



Algorithms

The *Bubble Sort* Algorithm



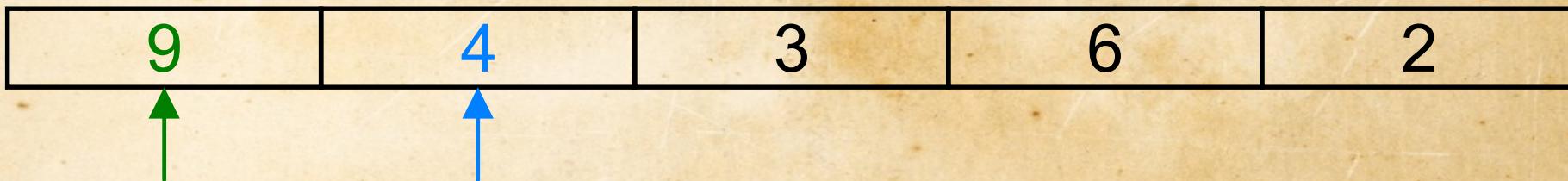
Lecture Contents

- Bubble Sort Algorithm

Bubble Sort Algorithm



- Look at the first two elements of the array



Bubble Sort Algorithm

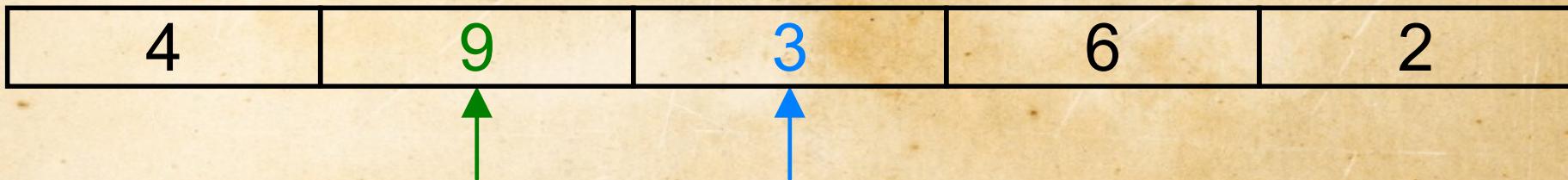
- Look at the first two elements of the array
 - Swap them if the first is greater than the second.



Bubble Sort Algorithm

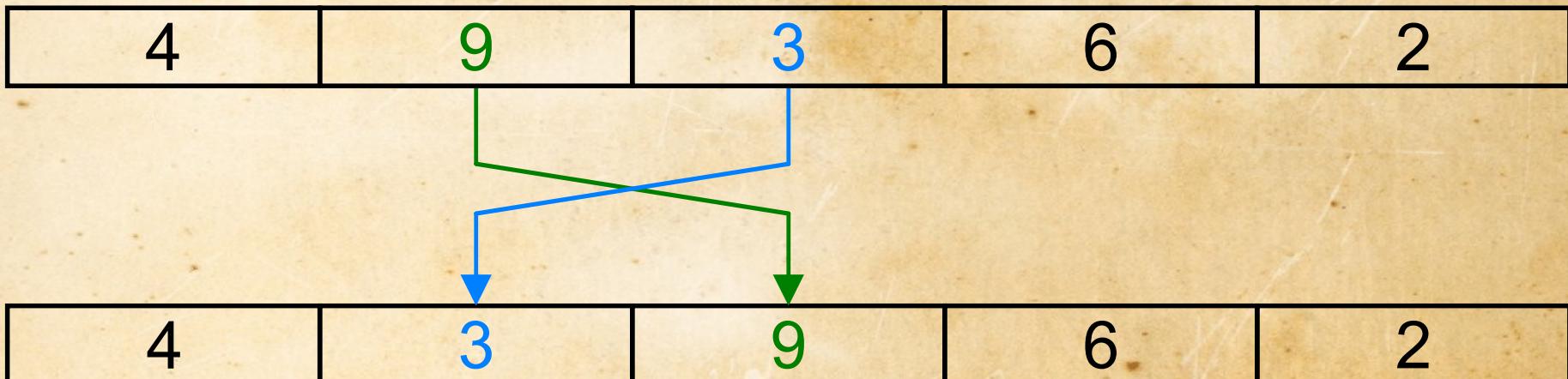


- Move one step along the array and look at those two elements.



