,8)
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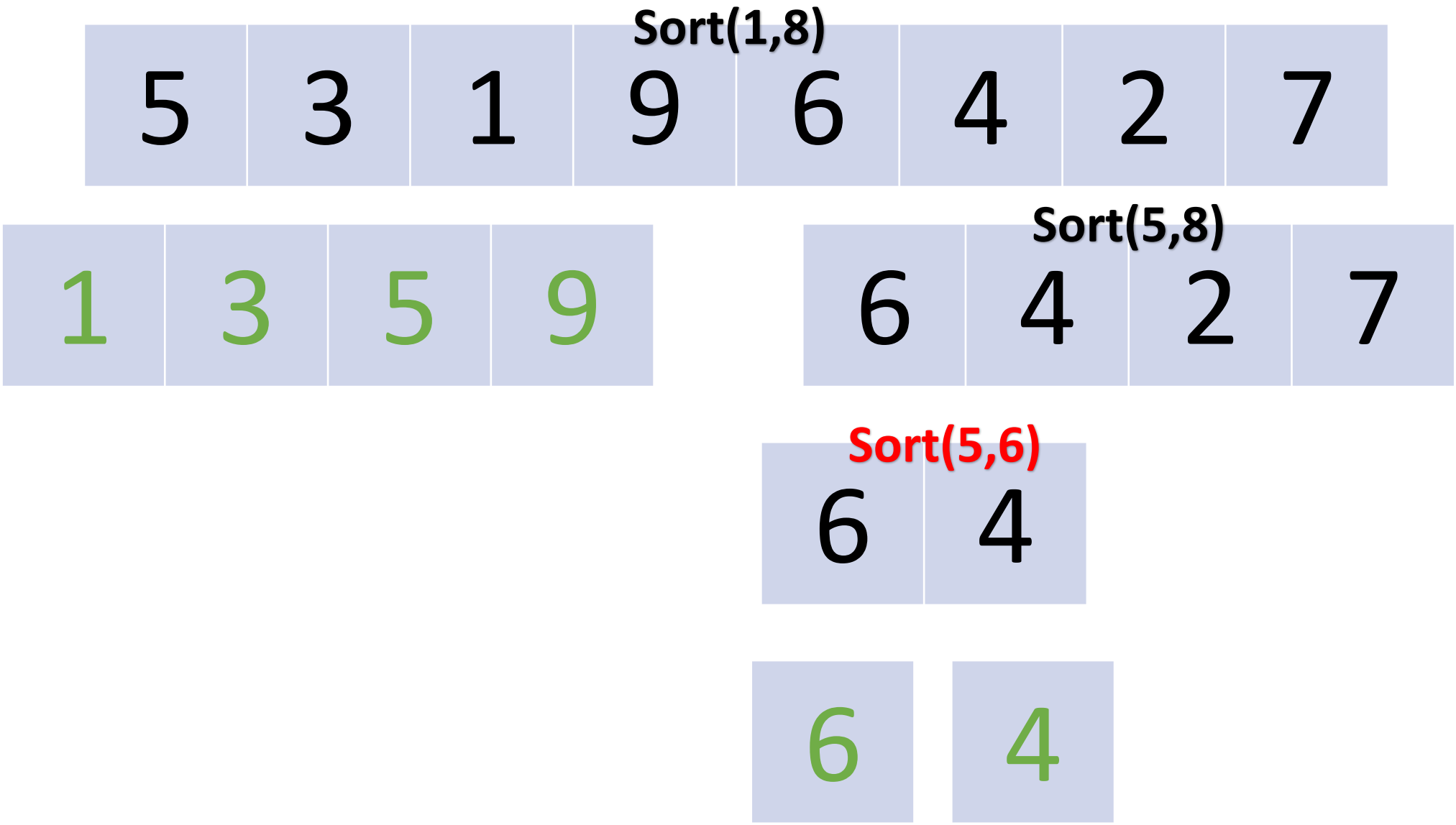
1 3 5 9
Sort(5,8)
6 4 2 7
Sort(5,6)
6 4
6
Sort(6,6)
4


Sort(1,8)
5 3 1 9 6 4 2 7
1 3 5 9
Sort(5,8)
6 4 2 7
Sort(5,6)
6 4
6 4

Sort(1,8)

5	3	1	9	6	4	2	7

1	3	5	9

Sort(5,8)

6	4	2	7

Sort(5,6)

6	4

Scal

6	4

Sort(1,8)

5	3	1	9	6	4	2	7

1	3	5	9

Sort(5,8)

6	4	2	7

Sort(5,6)

