

MergeSort: Sortowanie przez scalanie

Damian Kurpiewski

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
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Tablica 2:

2	4	6	7
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Wynik:

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Przykład

Tablica 1:

1	3	5	9
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Wynik:



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Tablica 1:

	3	5	9
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Tablica 2:

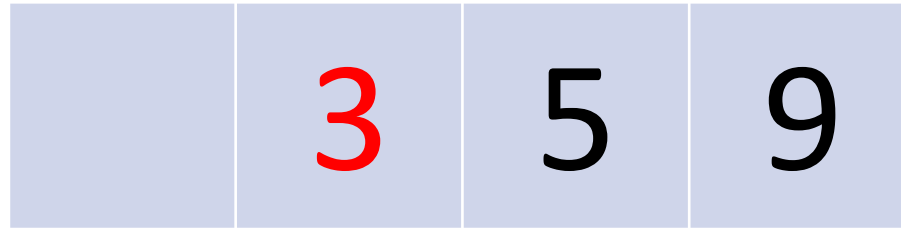
	4	6	7
--	---	---	---

Wynik:

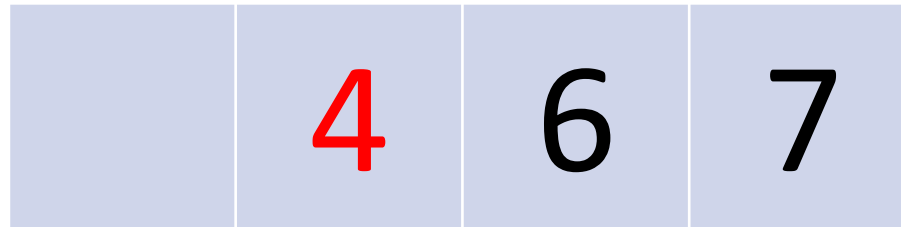
1	2						
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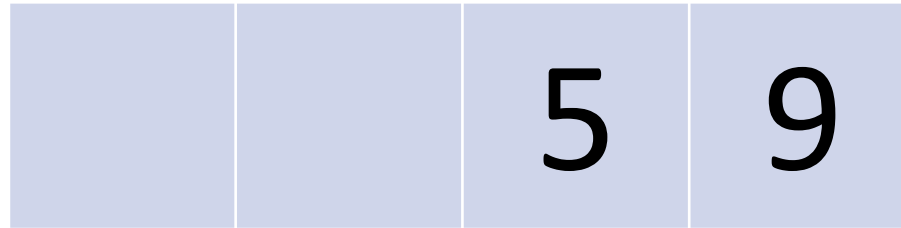
	4	6	7
--	---	---	---

Wynik:

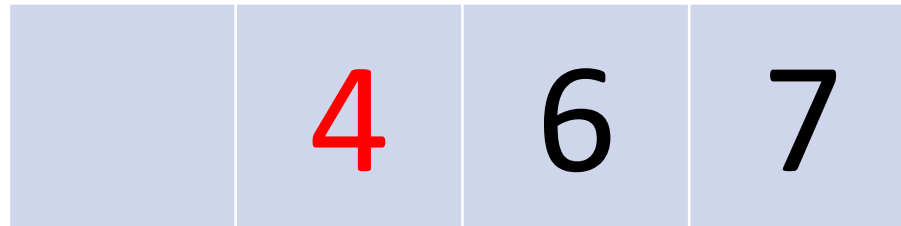
1	2						
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Tablica 2:

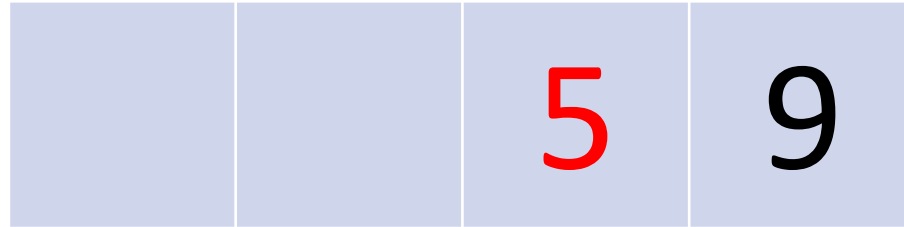


Wynik:

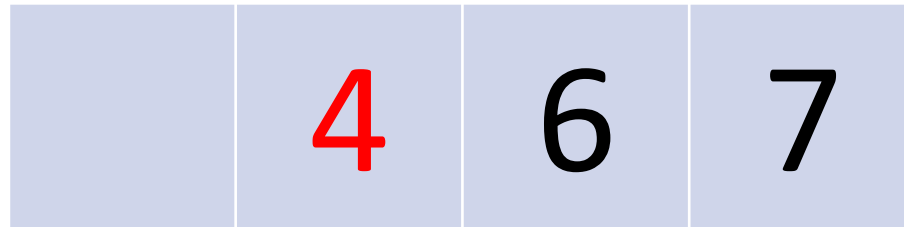


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Wynik:



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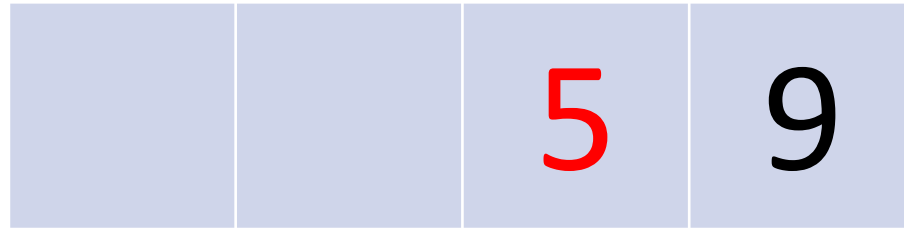
	4	6	7
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Wynik:

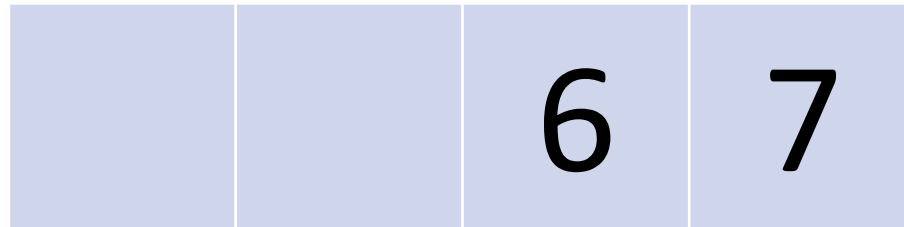
1	2	3					
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Przykład

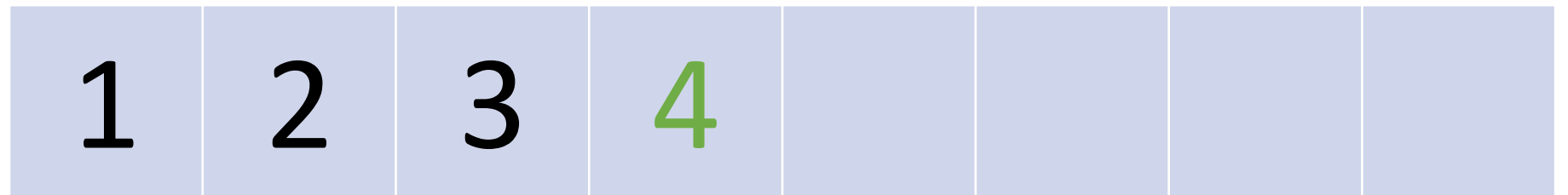
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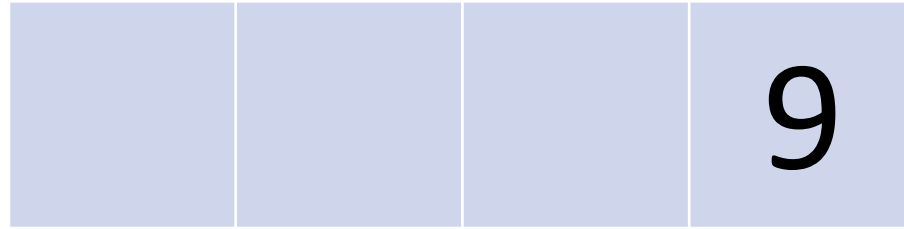
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Wynik:

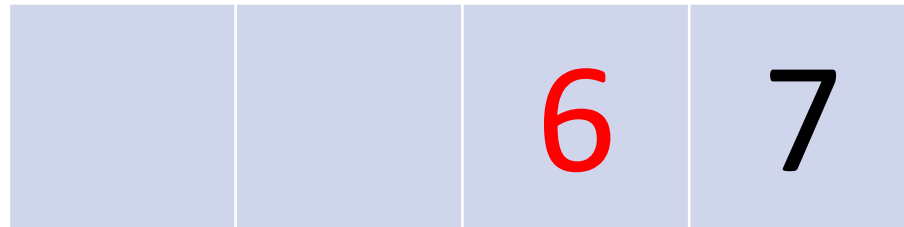
1	2	3	4				
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Przykład

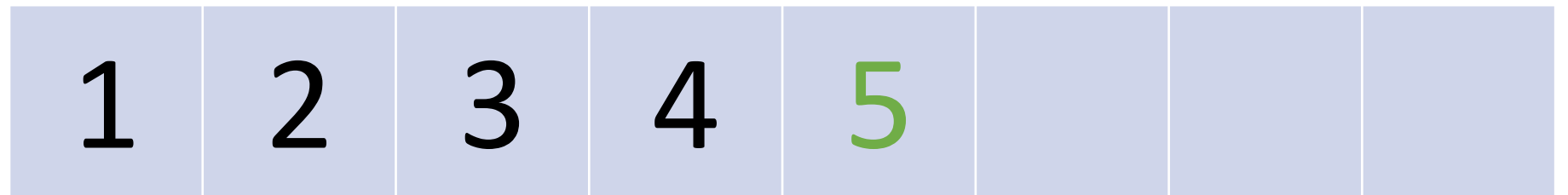
Tablica 1:



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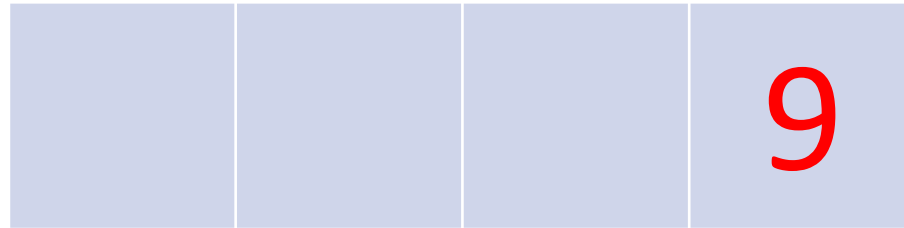


Wynik:

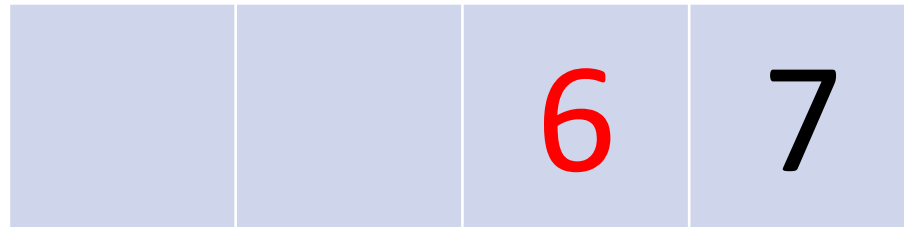


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Tablica 2:

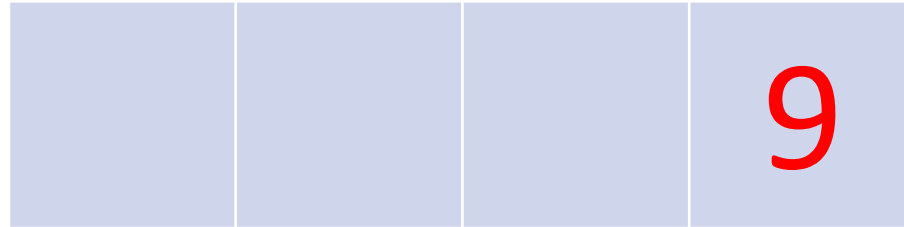


Wynik:

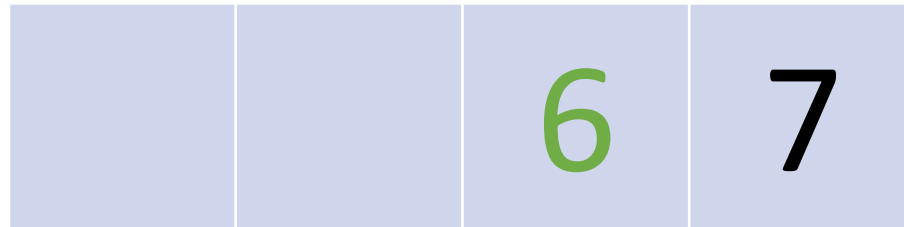


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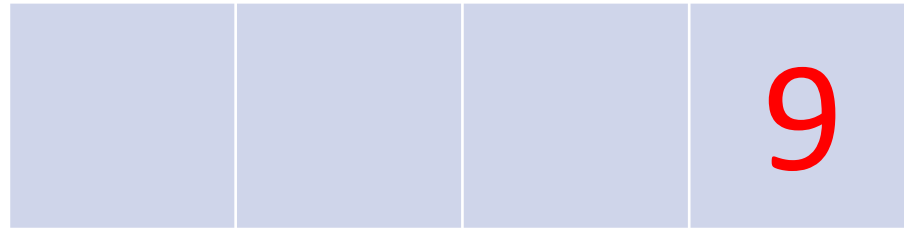


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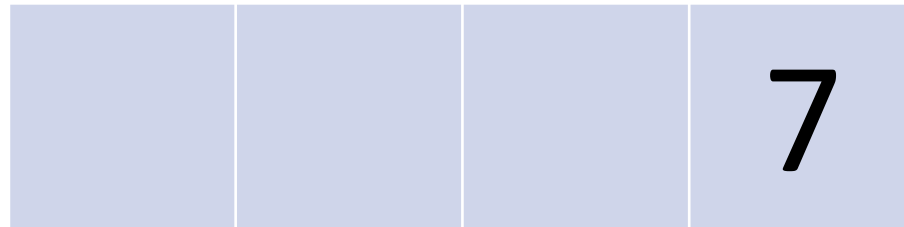


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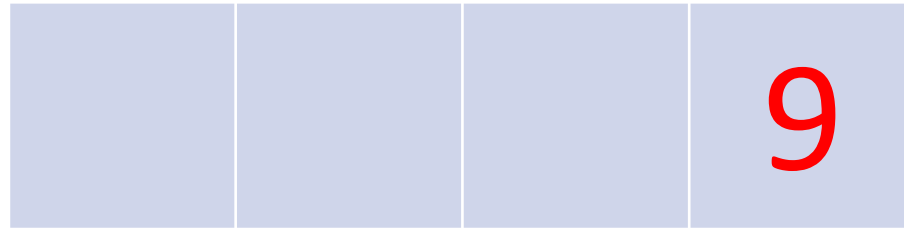


Wynik:

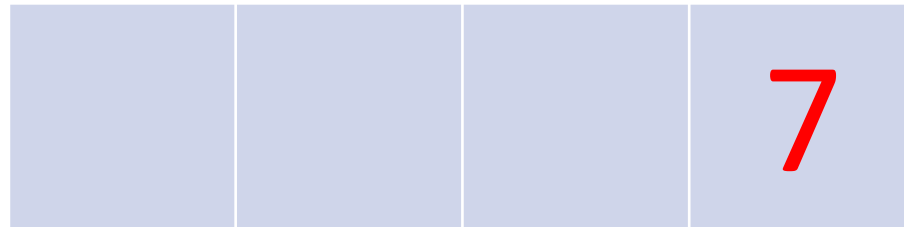


Przykład

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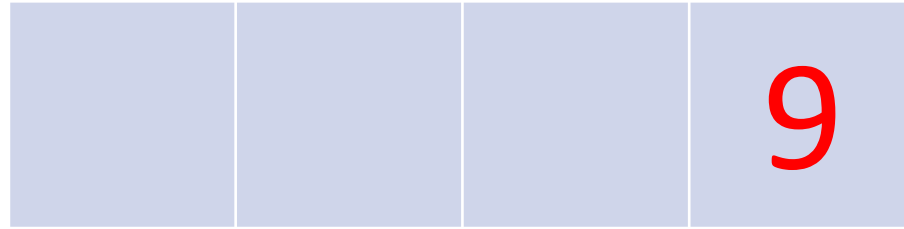


Wynik:

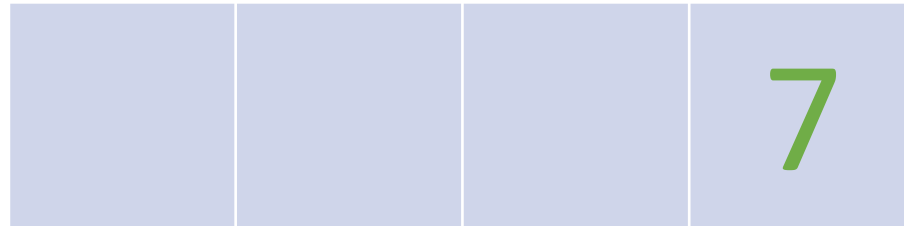


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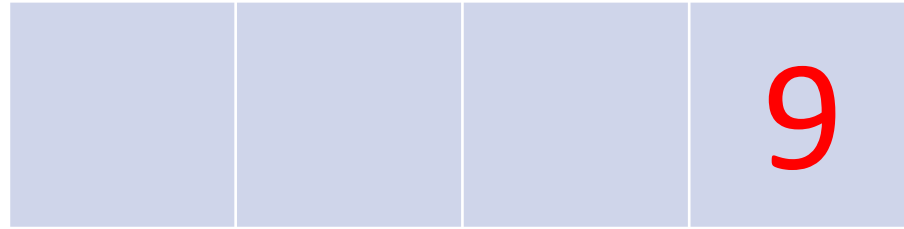


