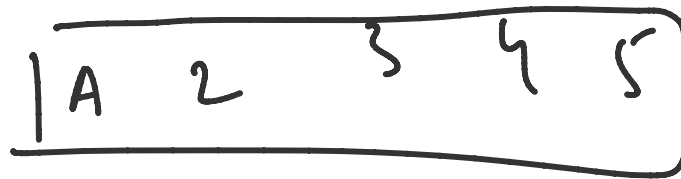
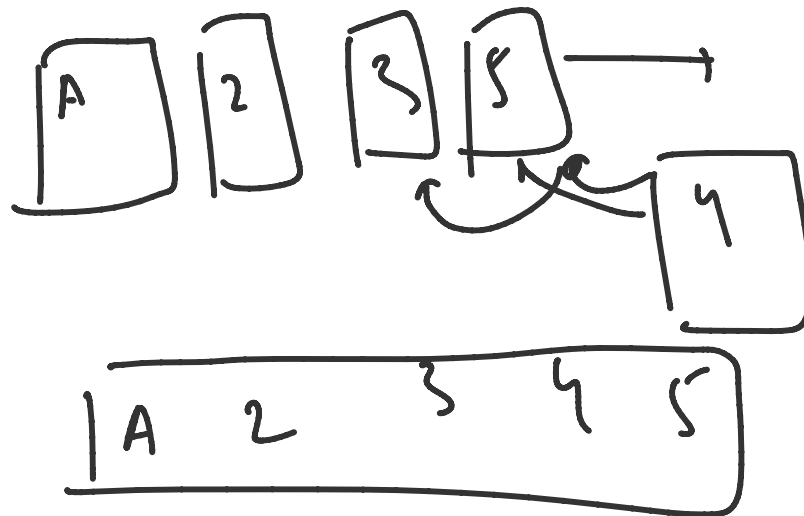
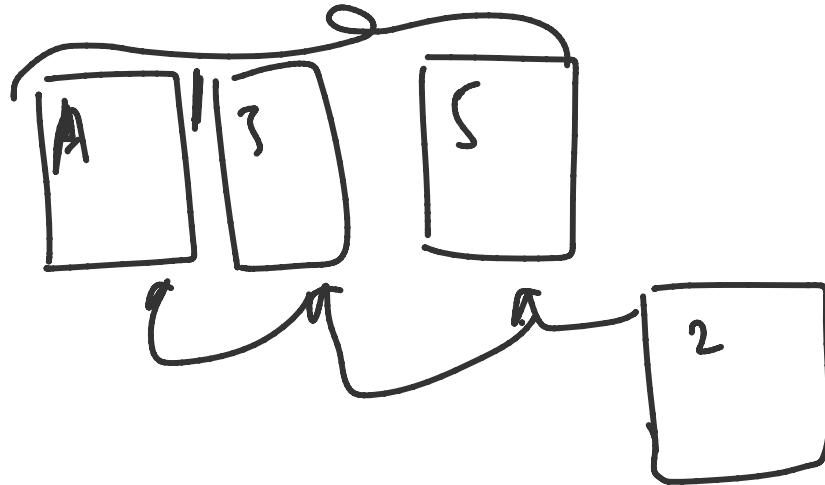