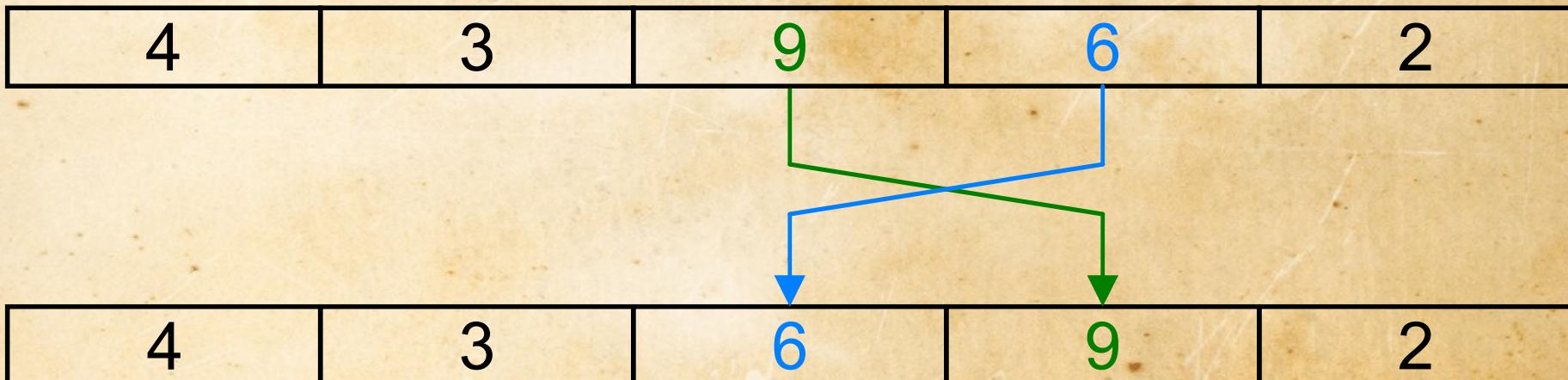
Bubble Sort Algorithm

- Move one step along the array and look at those two elements.
 - Swap them if the first is greater than the second.