Wynik:

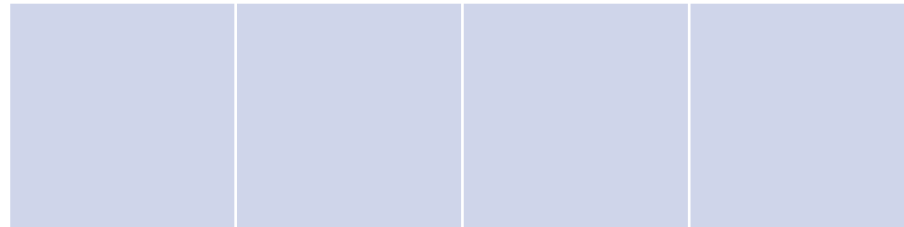


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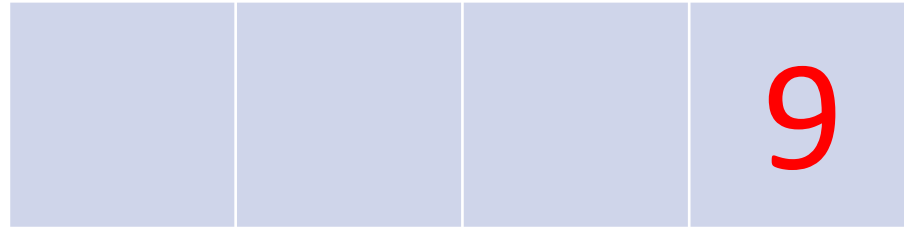


Wynik:

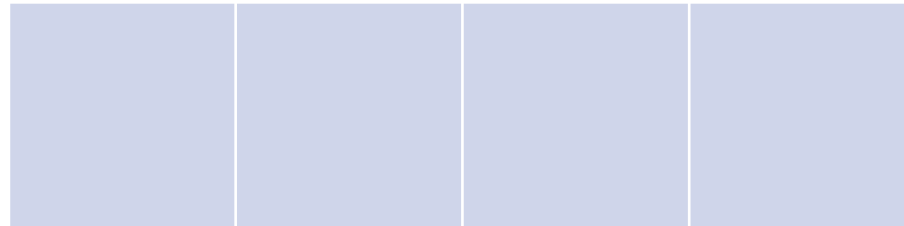


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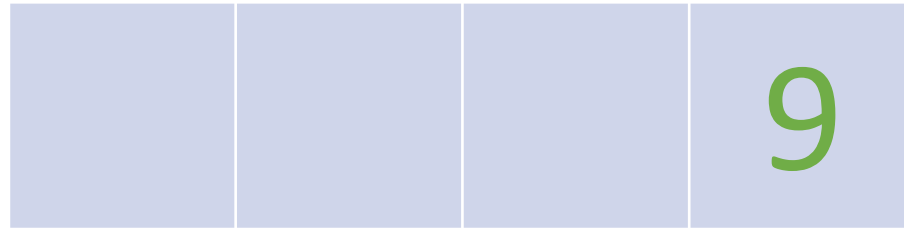


Wynik:

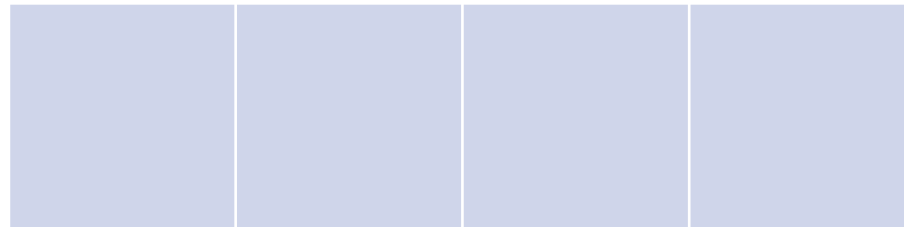


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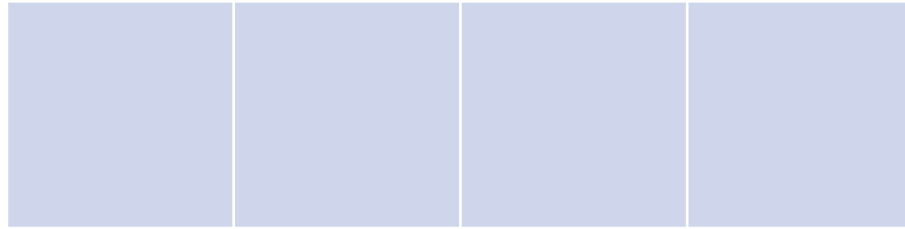


Wynik:

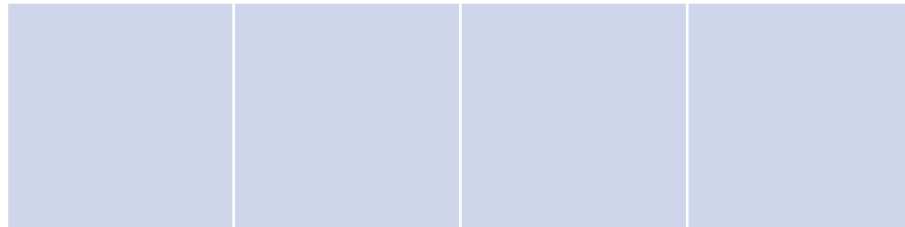


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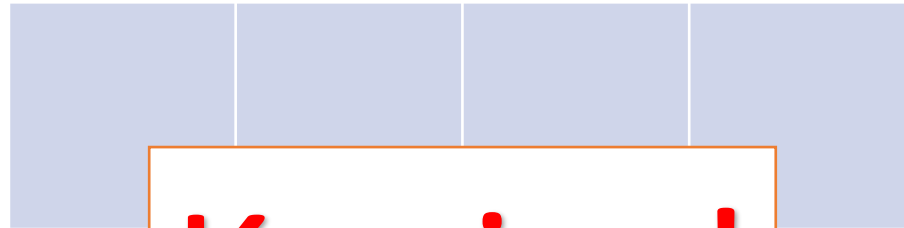


Wynik:



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Tablica 2:



Wynik:





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

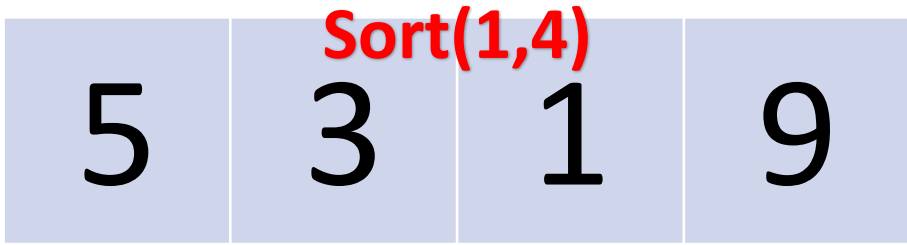
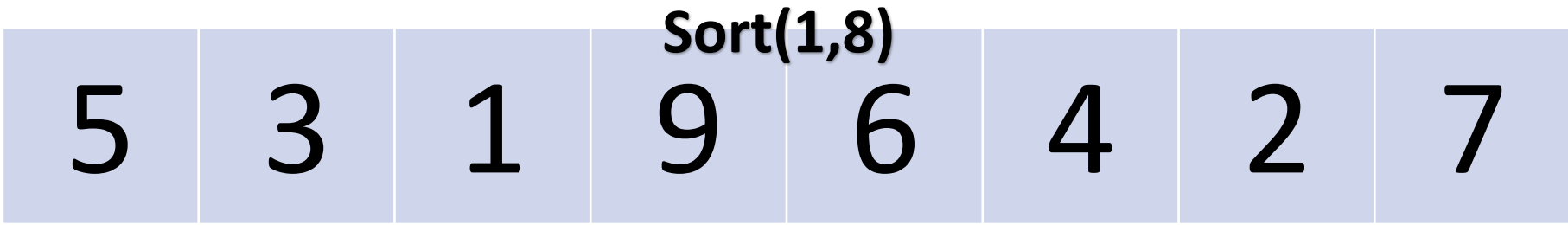
9

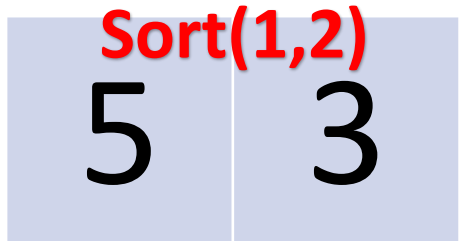
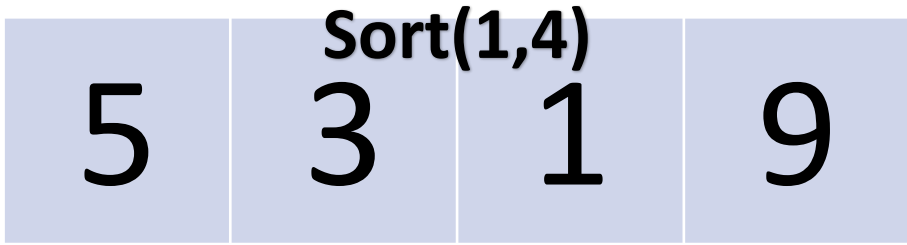
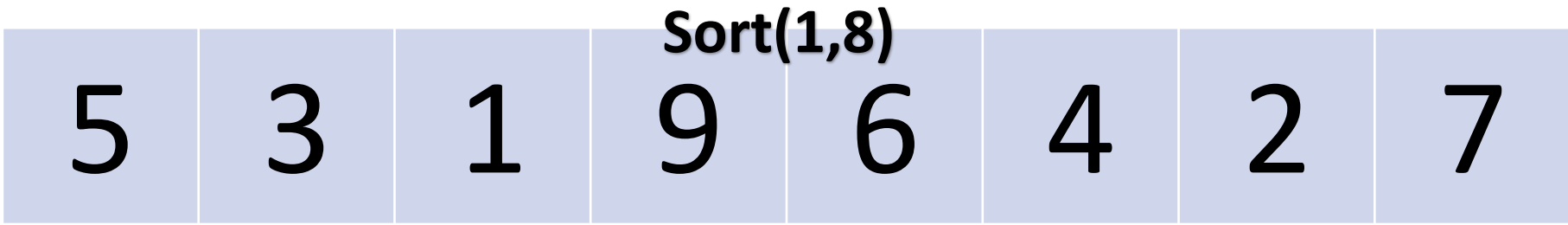
6

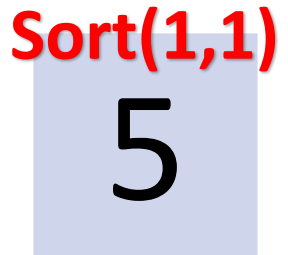
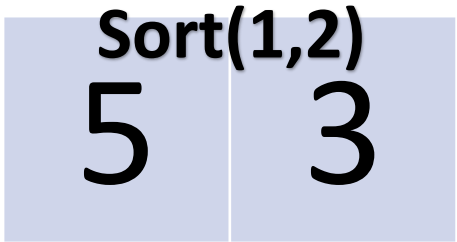
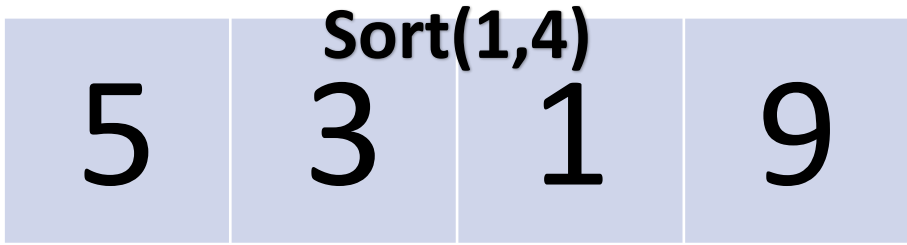
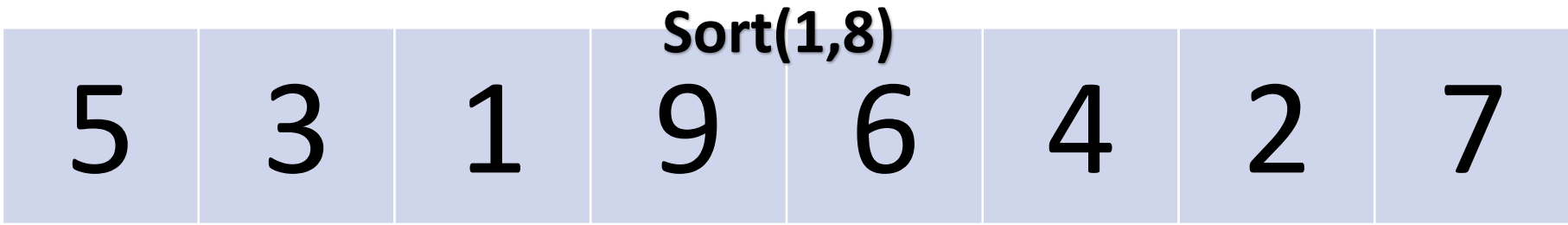
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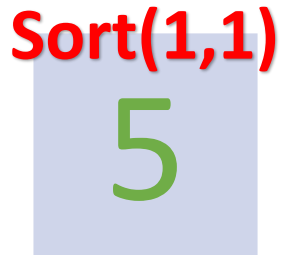
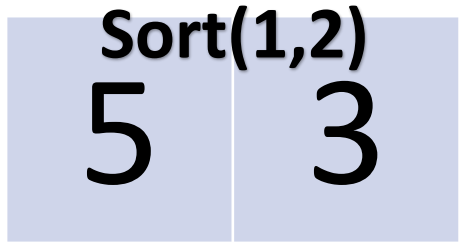
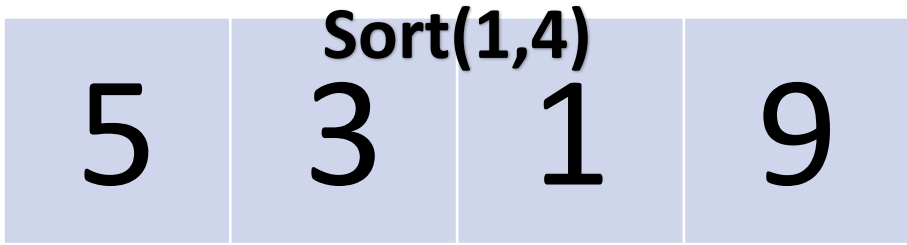
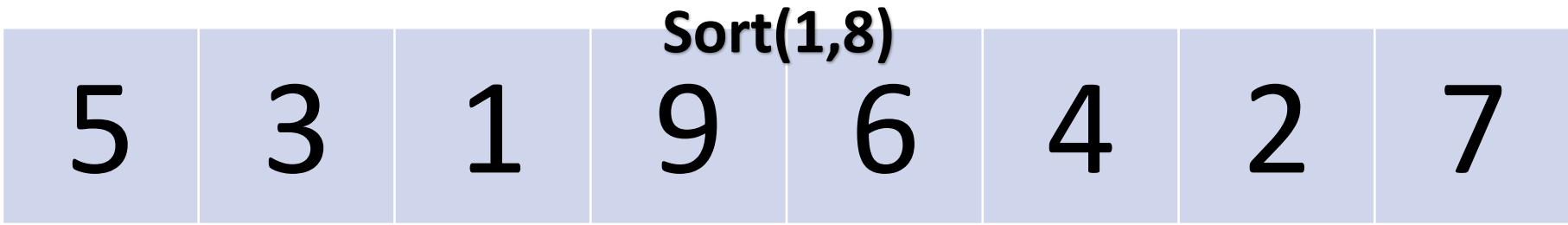
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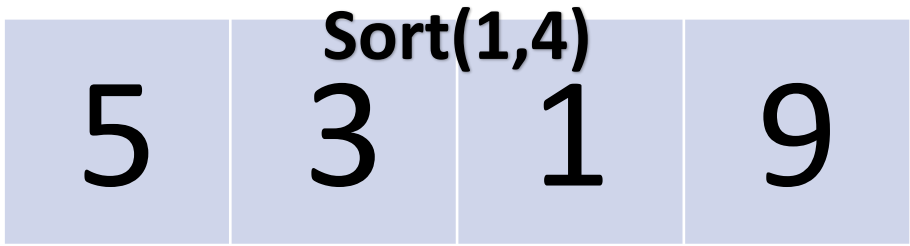
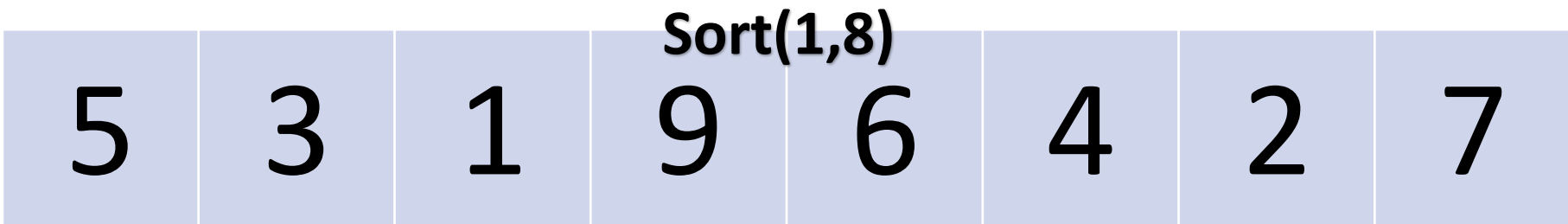
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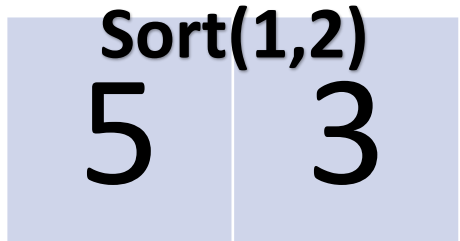
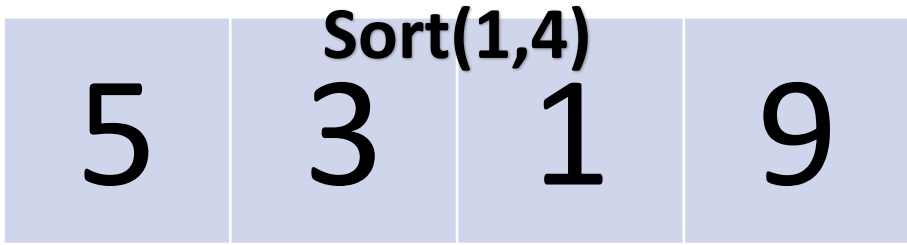
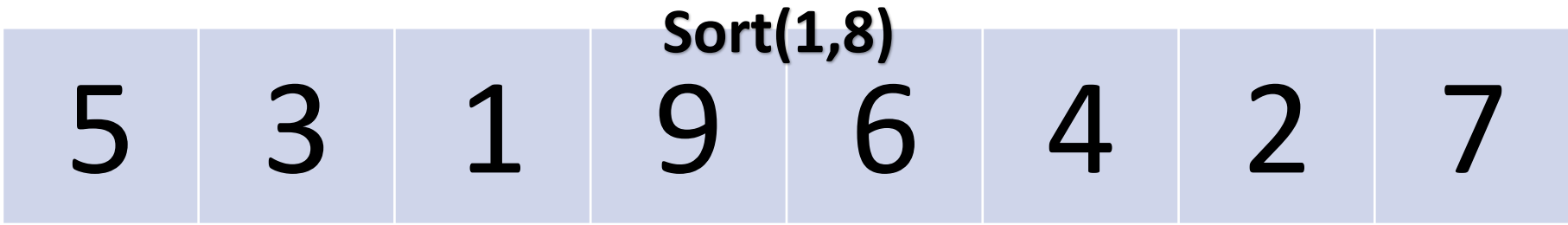