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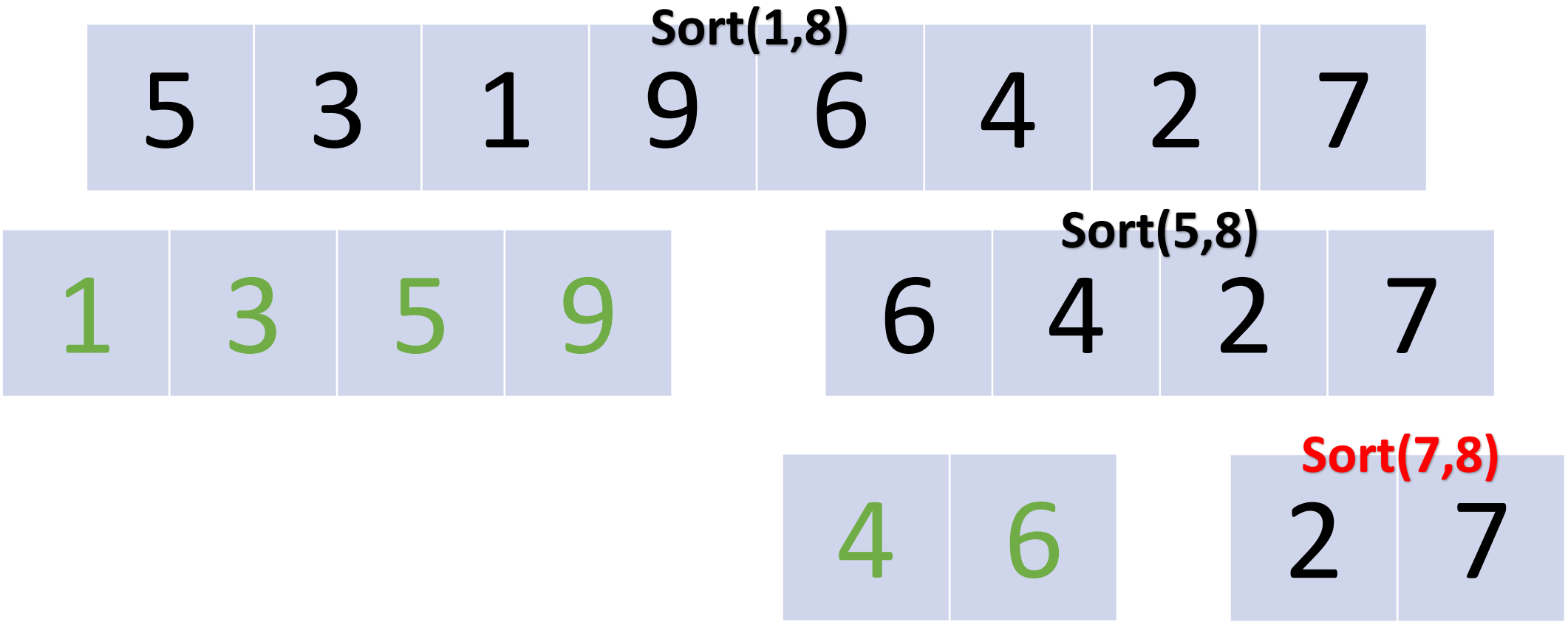
Sort(5,8)

