

Data Structures and Algorithms

Bubble Sort Algorithm

Amilcar Aponte
amilcar@cct.ie



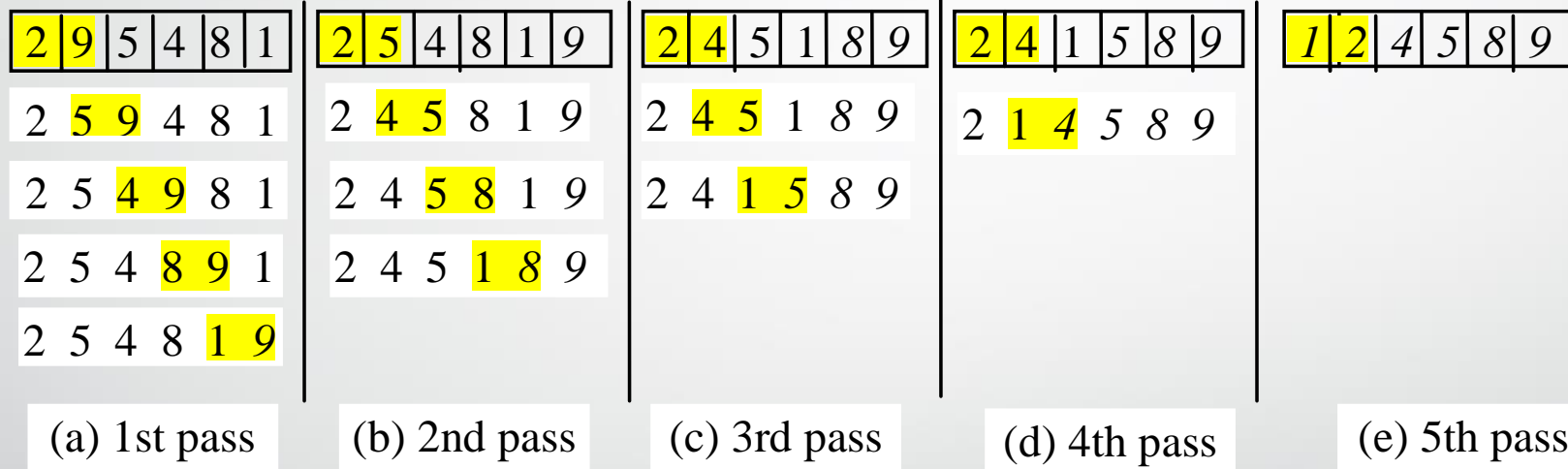
Today's Plan

- Bubble sort algorithm

Bubble Sort

- ***Bubble sort*** orders a list of values by repetitively comparing neighboring elements and swapping their positions if necessary
- More specifically:
 - scan the list, exchanging adjacent elements if they are not in relative order; this bubbles the highest value to the top
 - scan the list again, bubbling up the second highest value
 - repeat until all elements have been placed in their proper order

Bubble Sort



Sorting Algorithm Animation

- <https://visualgo.net/bn/sorting>

Bubble Sort

- Bubble Sort is a simple yet effective sorting algorithm.
- Data is placed adjacent to each other.
- The sort starts from one end (the beginning), compares 2 adjacent data, and swaps them if they are in the wrong order.
- It moves on down the list and continues doing so.
- When it reaches the end of the data, it starts over until all the data is in the right order.
- As easy as the Bubble Sort is, it is sometimes ineffective if there is a lot of data.

Pseudo-code for Bubble Sort

Method BubbleSort()

Outer Loop: i to N

Inner Loop: j from 0 to N - 1

if $a[j] > a[j + 1]$

swap($a[j]$, $a[j + 1]$)

end Method

Coding Time

- Go ahead and get coding this!



That's all folks

- Any questions?