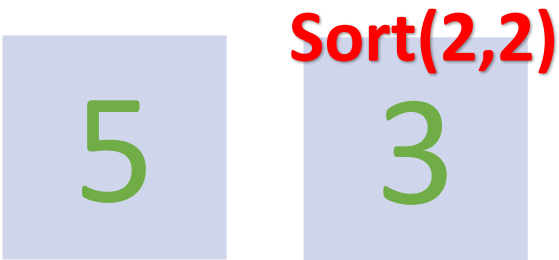
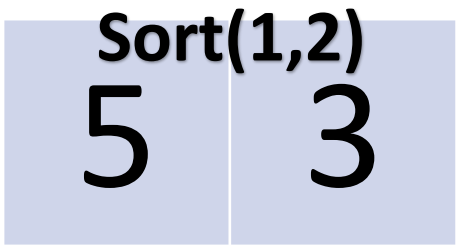
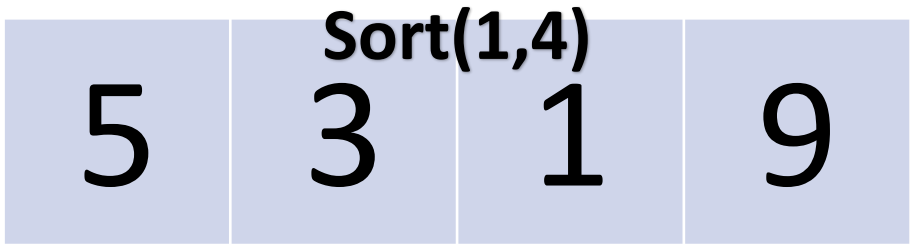
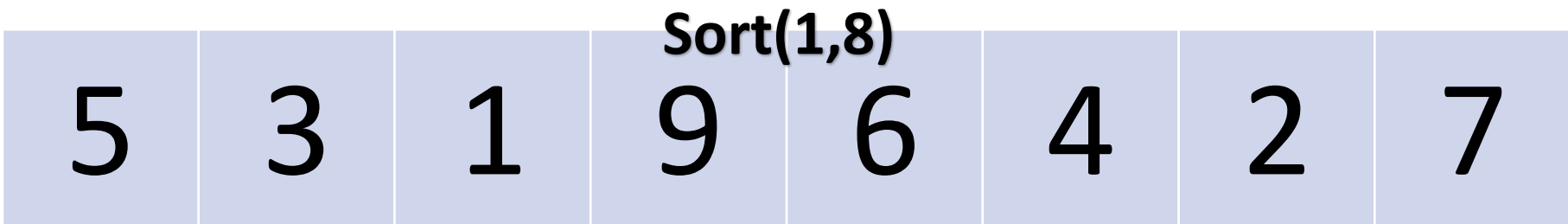


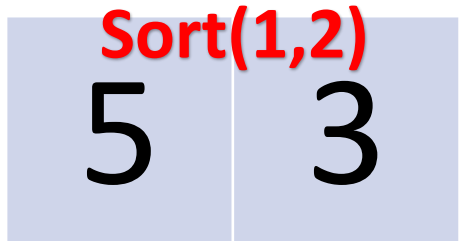
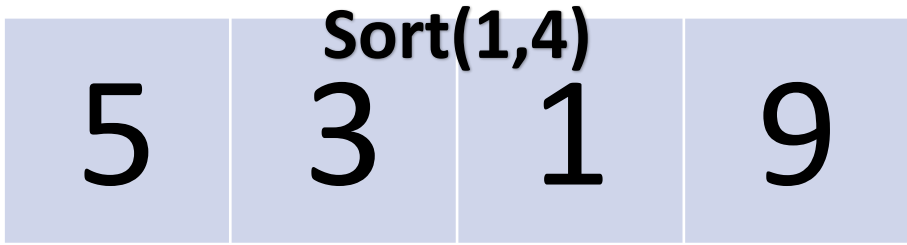
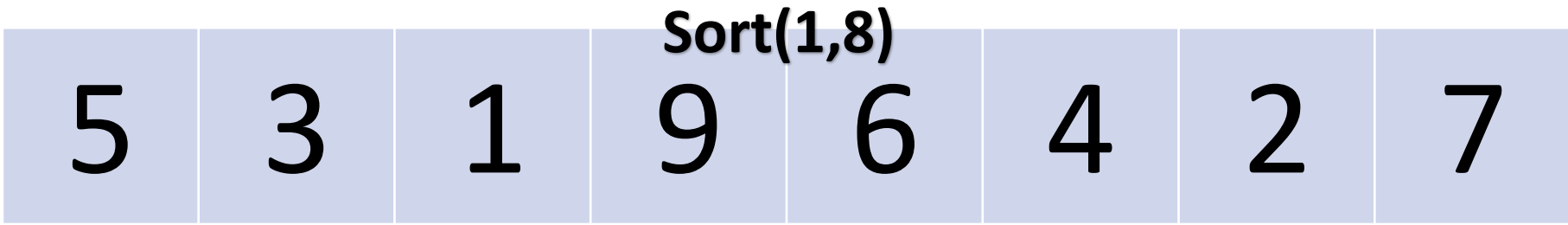


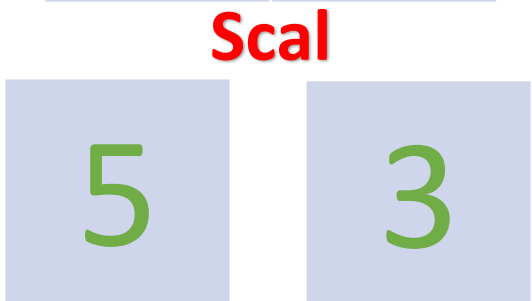
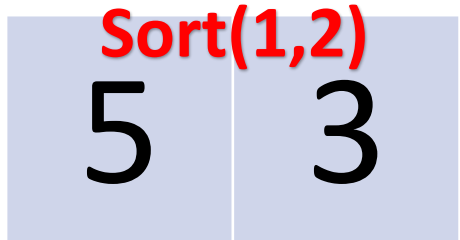
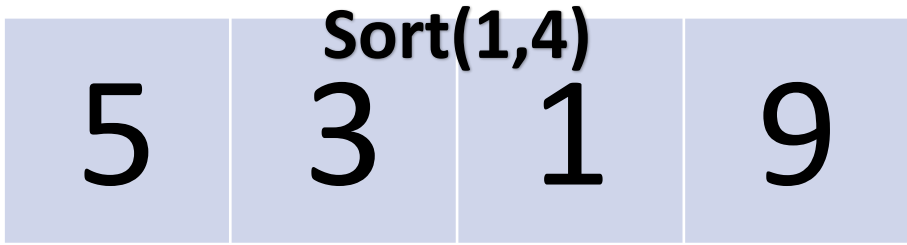
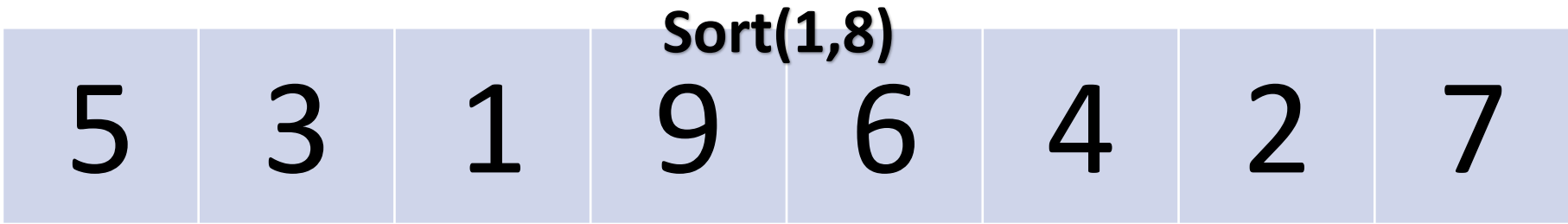


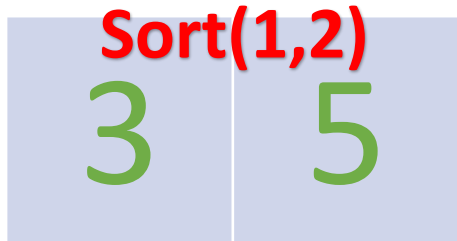
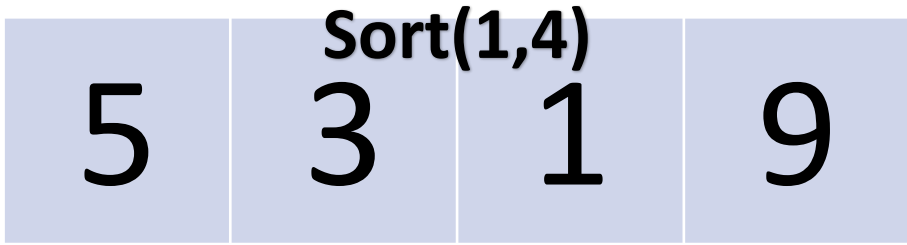
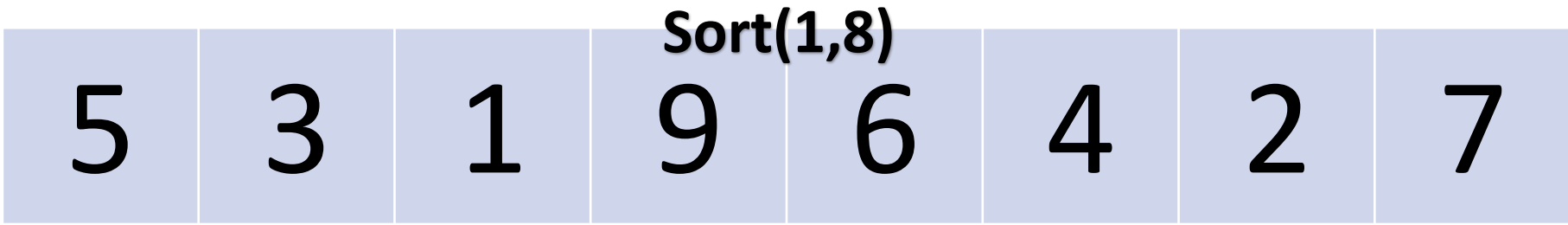


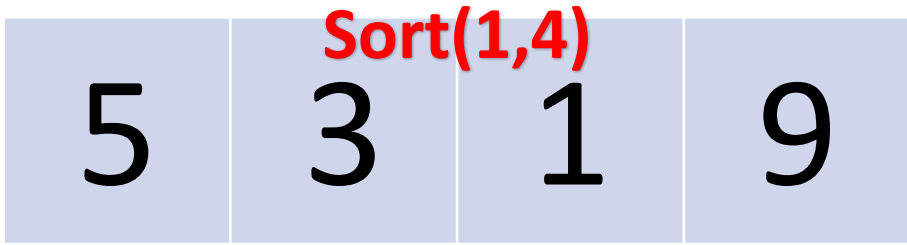
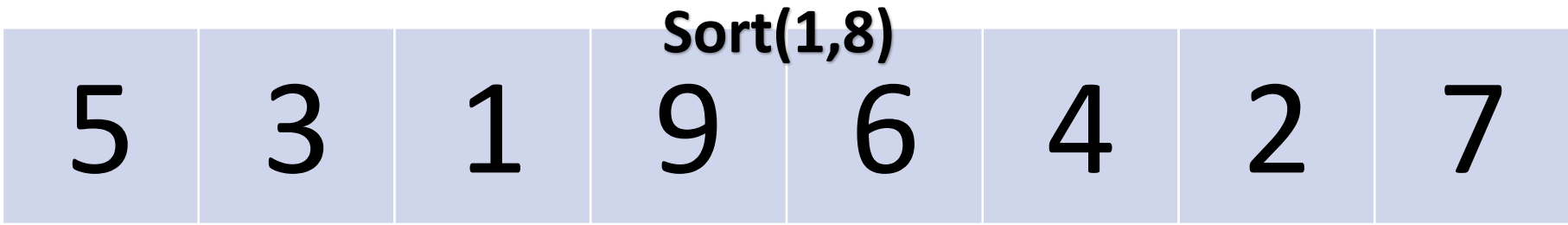


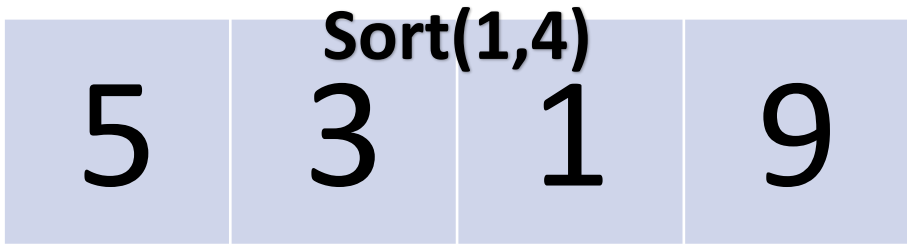
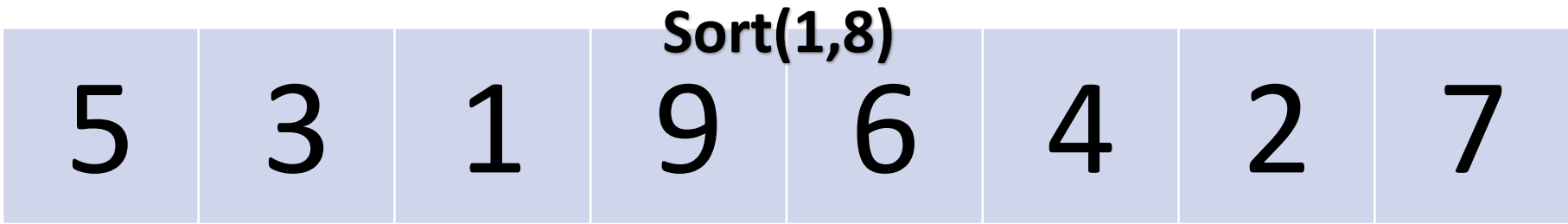