6	4	2	7

4	6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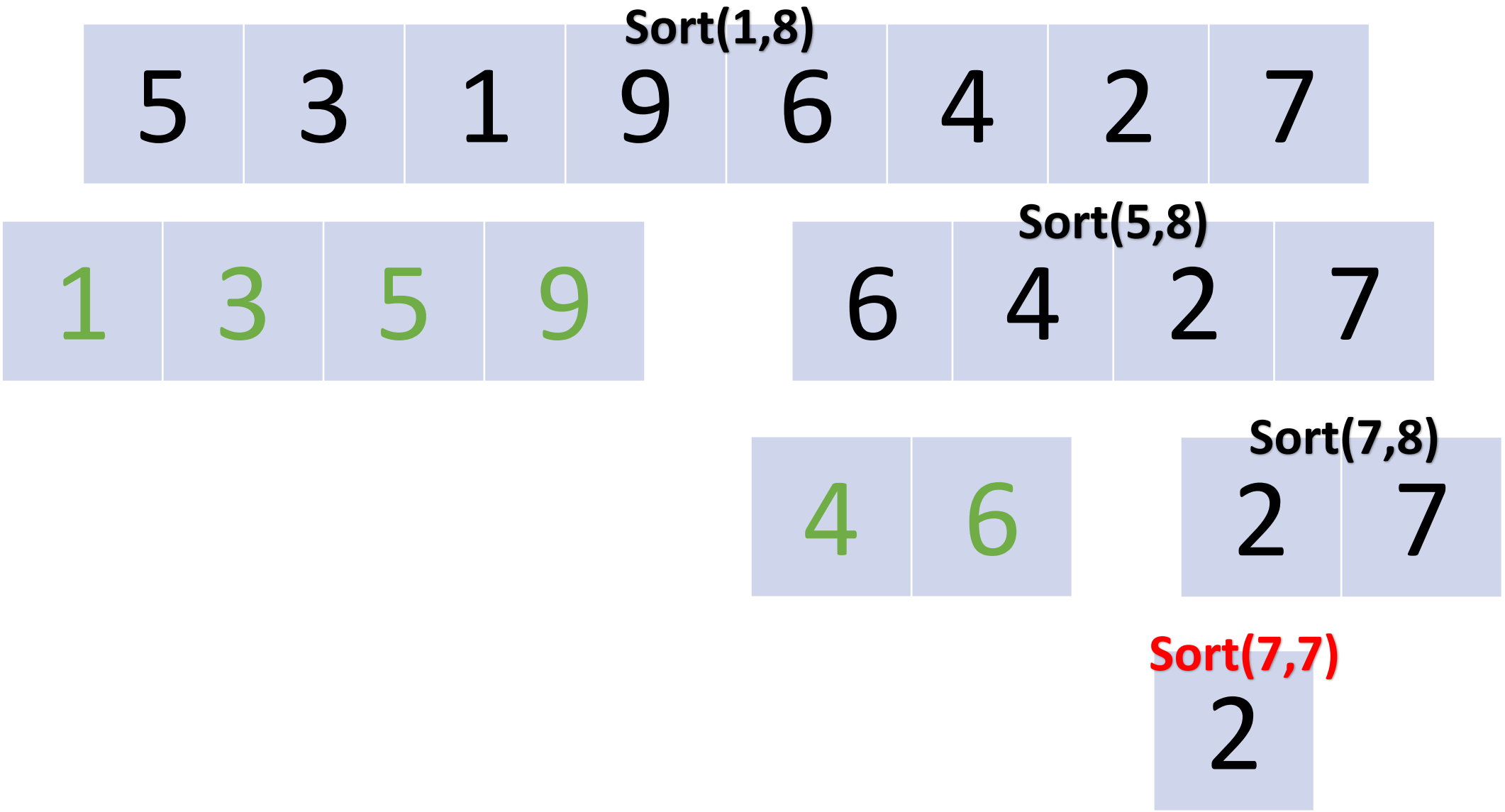
Sort(5,8)
6 4 2 7
4 6
Sort(7,8)
2 7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1 3 5 9
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4 6
Sort(7,8)
2 7
Sort(7,7)
