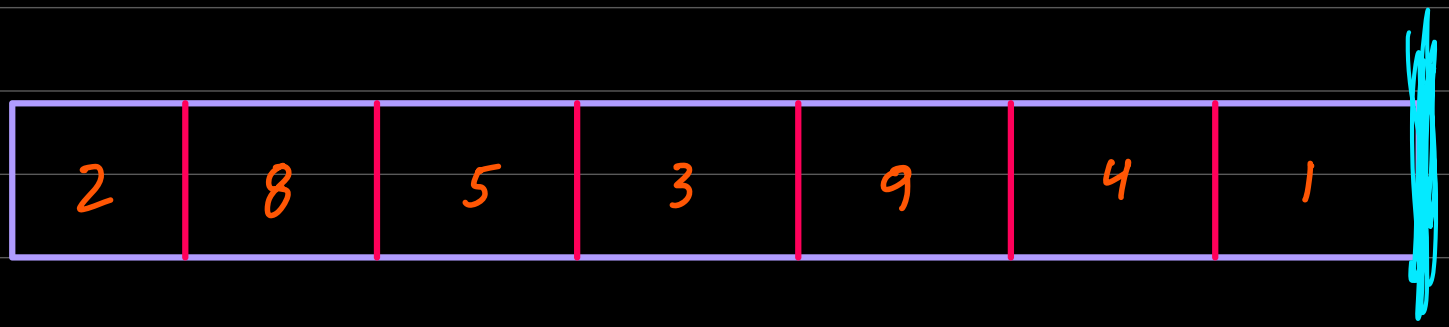
Bubble Sort

- It is an algorithm to arrange an array in either ascending or descending order.

Q- Arrange in ascending order.



- Contents of 2 index positions are compared.
- Limit decreases by one index position as one loop passes.
- See papersdock bubble sort notes.

Swapping Variables

- $x = 70$

  $y = 50$ 70 (loss of value in y)

1. $y = x$
2. $x = y$

- $x = 70$

  $y = 50$

  $Temp = x$

  $x = y$

  $y = Temp$

Efficient Bubble Sort

Q. An array contains 100 elements (student ID). Sort in ascending array.

- Solve using Repeat loop.

```
Boundary = 99   - always one less than total elements b/c at last value array doesn't exist
Repeat
    Noswaps = True  - Efficiency (Removes extra looping)
    For J = 1 to Boundary
        If studentID[J] > studentID[J+1]
            Then
                Temp = studentID[J]
                studentID[J] = studentID[J+1]
                studentID[J+1] = Temp
                No swaps = False
        ENDIF
    ENDFOR
    Boundary = Boundary -1
Until Noswaps = True
```

- Value on the right is stored on the left side

y = 7
x = y