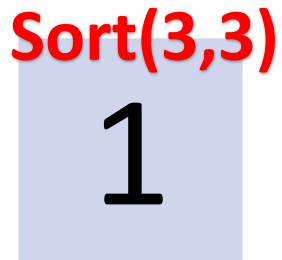
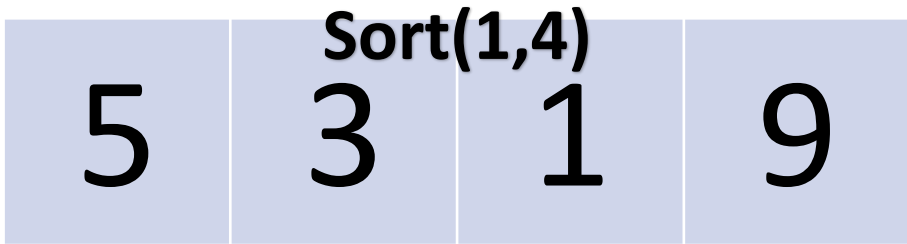
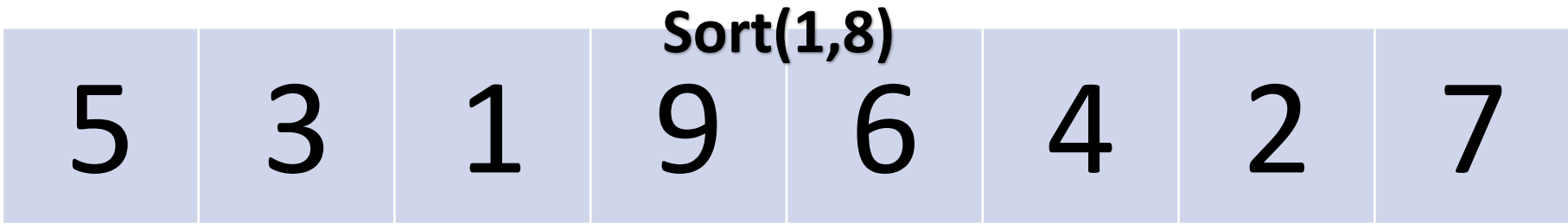


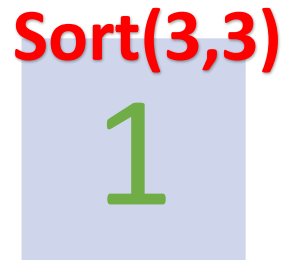
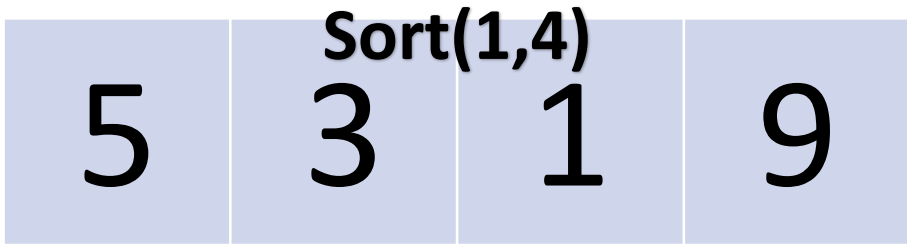
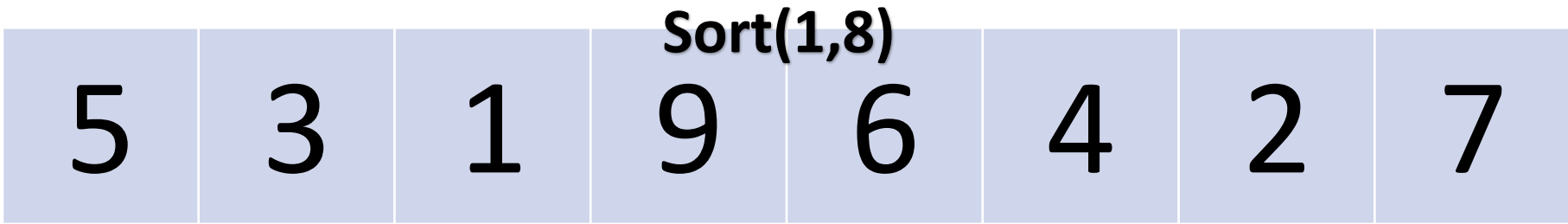


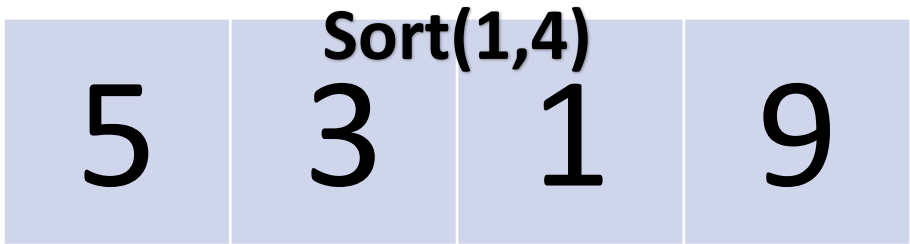
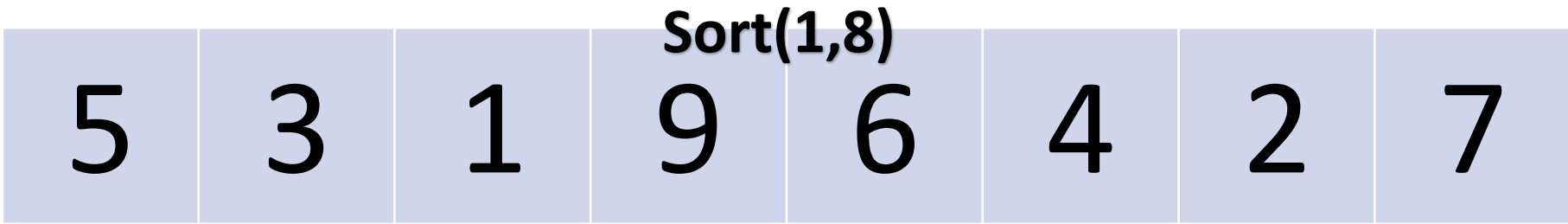


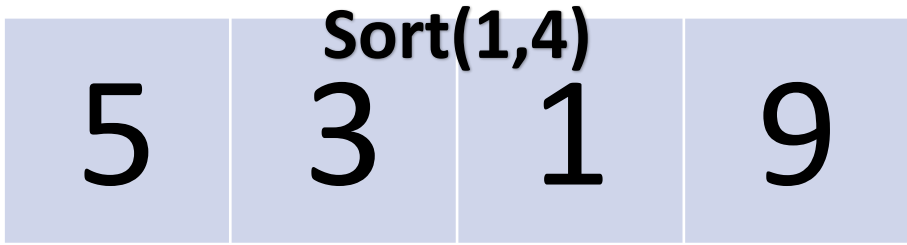
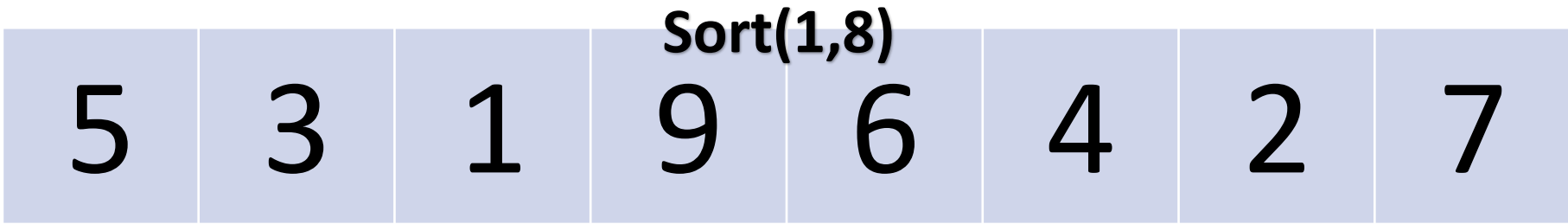


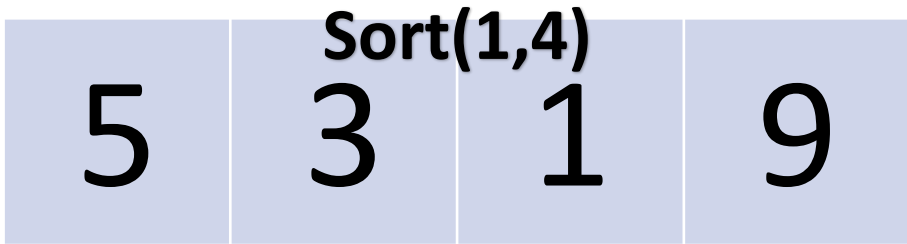
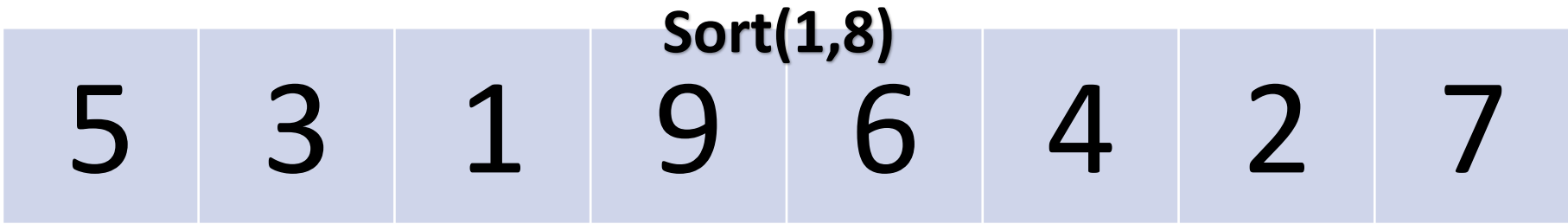


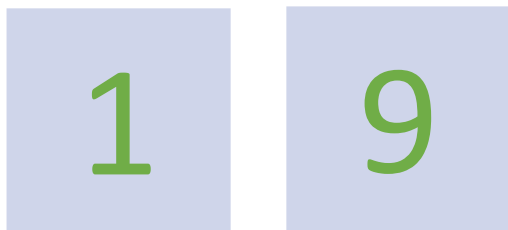
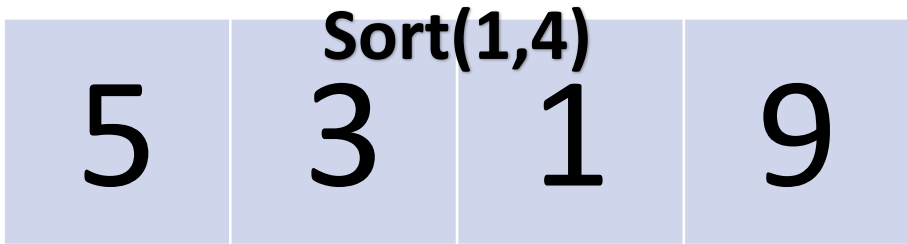
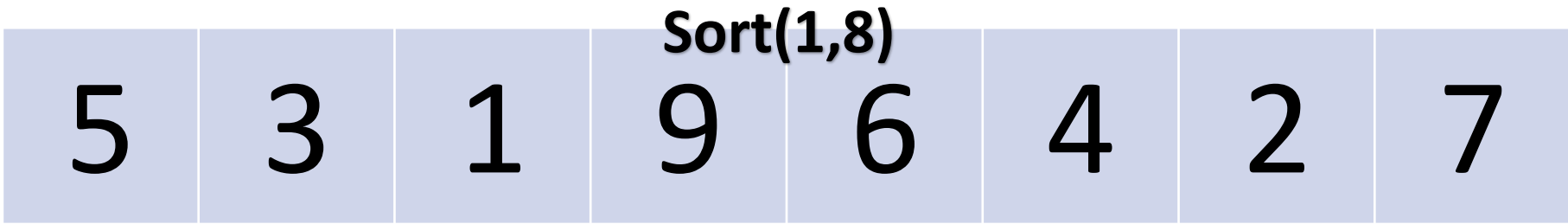


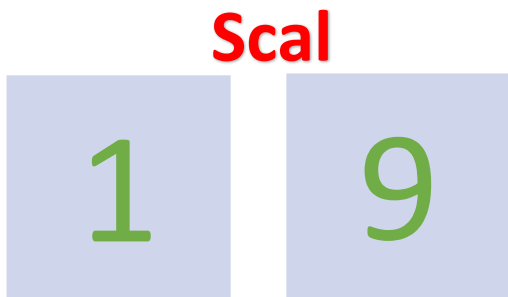
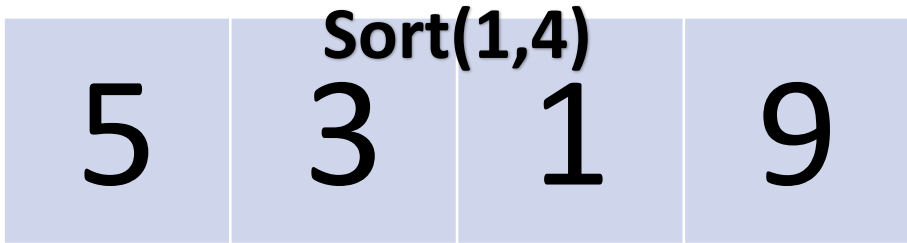
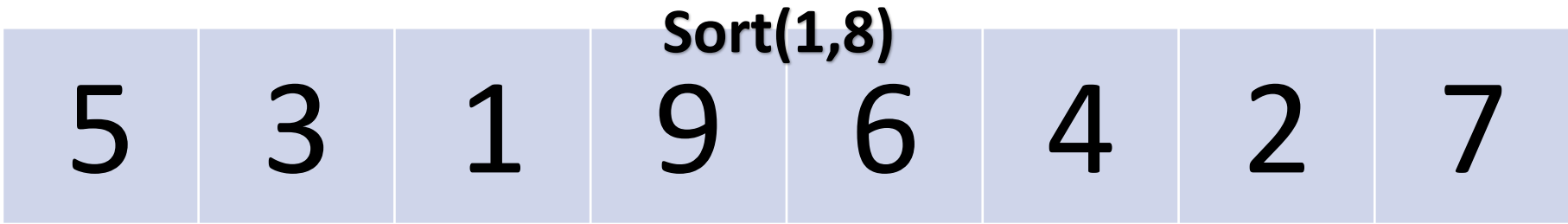


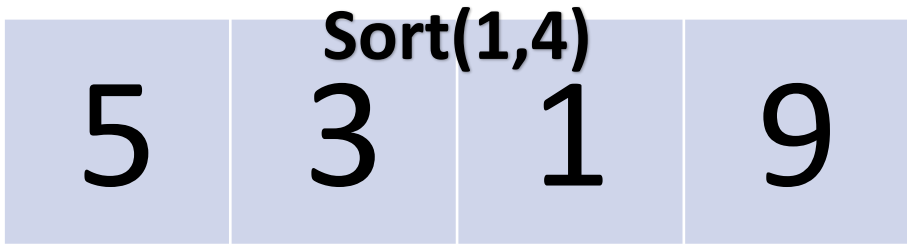
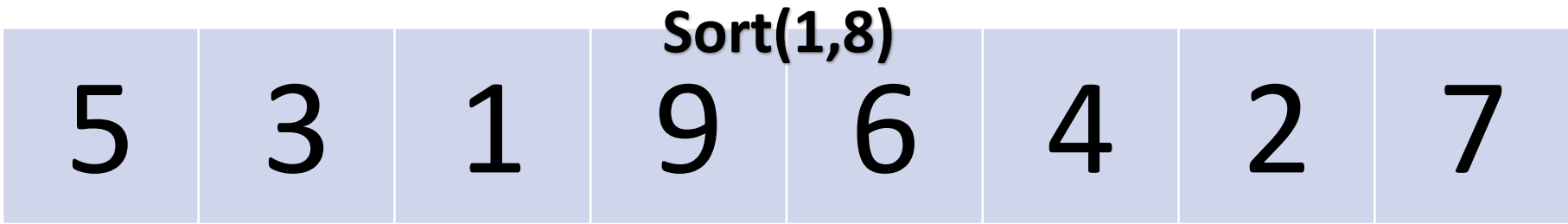


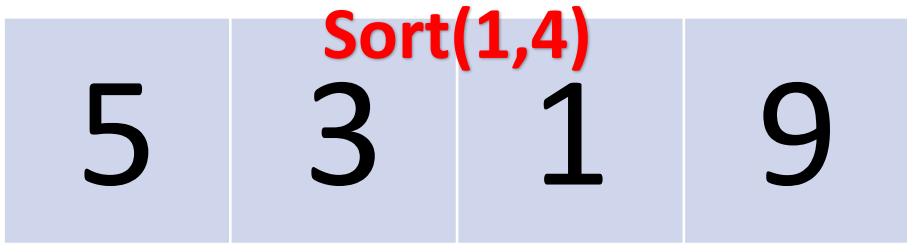
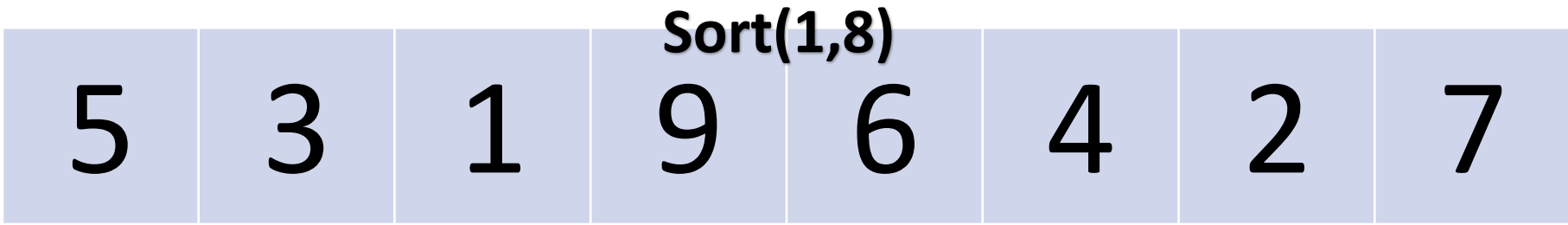