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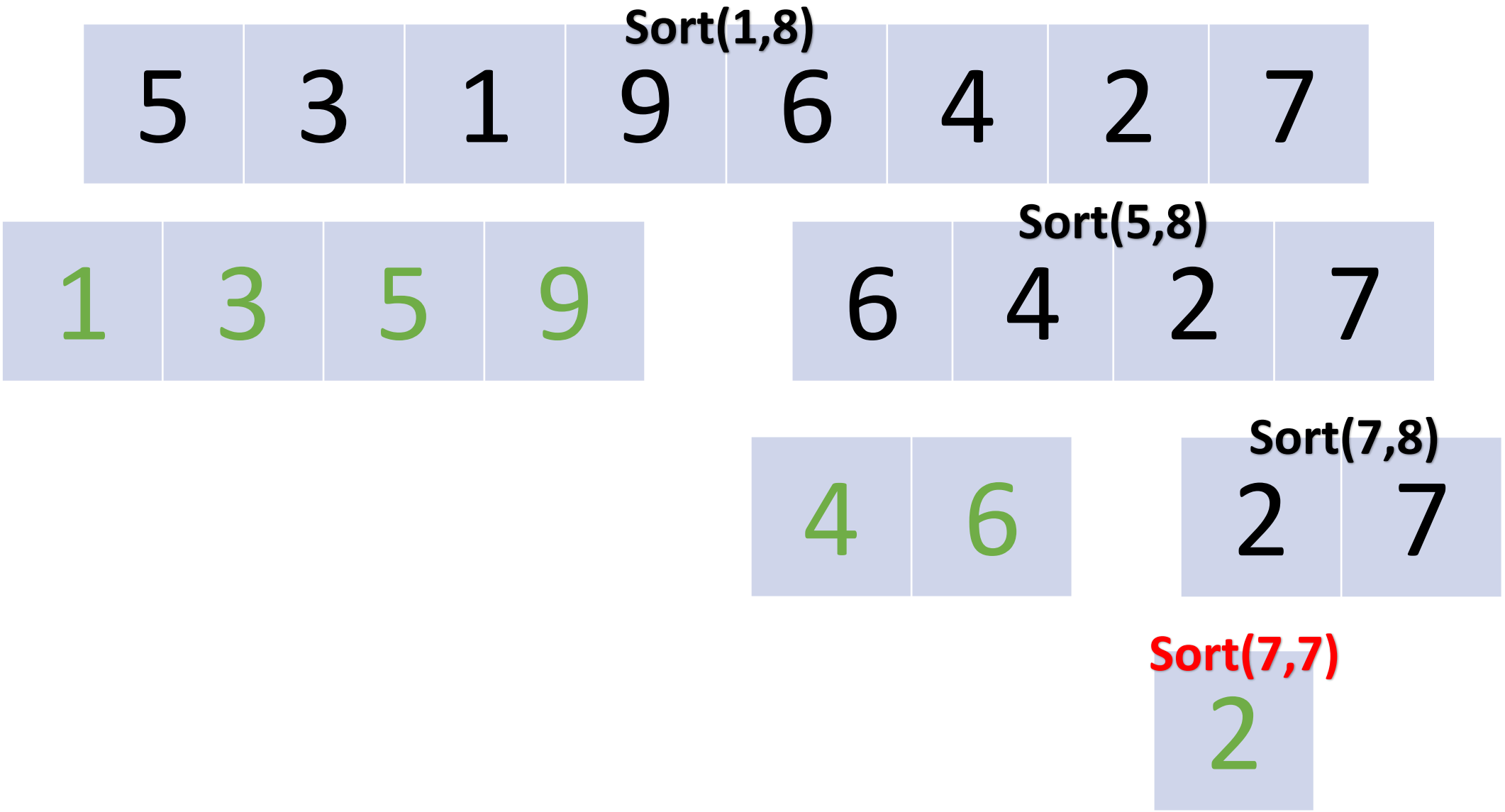
Sort(1,8)
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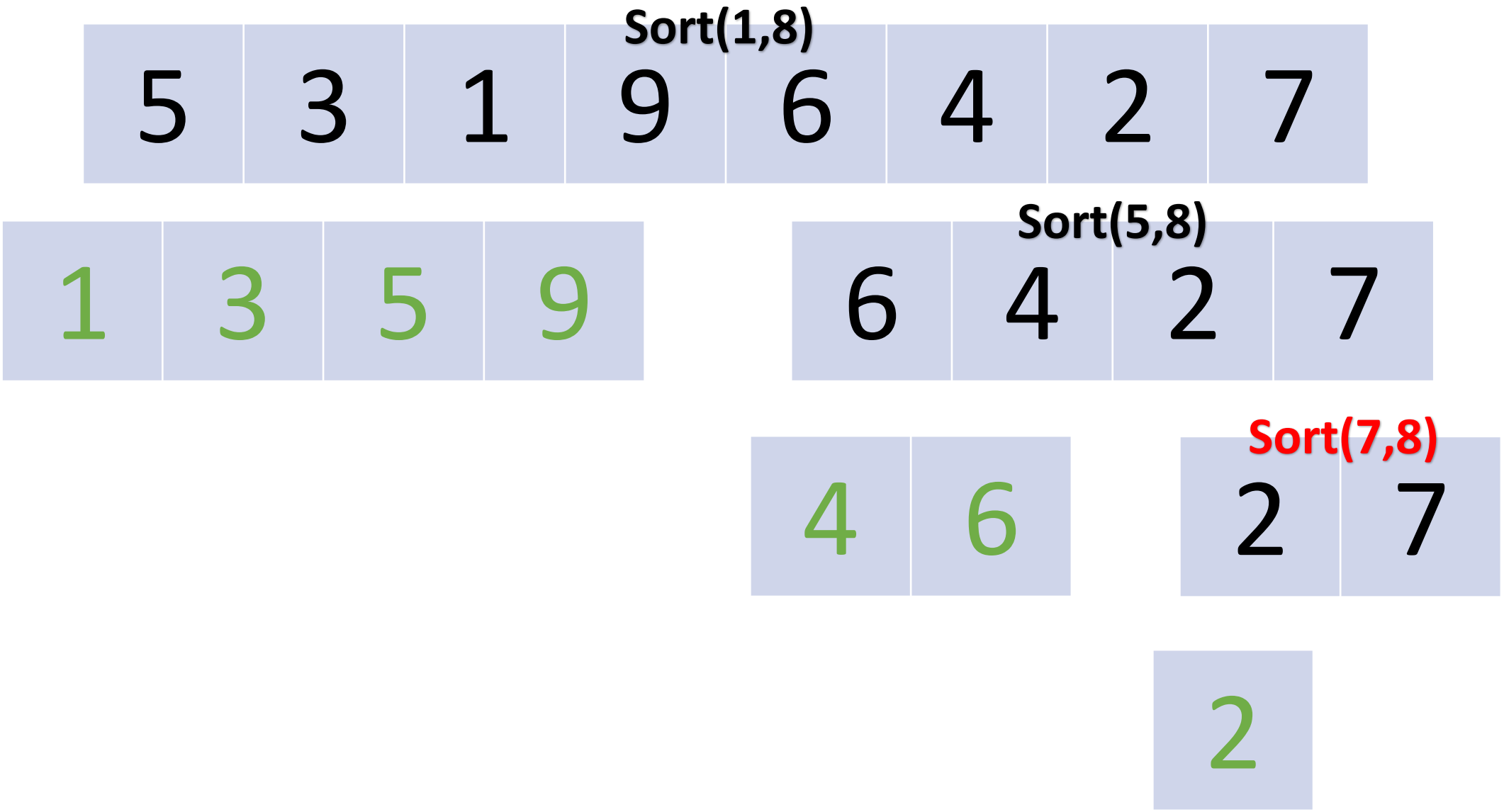
1 3 5 9
Sort(5,8)
6 4 2 7
4 6
Sort(7,8)
2 7
Sort(7,7)
2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4 6
Sort(7,8)
2 7