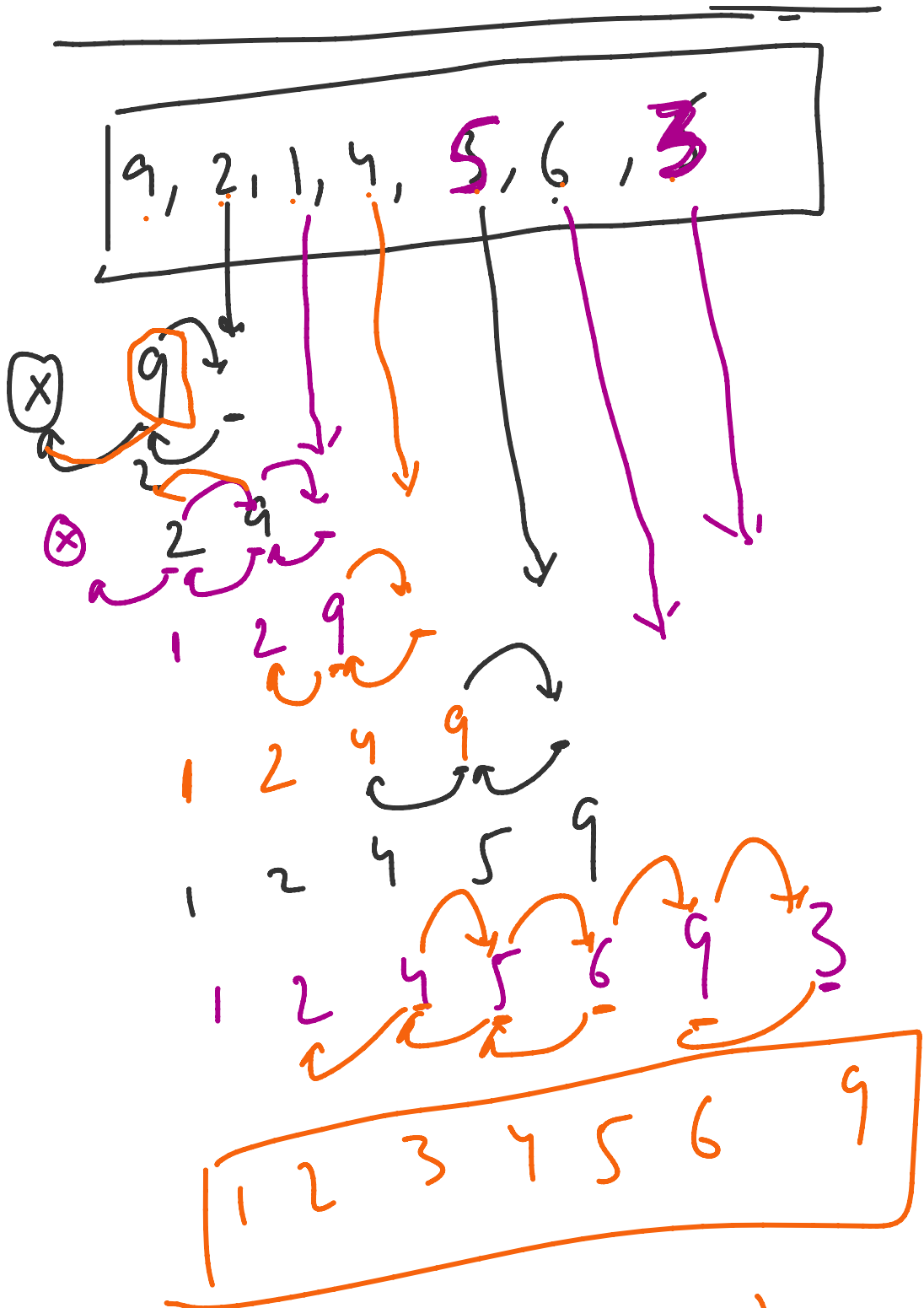
Insertion Sort

12 June 2023 21:17

when you play cards, the intuitive way in which you sort them, is called insertion sort.



we divide the array into 2 parts in insertion sort
1st part is sorted, unsorted.



```

for (int i = 1; i < n; i++)
    int key = arr[i]
    int j = i - 1
    while (j >= 0 && arr[j] > key)
        arr[j + 1] = arr[j]
    arr[j + 1] = key

```

key (2)

key = 2

$$\{arr[i+1] = arr[i] \\ i \leftarrow i+1\}$$

$$key = 0$$

9, 2

$$arr[0] = key$$

$$arr[i+1] = key.$$

(-1)

9, 0, 9
i ← i+1

	→	1	*	*	*	*	*
$r=2$	→	2	*	*	-	*	*
$r=3$	→	3	*	-	-	-	*

21st 1 space
1st 3 spaces

$$n = 3$$

$$(n - r + 1)$$

$$(2 \times r - 1)$$