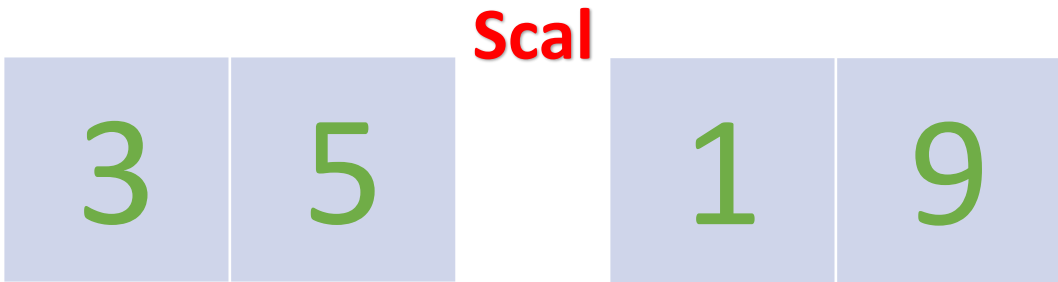
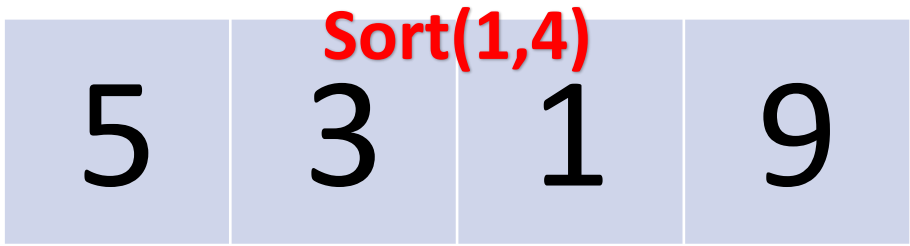
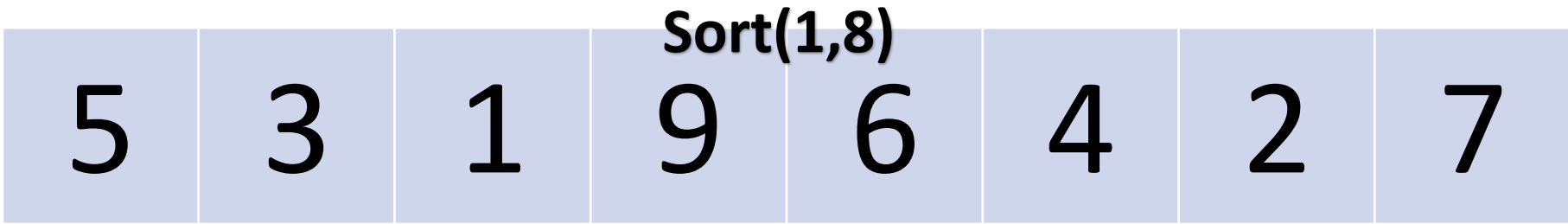


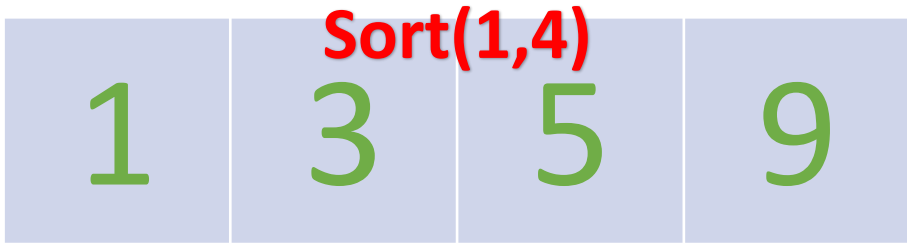
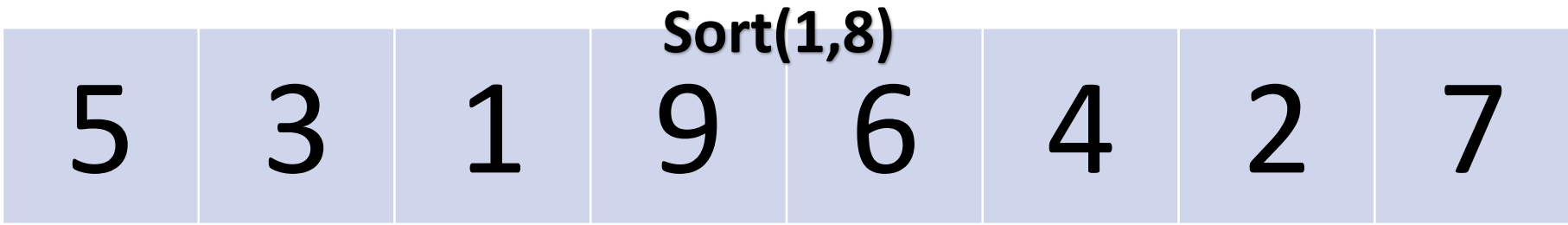






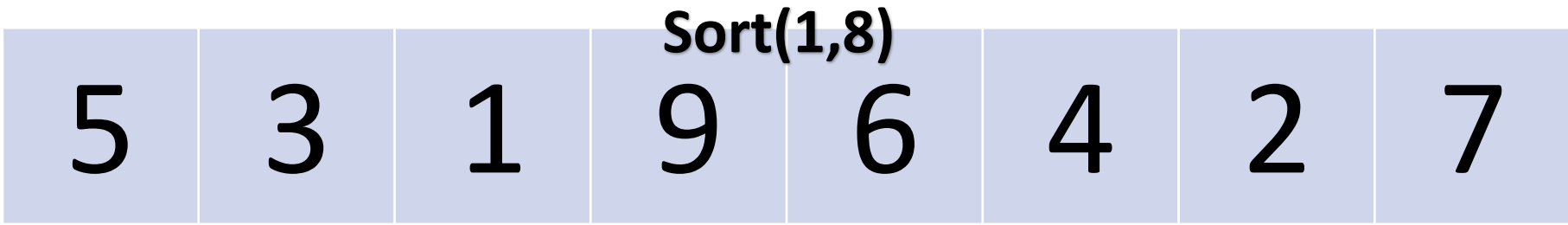


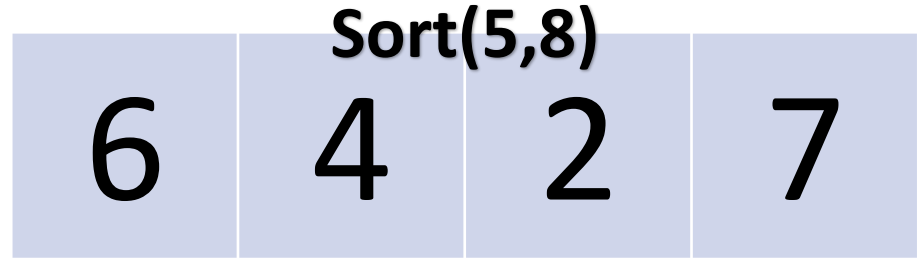
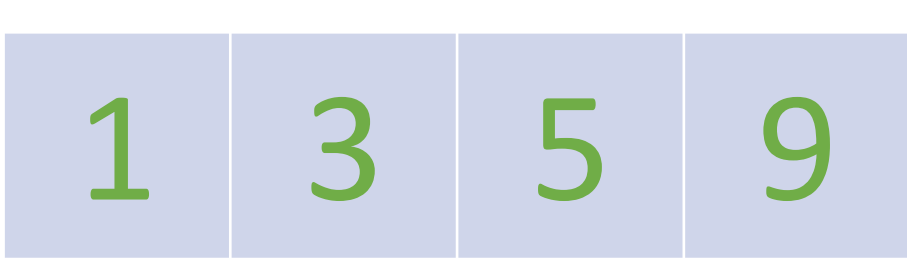
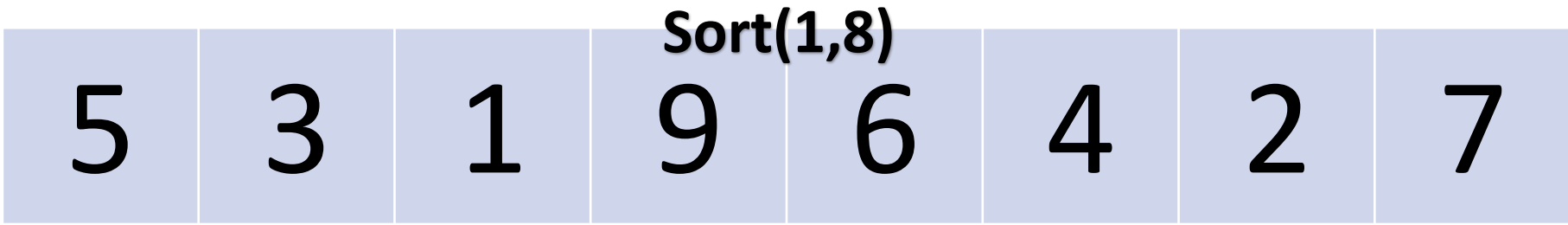


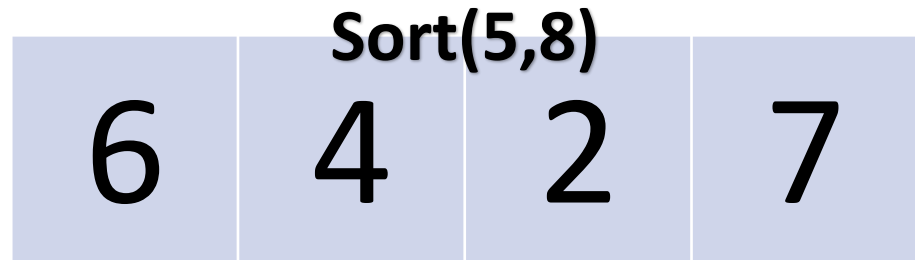
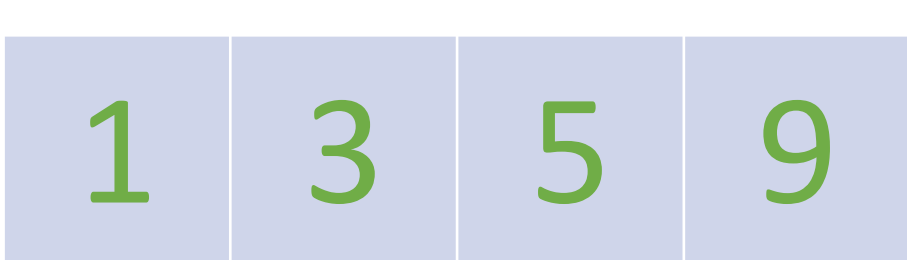
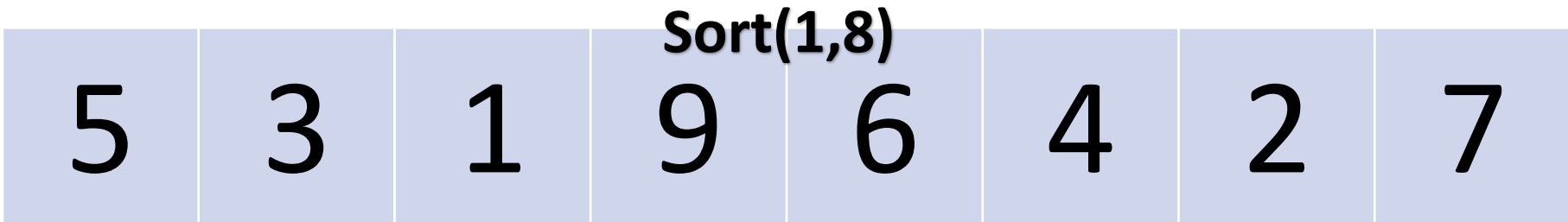


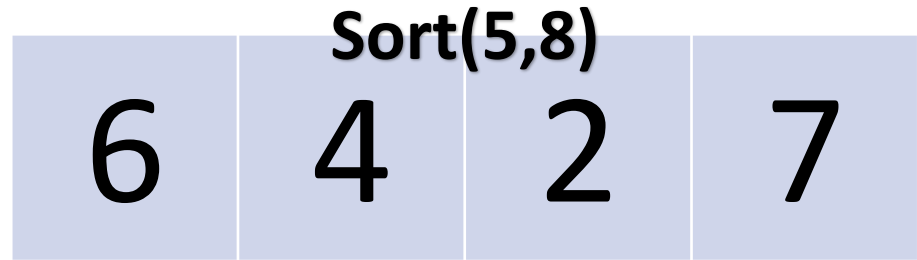
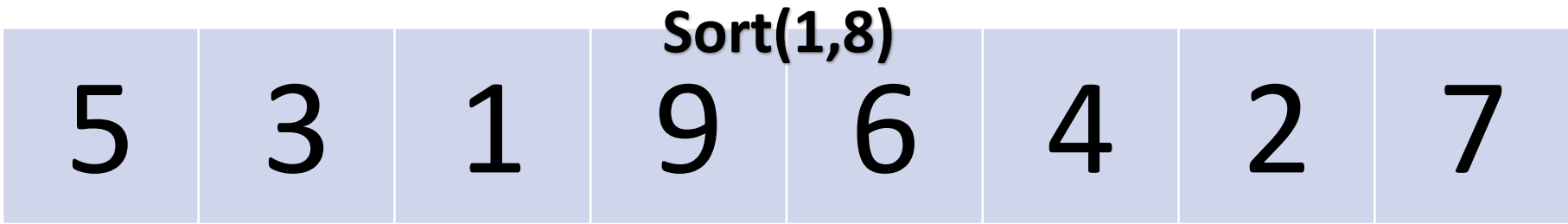
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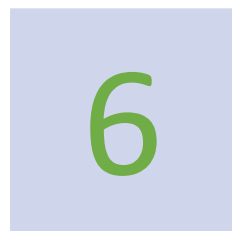
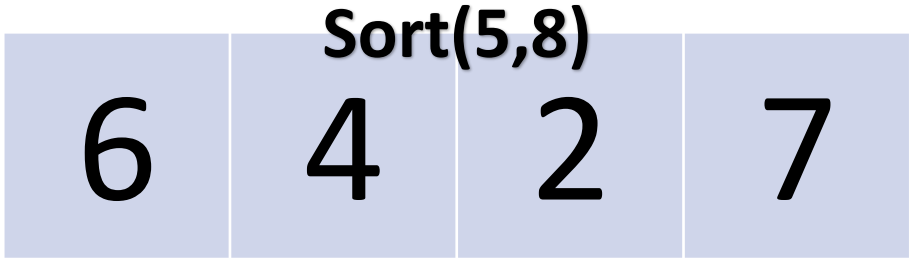
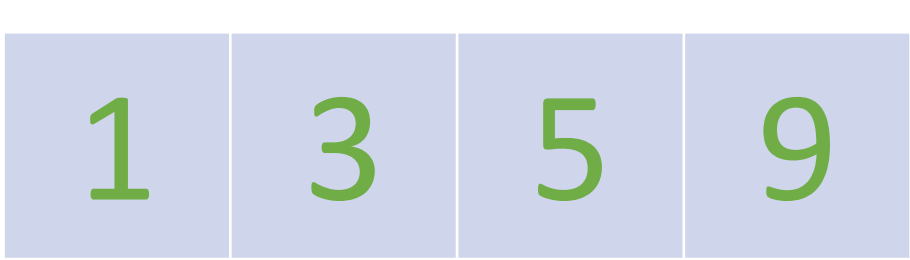
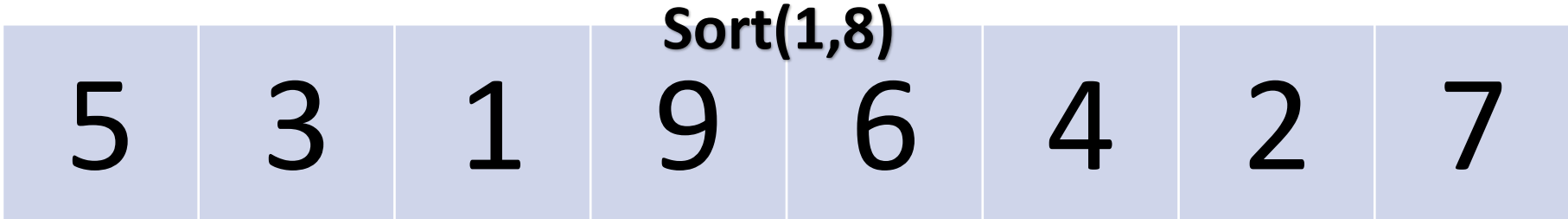