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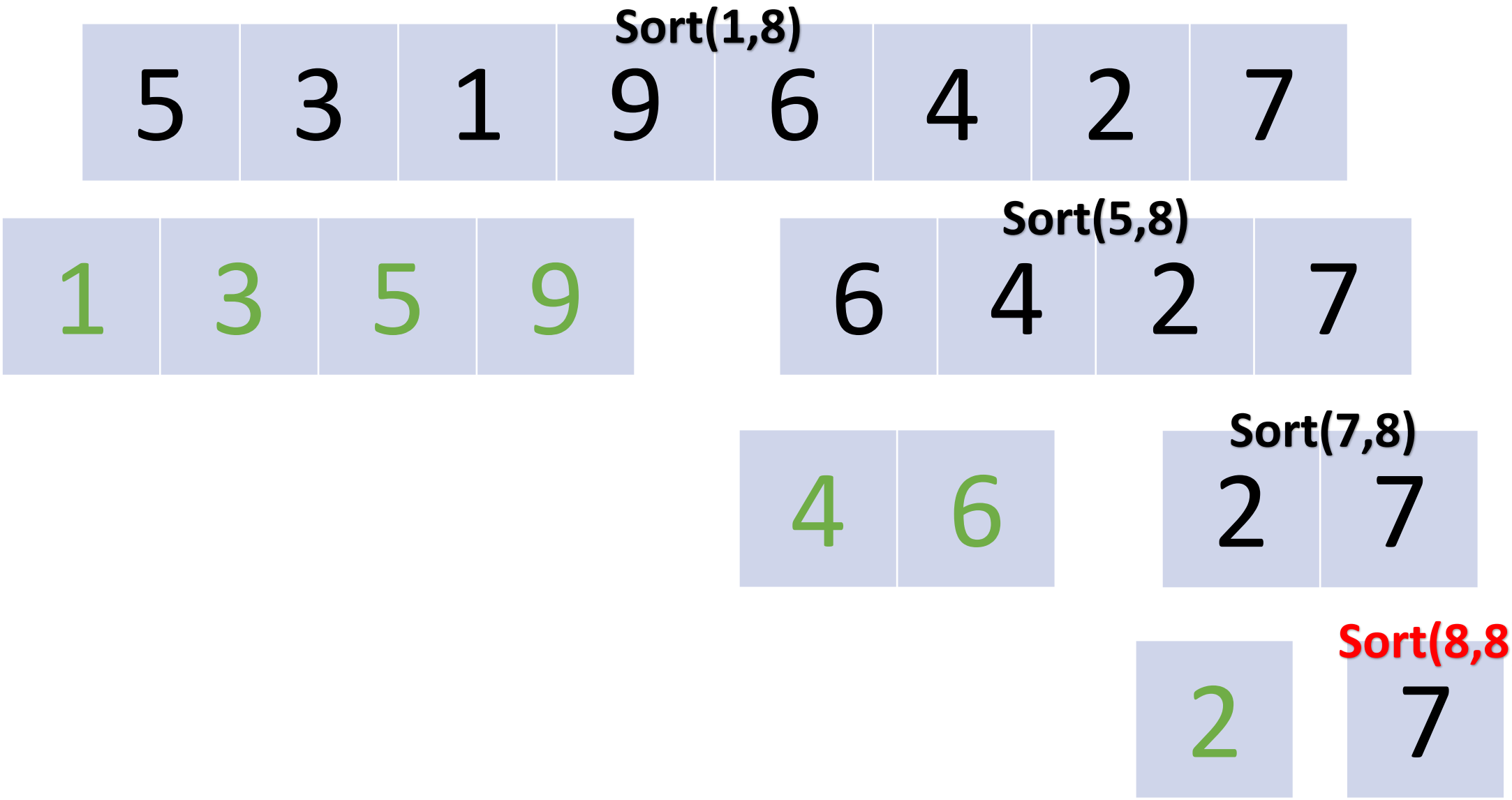
Sort(1,8)
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1 3 5 9
Sort(5,8)
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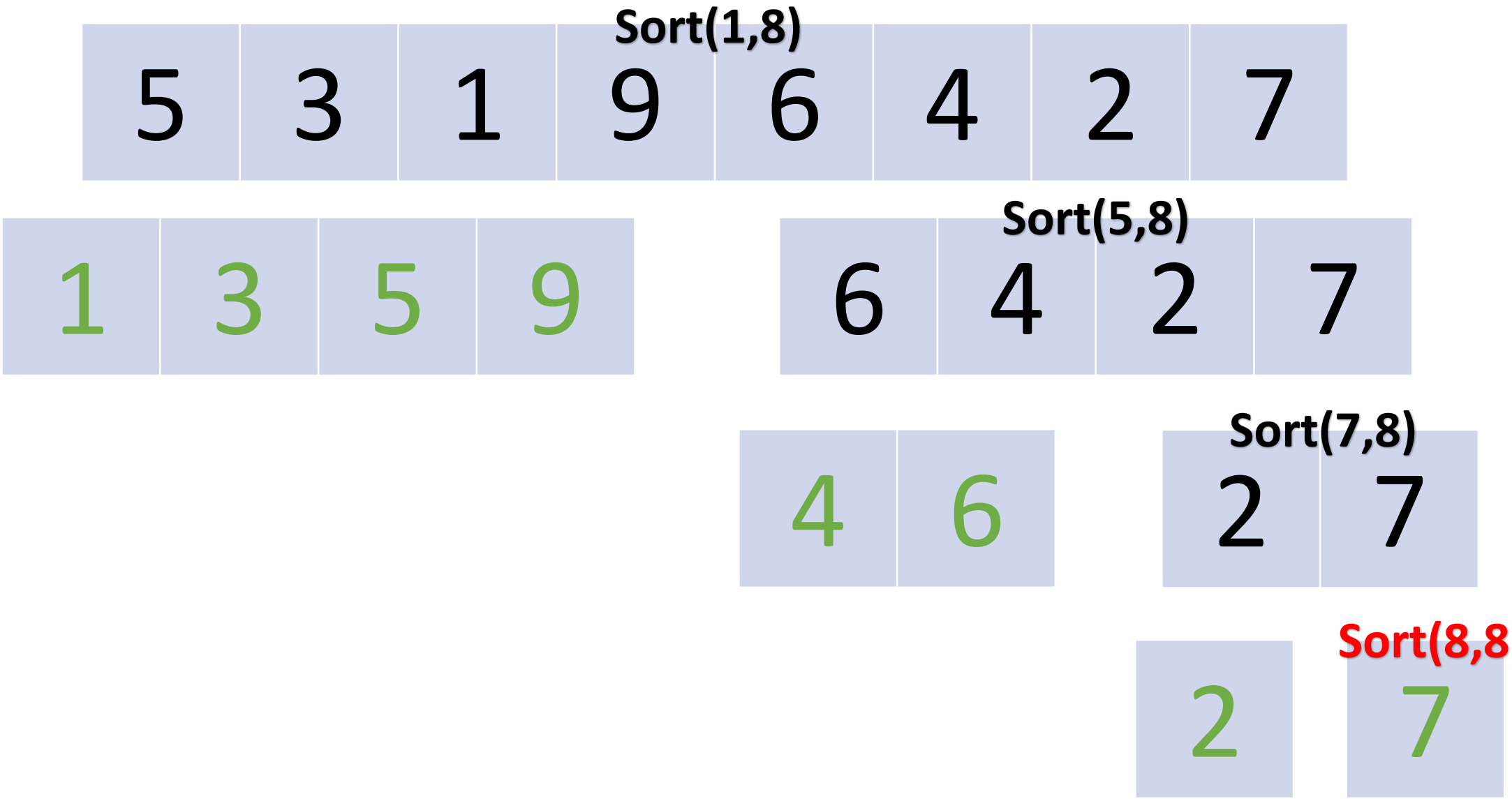
4 6
Sort(7,8)
2 7
2
Sort(8,8)
7