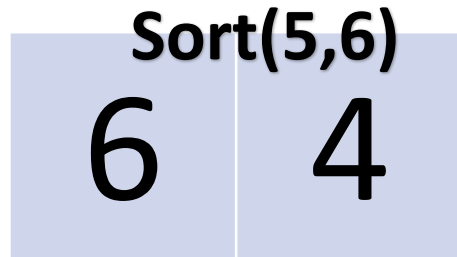
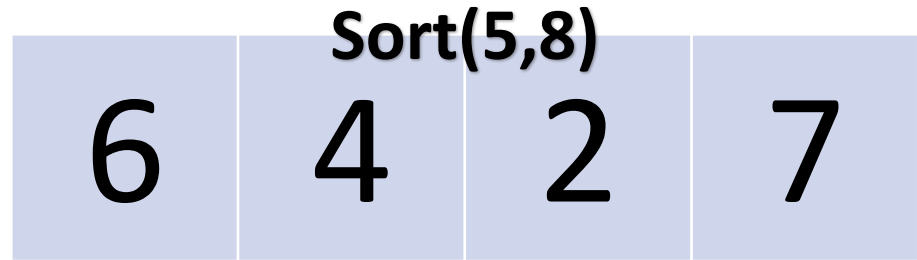
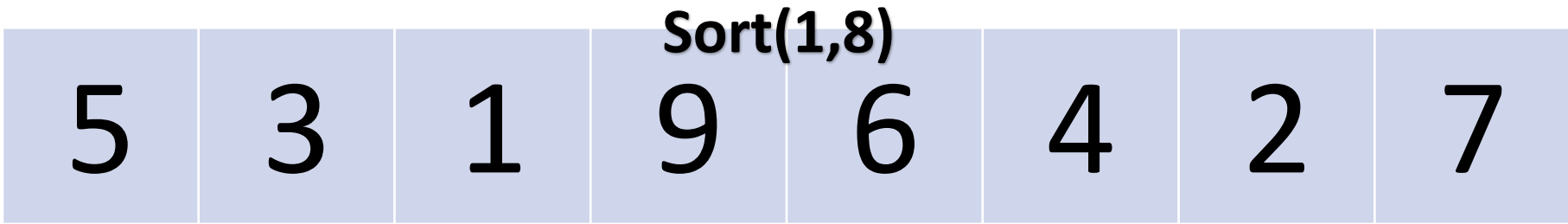


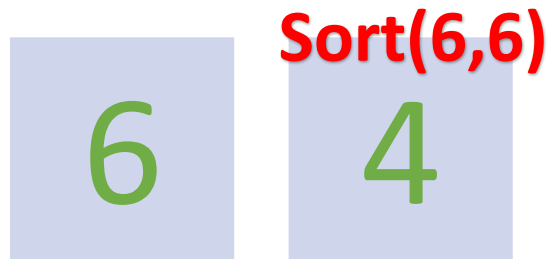
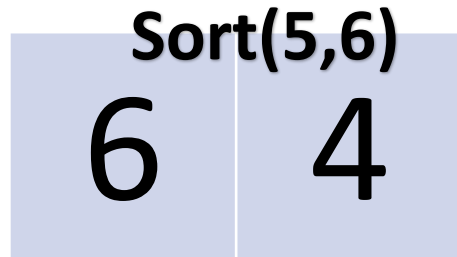
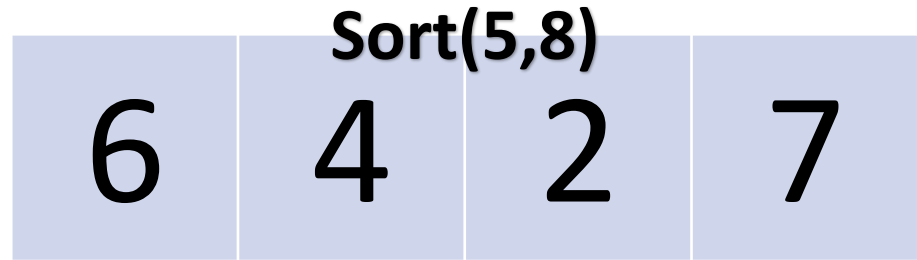
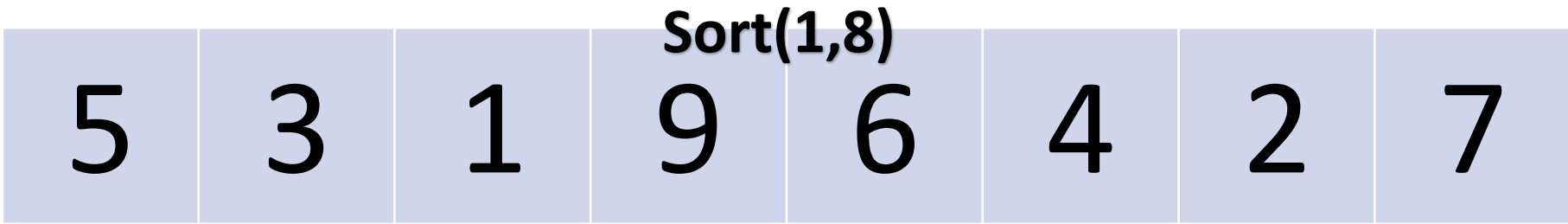


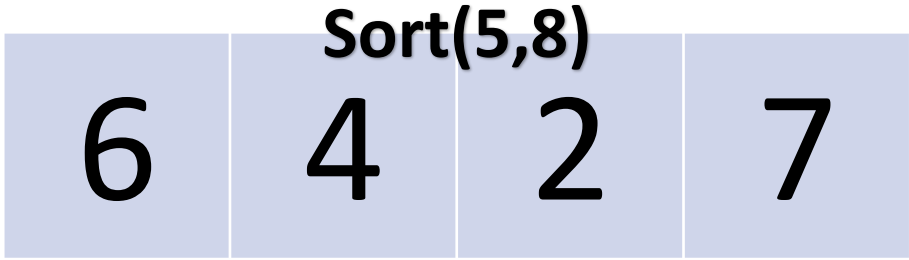
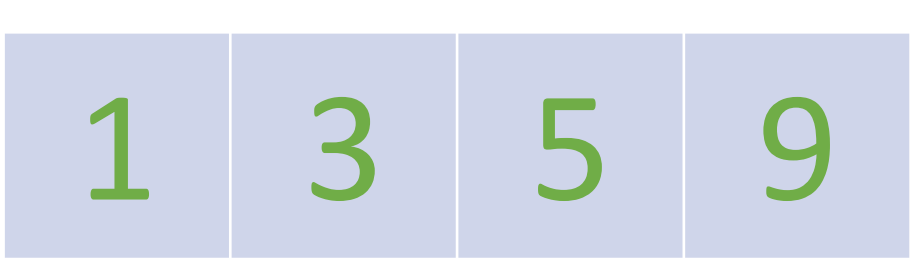
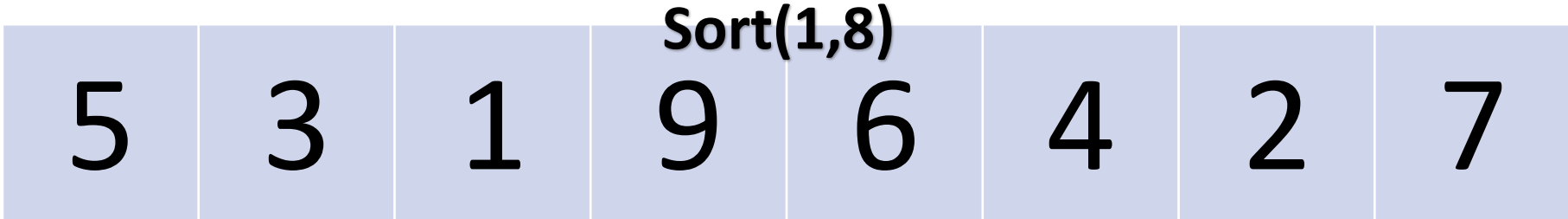


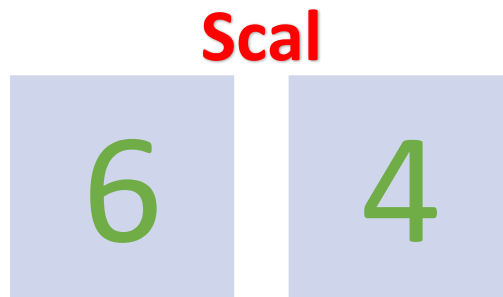
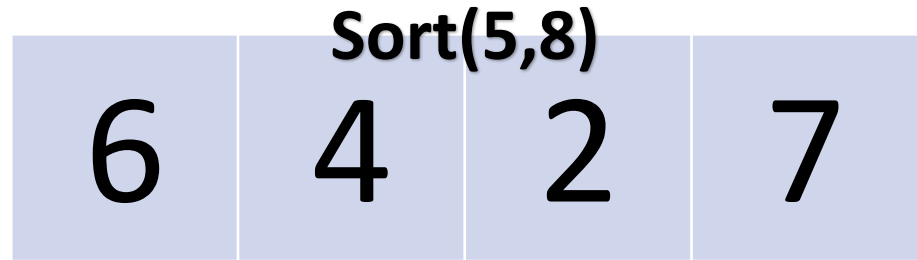
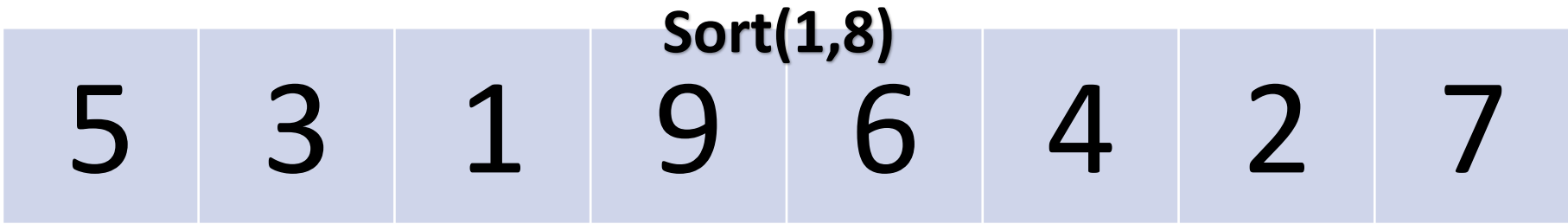


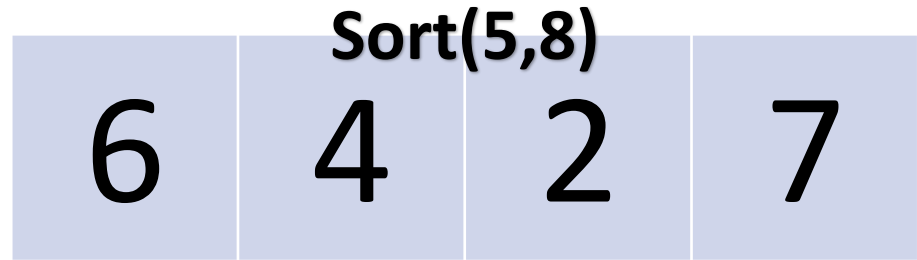
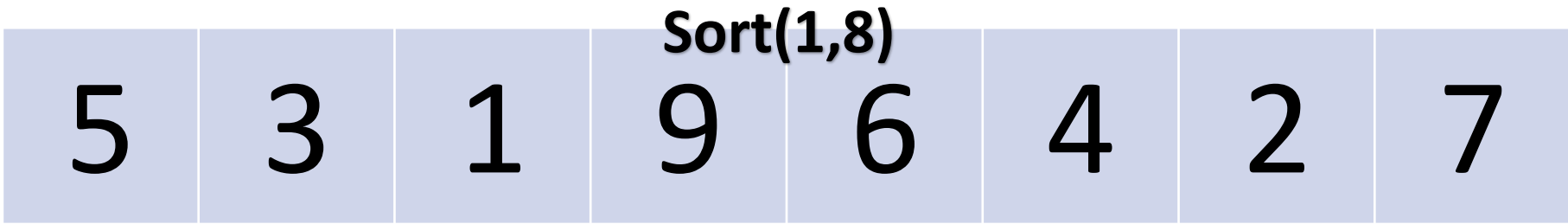


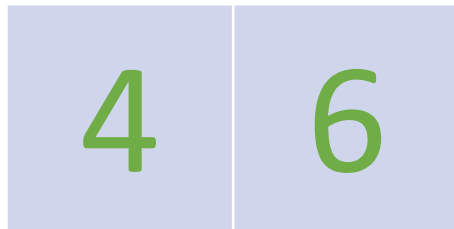
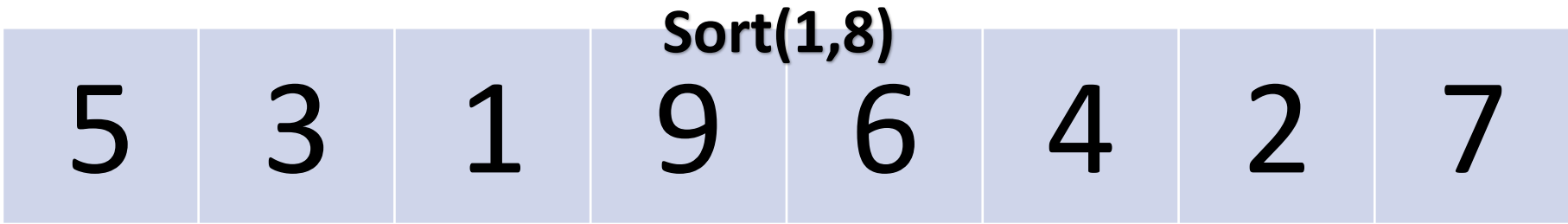


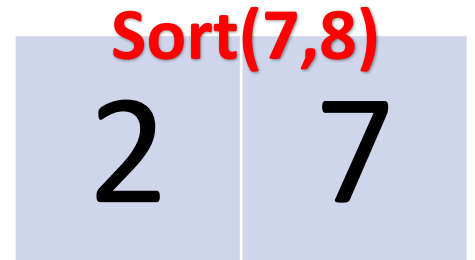
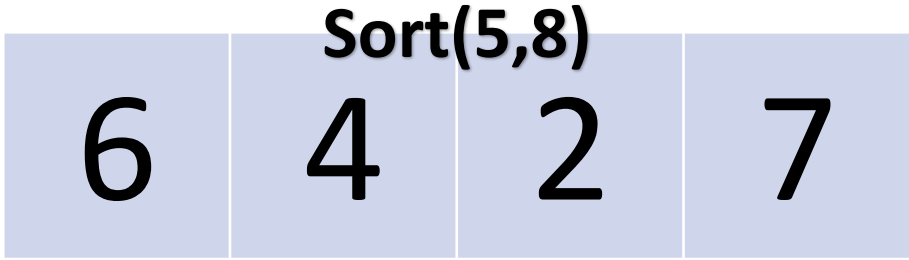
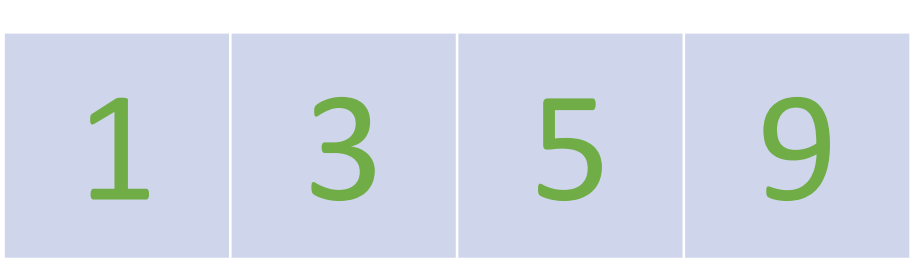
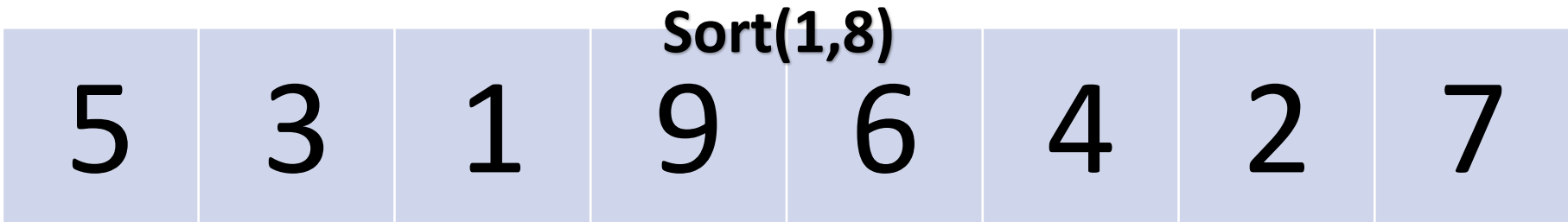