Sort(1,8)
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1 3 5 9
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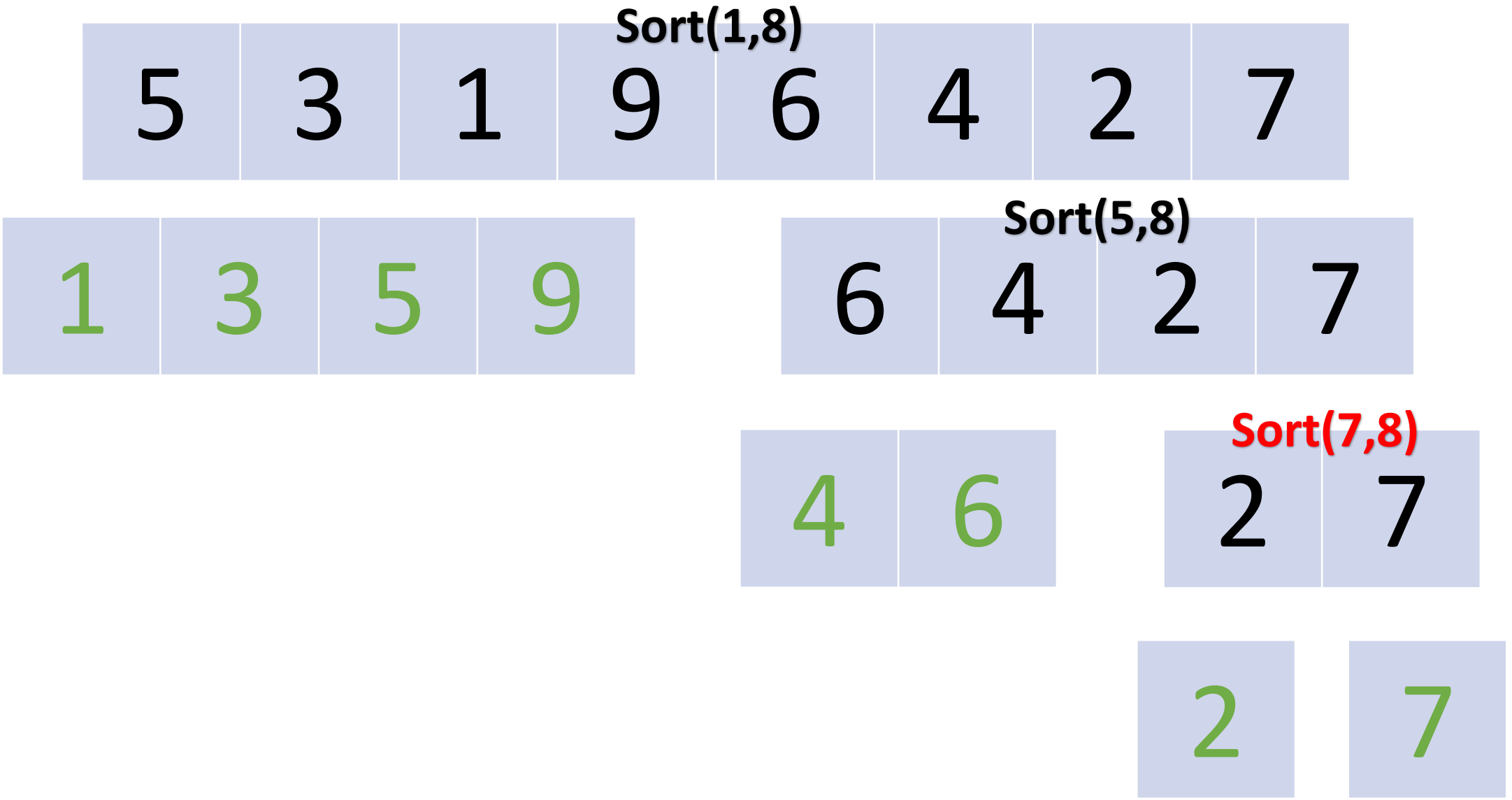
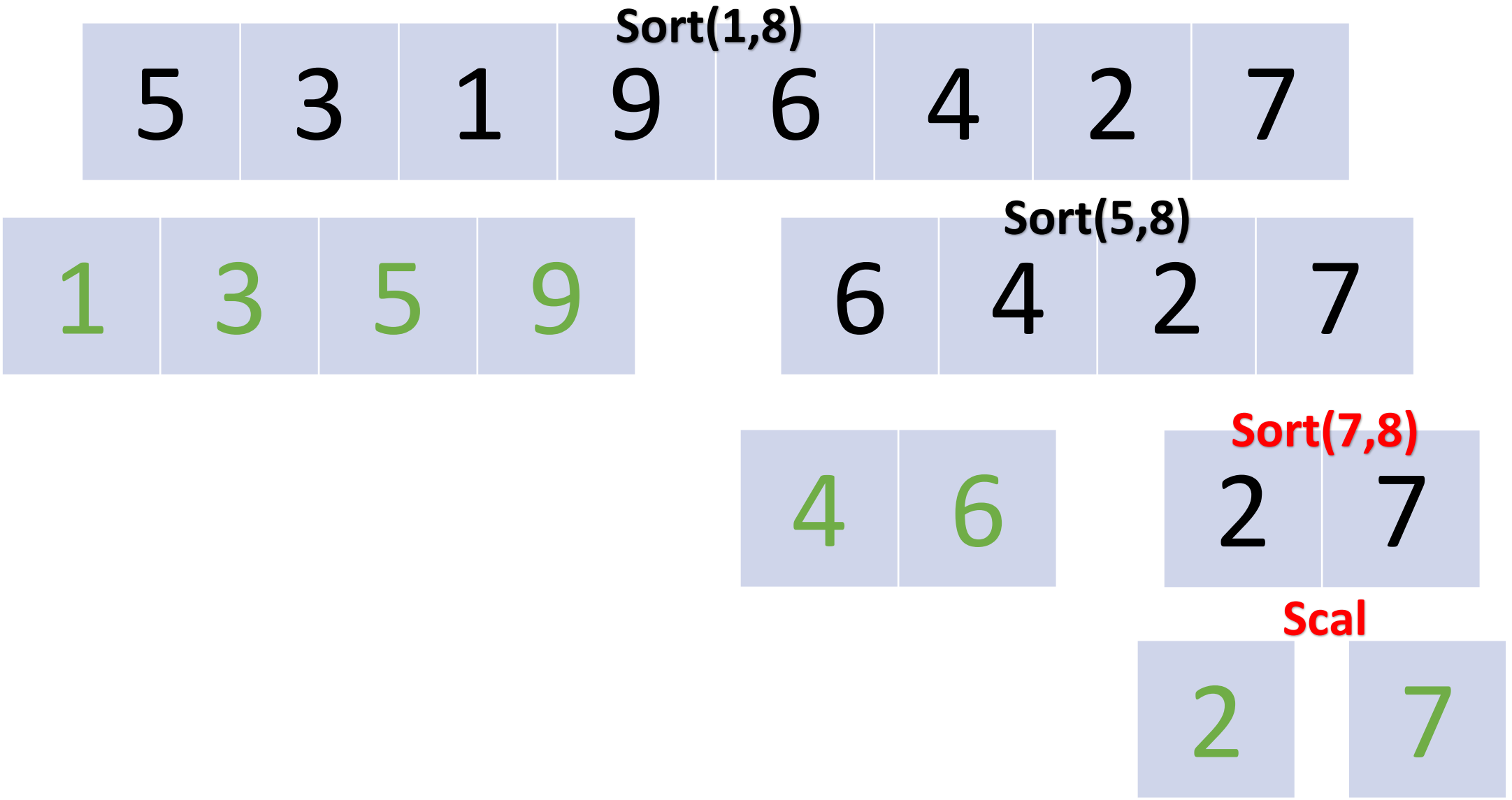
Sort(7,8)
2 7
2
Sort(8,8)
7


Sort(1,8)
5 3 1 9 6 4 2 7
1 3 5 9
Sort(5,8)
6 4 2 7
4 6
Sort(7,8)
2 7
2
7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5 3 1 9 6 4 2 7
1 3 5 9
Sort(5,8)
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4 6
Sort(7,8)
2 7
Scal
2 7

Sort(1,8)

5	3	1	9	6	4	2	7

1	3	5	9

Sort(5,8)

6	4	2	7

4	6

Sort(7,8)

2	7

Sort(1,8)

5	3	1	9	6	4	2	7

1	3	5	9

Sort(5,8)

6	4	2	7

4	6

2	7

Sort(1,8)

5	3	1	9	6	4	2	7

1	3	5	9

Sort(5,8)

6	4	2	7

Scal

4	6

2	7

Sort(1,8)

5	3	1	9	6	4	2	7

1	3	5	9

Sort(5,8)

2	4	6	7

Sort(1,8)

Sort(1,8)

5	3	1	9	6	4	2	7

Scal

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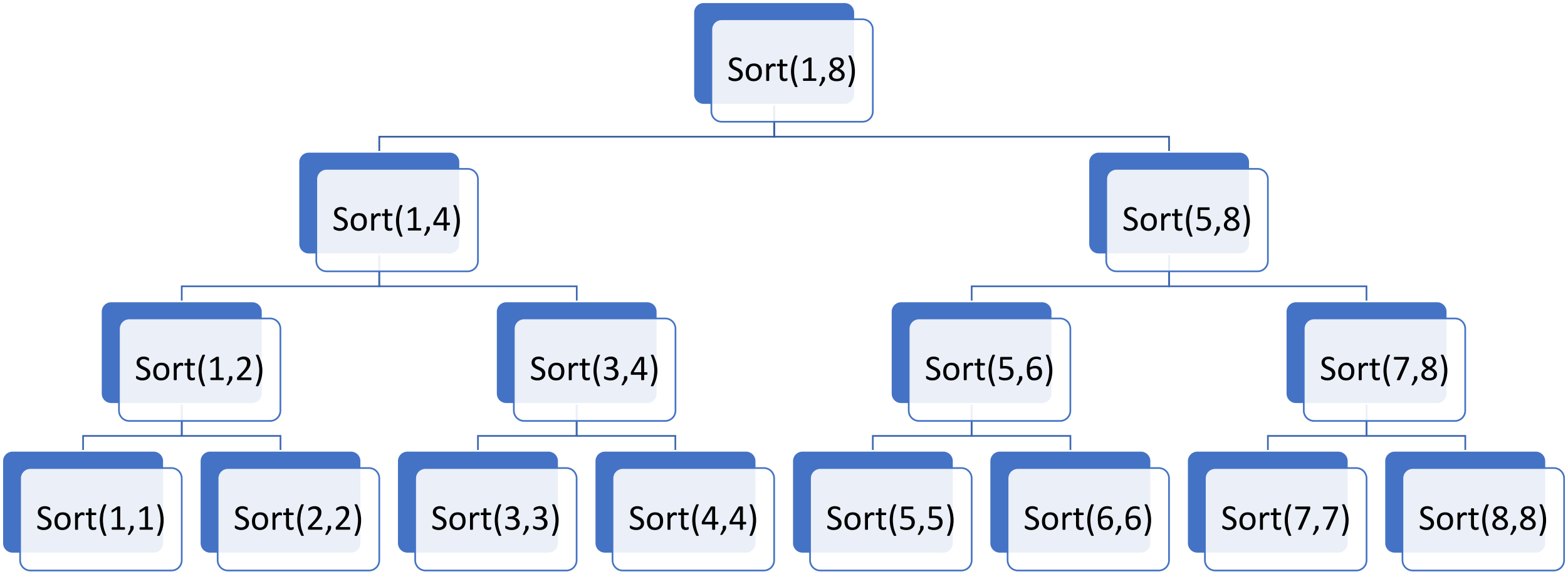
Sort(1,8)