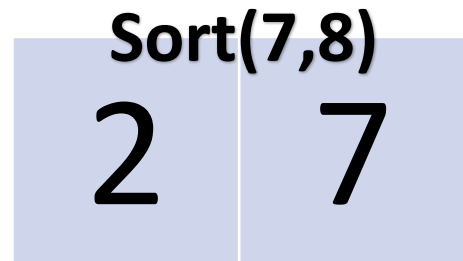
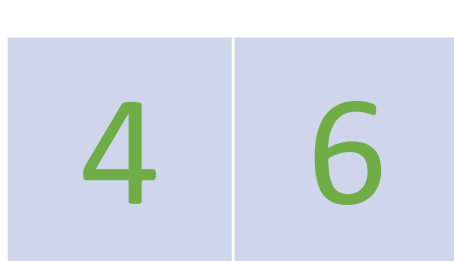
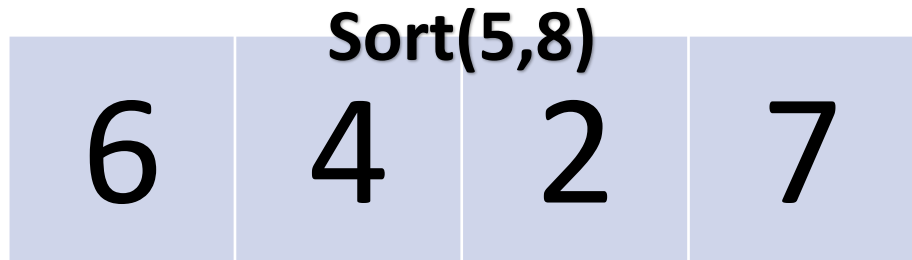
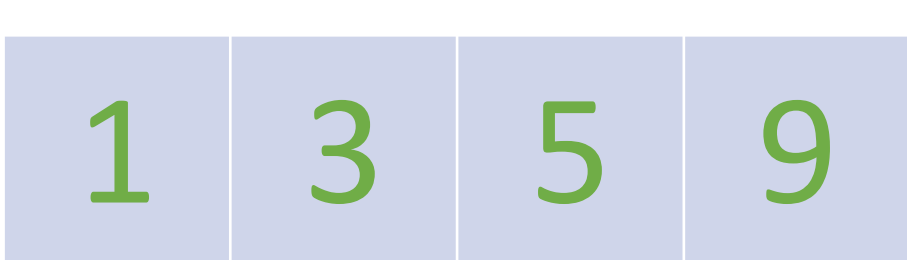
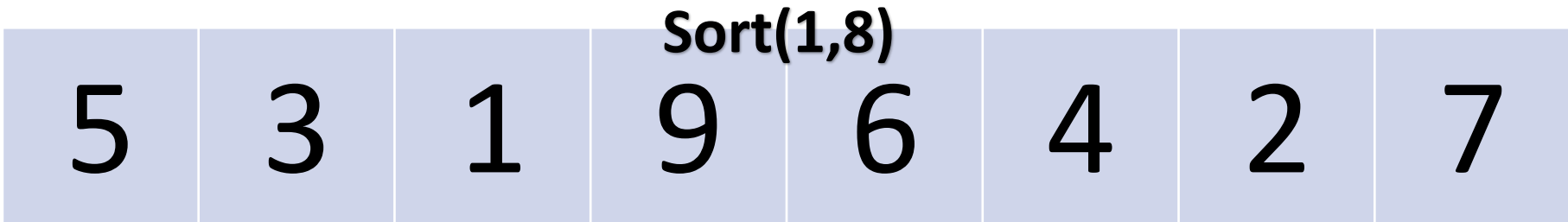


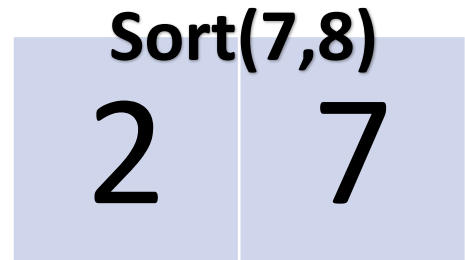
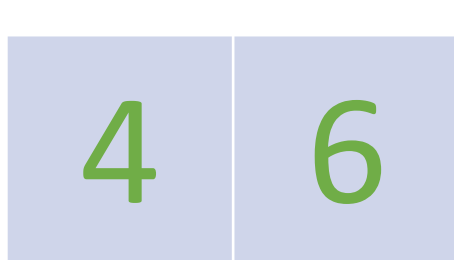
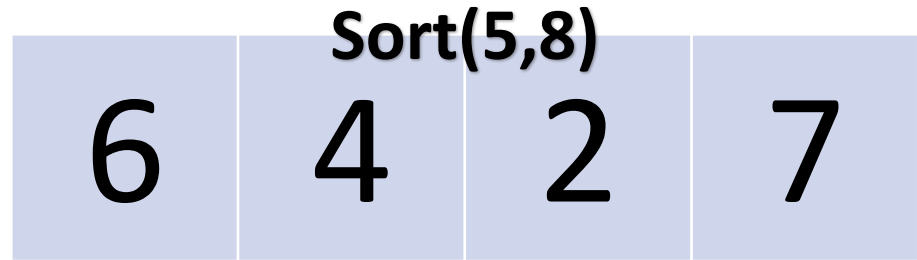
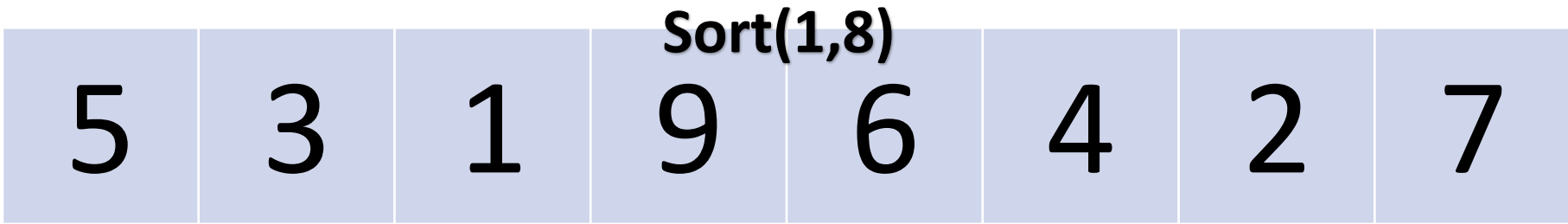


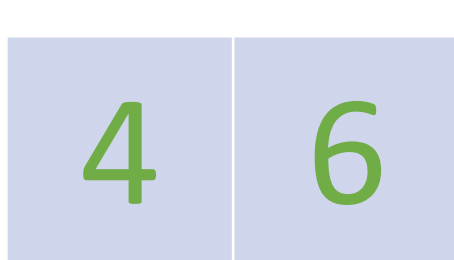
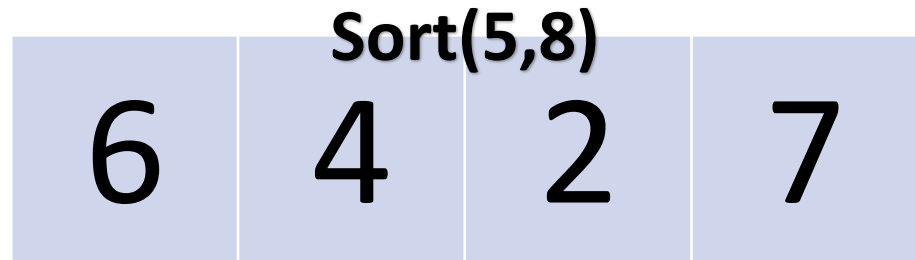
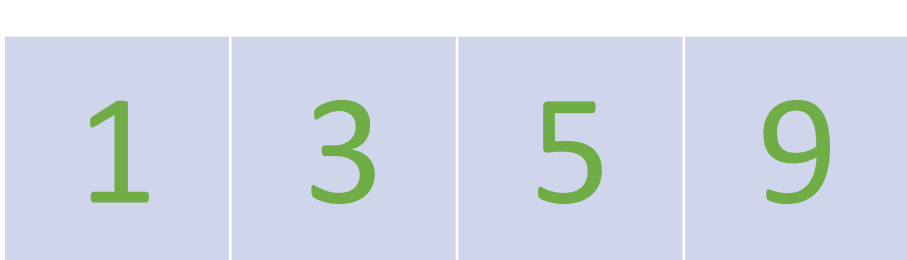
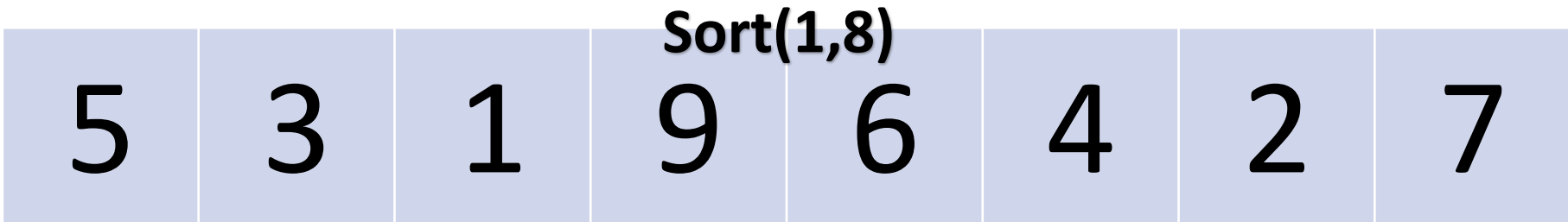


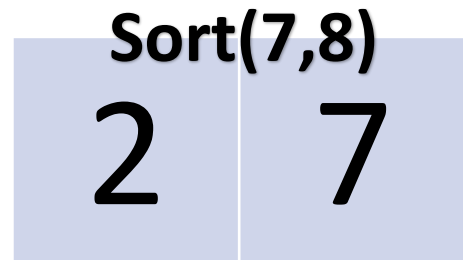
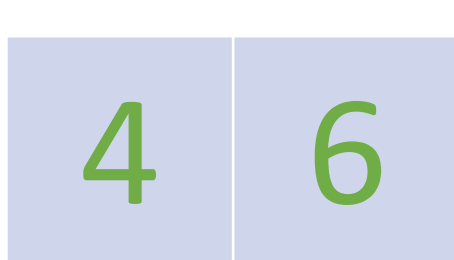
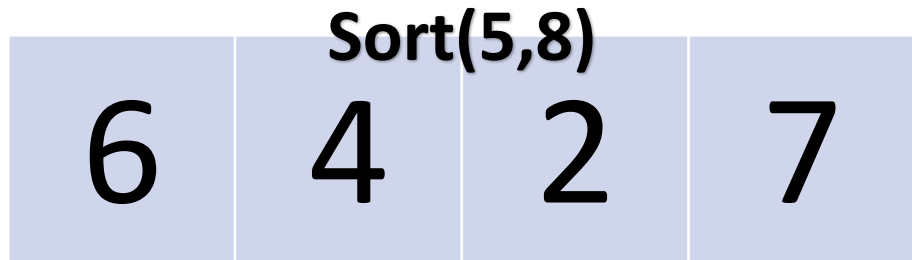
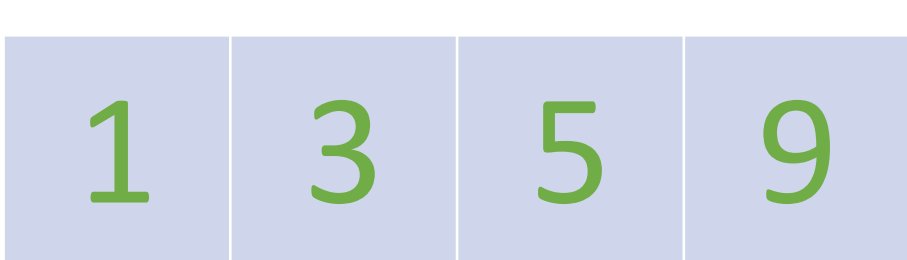
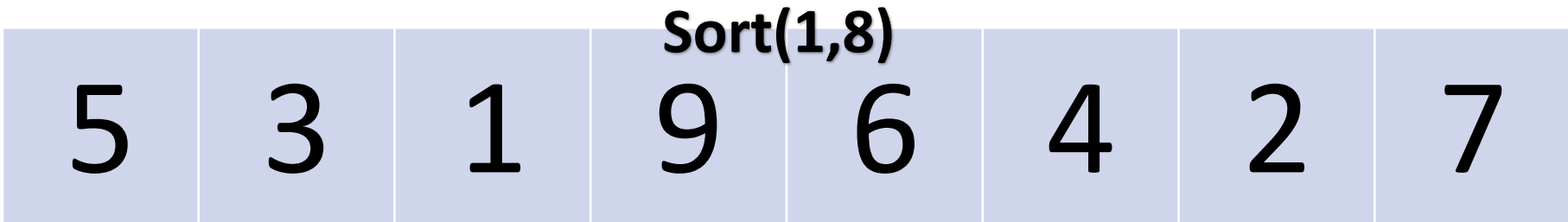


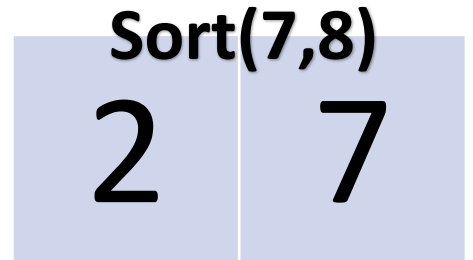
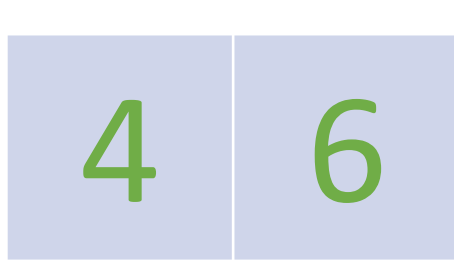
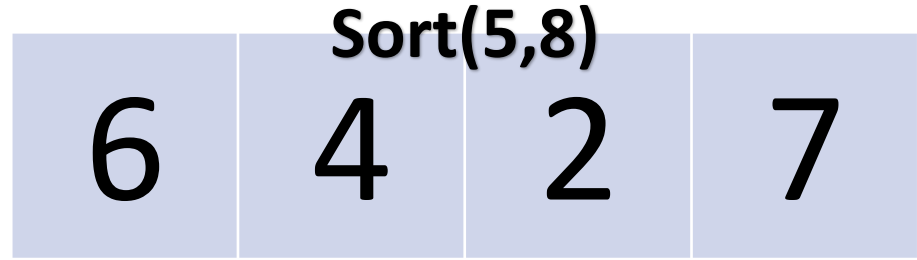
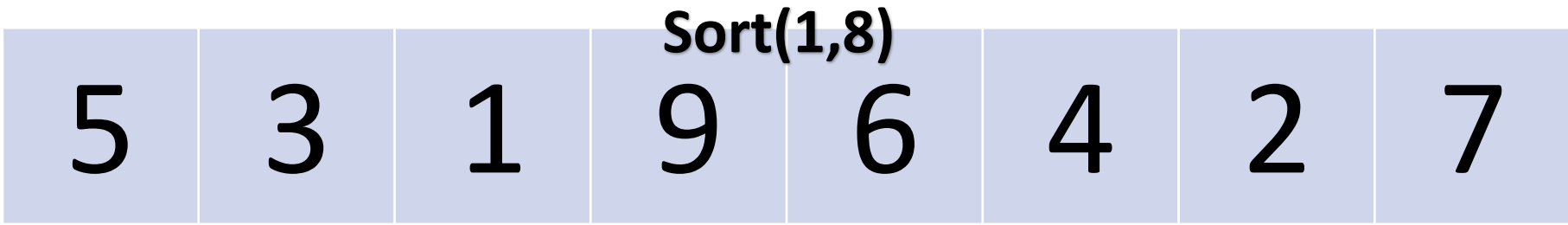


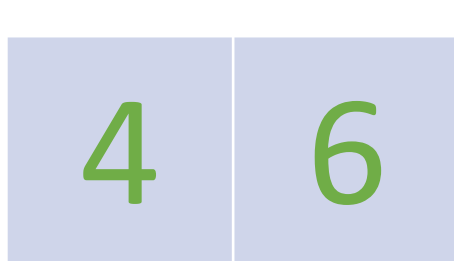
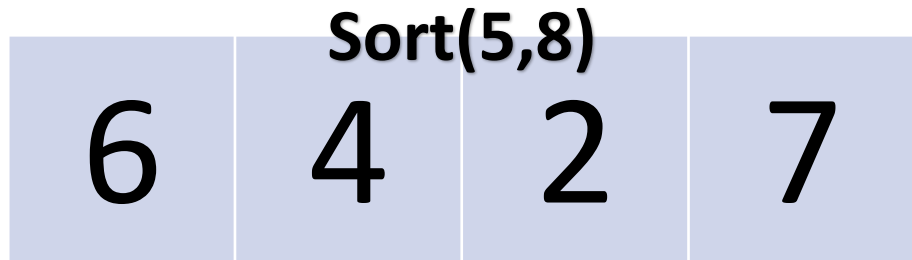
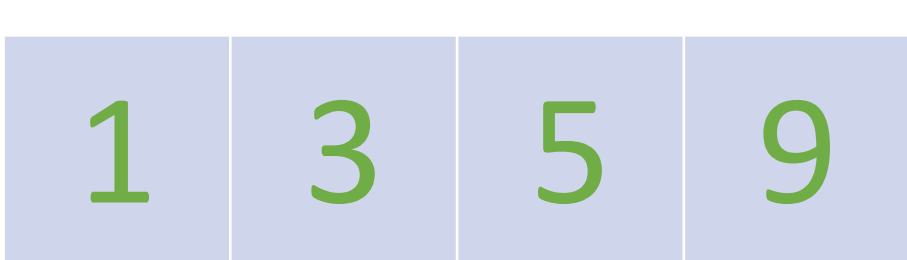
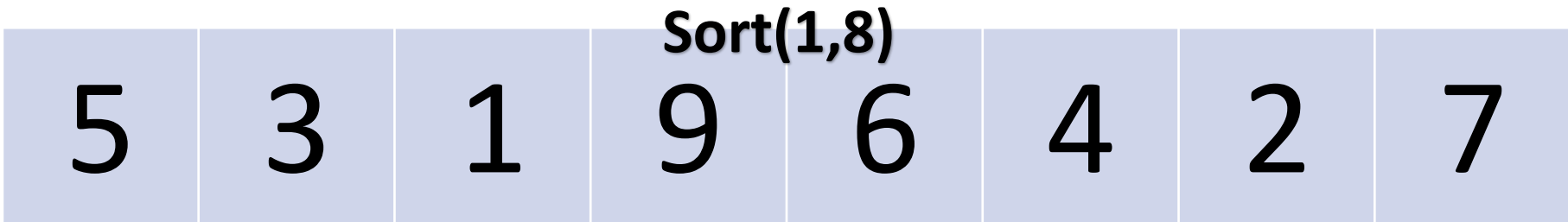