1	2	3	4	5	6	7	9

Koniec!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Sort(2,2)
Sort(3,3)
Sort(4,4)
Sort(5,5)
Sort(6,6)
Sort(7,7)
Sort(8,8)

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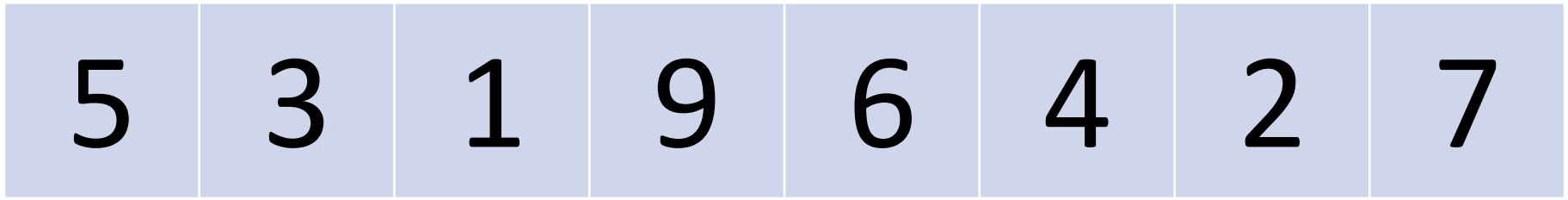
6	4	2	7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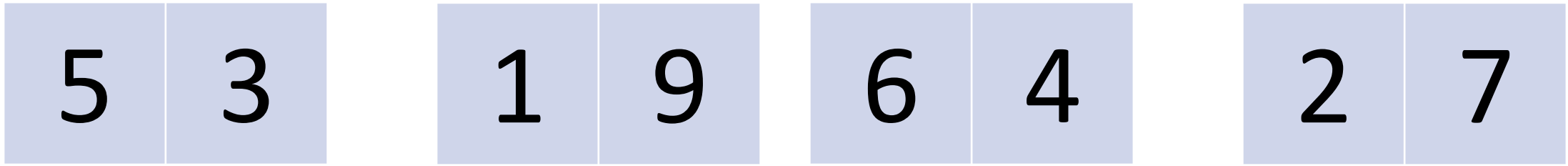
5 3 1 9
6 4 2 7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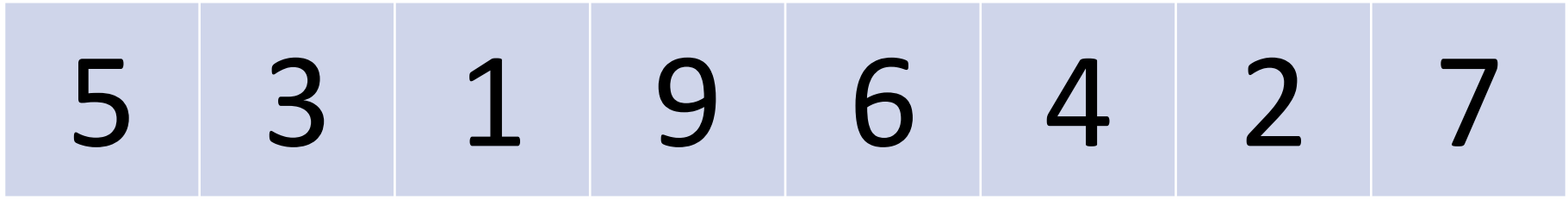
2 7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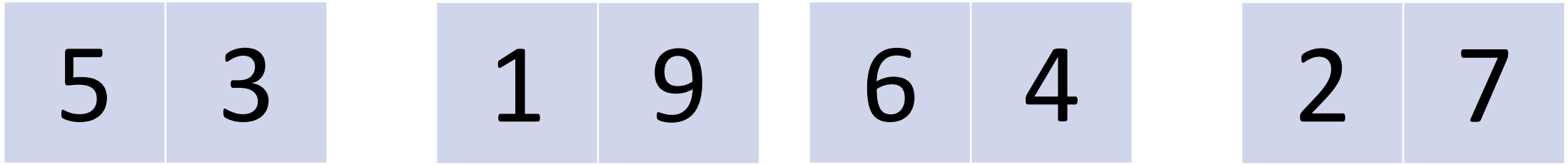
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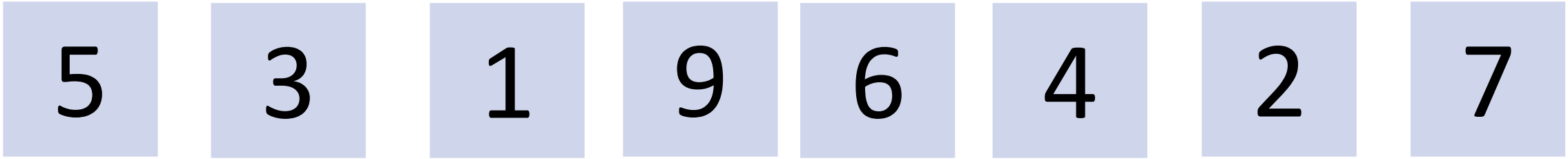
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