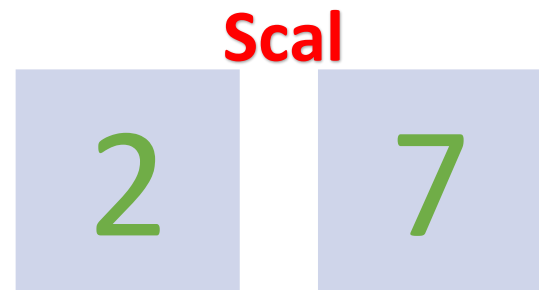
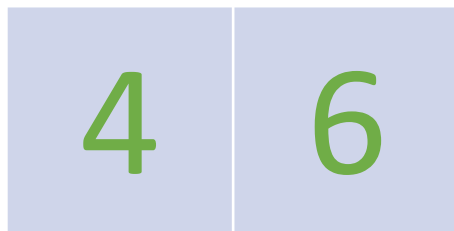
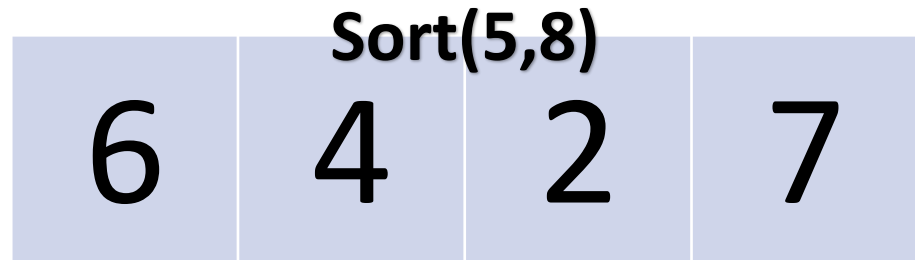
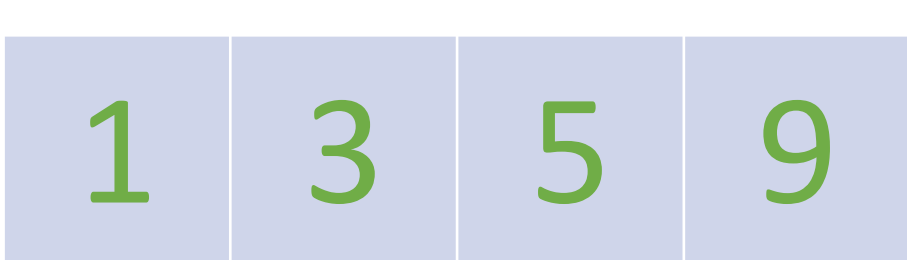
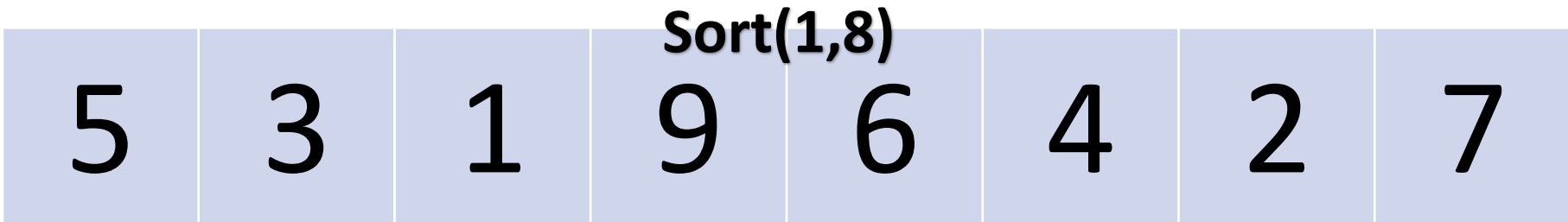


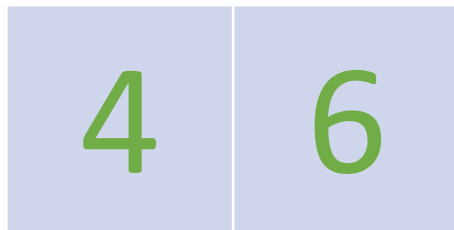
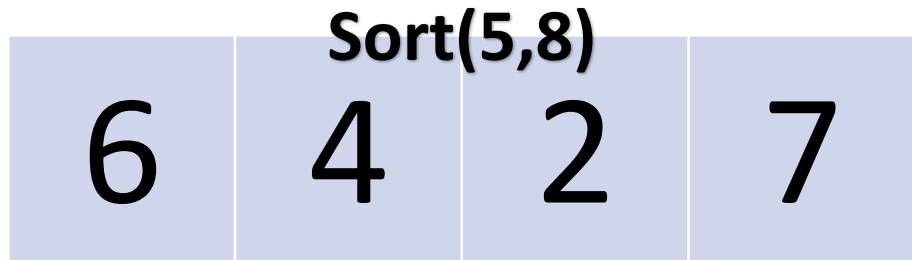
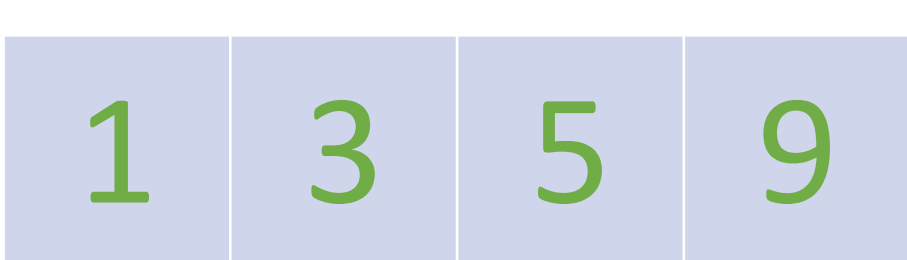
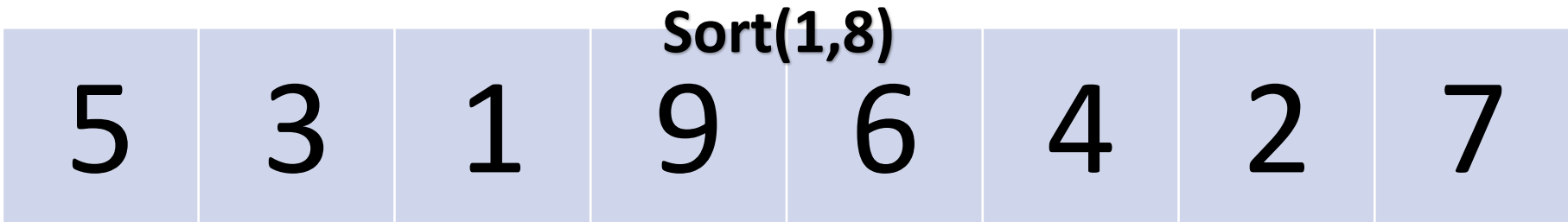


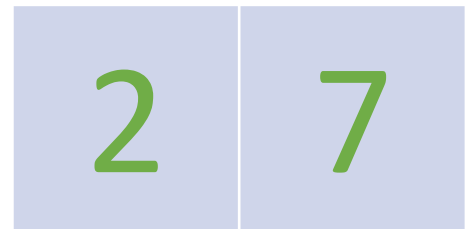
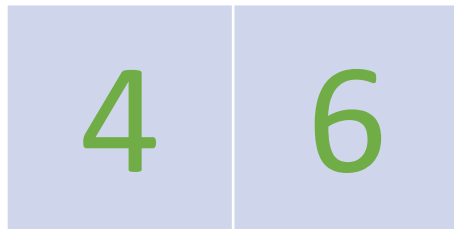
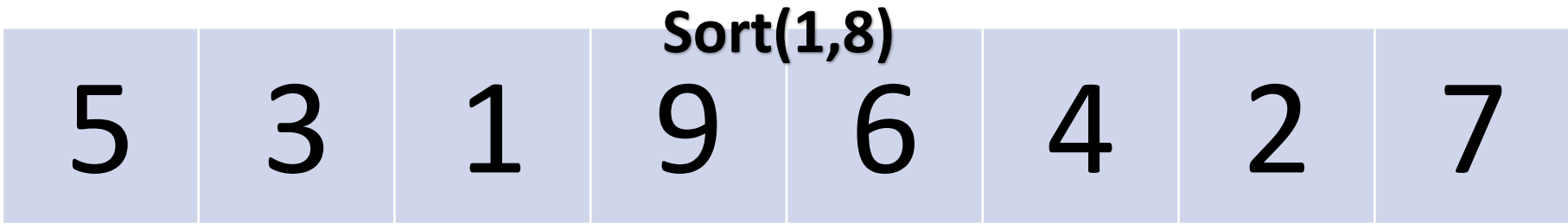


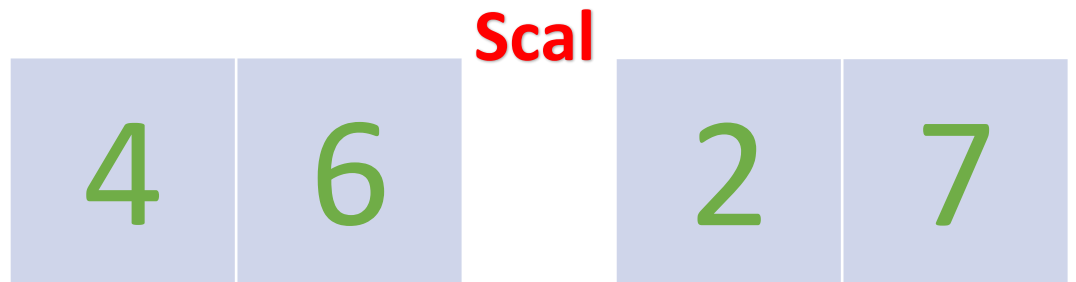
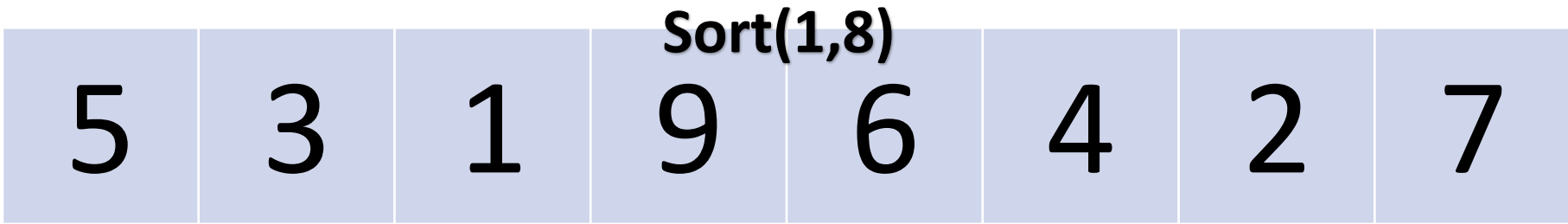


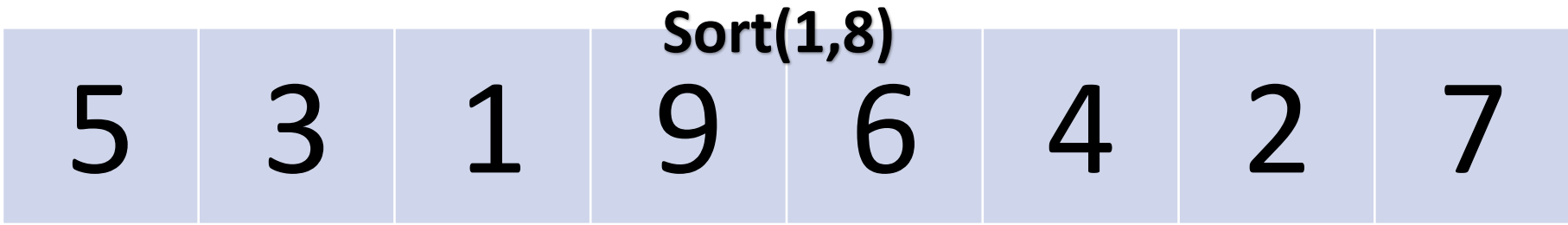




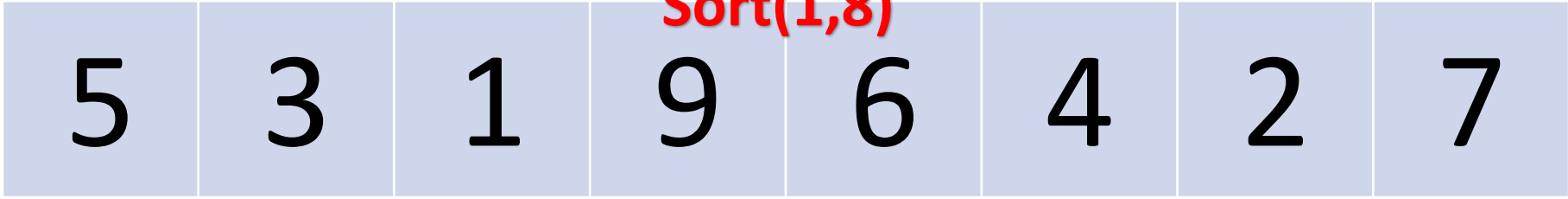








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Sort(1,8)
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Scal
1 3 5 9

Scal
2 4 6 7

Sort(1,8)

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2

3

4

5

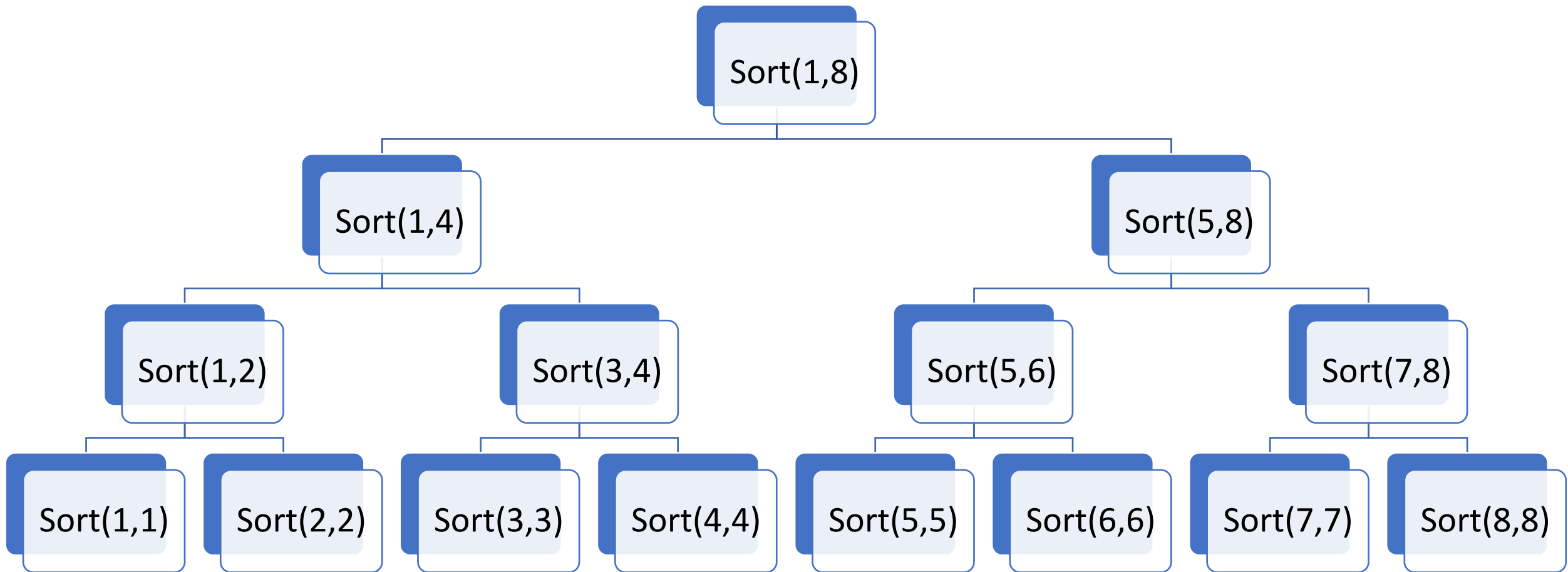
6

7

9

1	2	3	4	5	6	7	9
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Koniec!



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

5 3 1 9

6 4 2 7

5 3

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6 4

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5 3 1 9 6 4 2 7

5 3 1 9

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5 3

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7