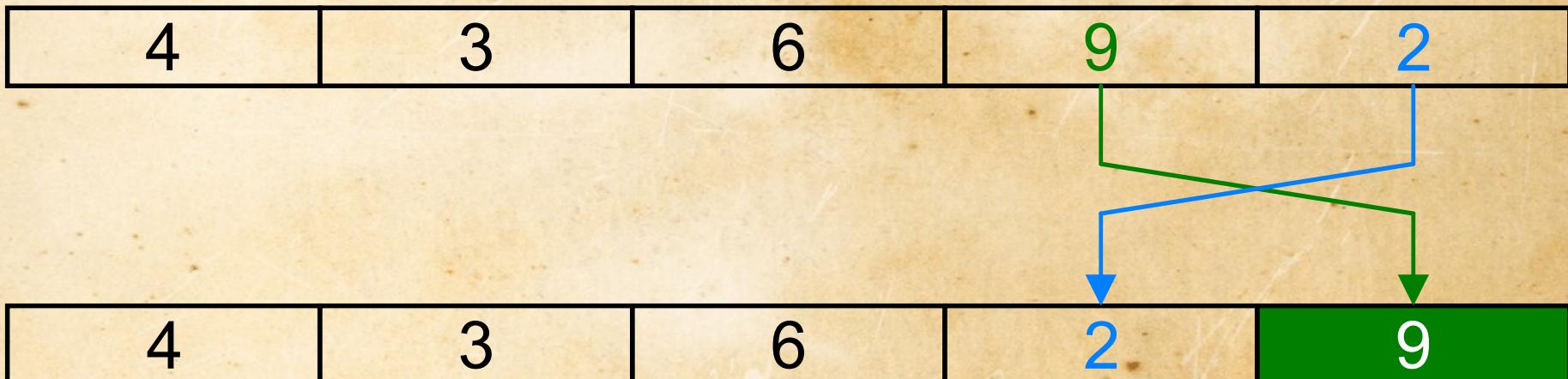
Bubble Sort Algorithm

- Continue to move one step along...
 - Swapping the elements if the first is greater than the second.



Bubble Sort Algorithm

- Continue to move one step along... until the end of the array
 - The greatest element should now be at the end of the array.



Bubble Sort Algorithm

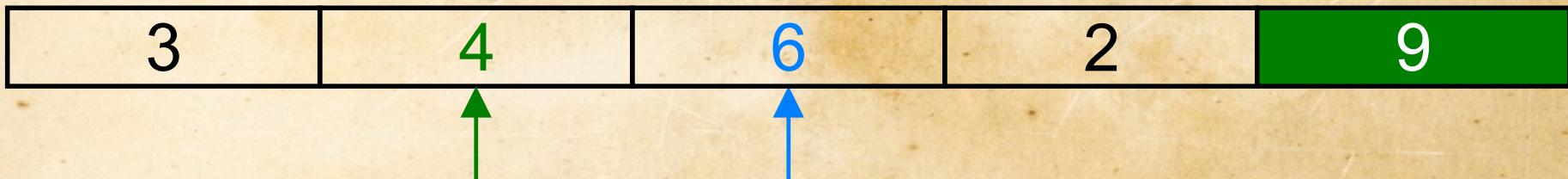
- Start back at the beginning
 - Swap the elements if the first is greater than the second.



Bubble Sort Algorithm

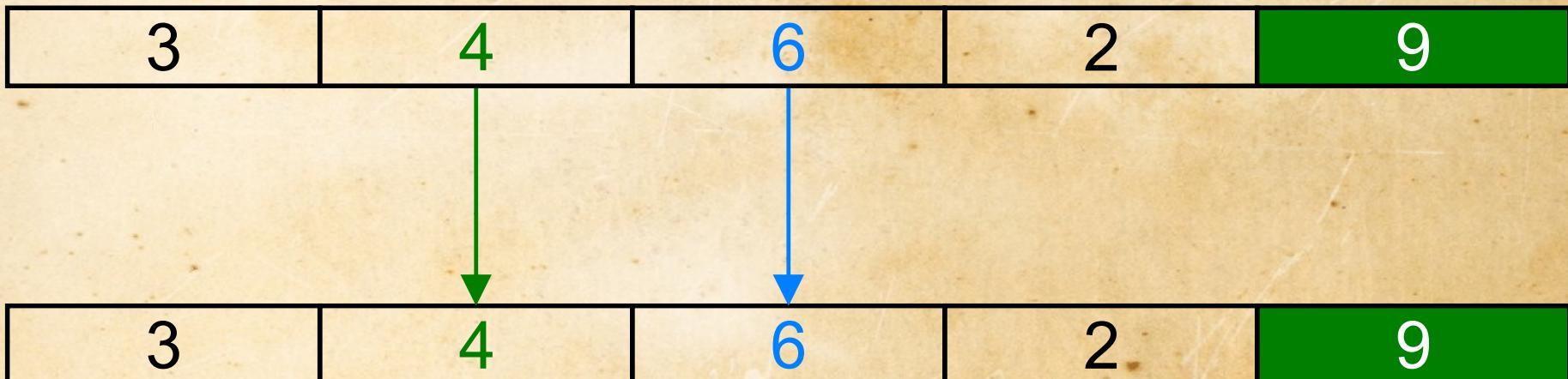


- Moving along...
 - In this case, the first is not greater, so...



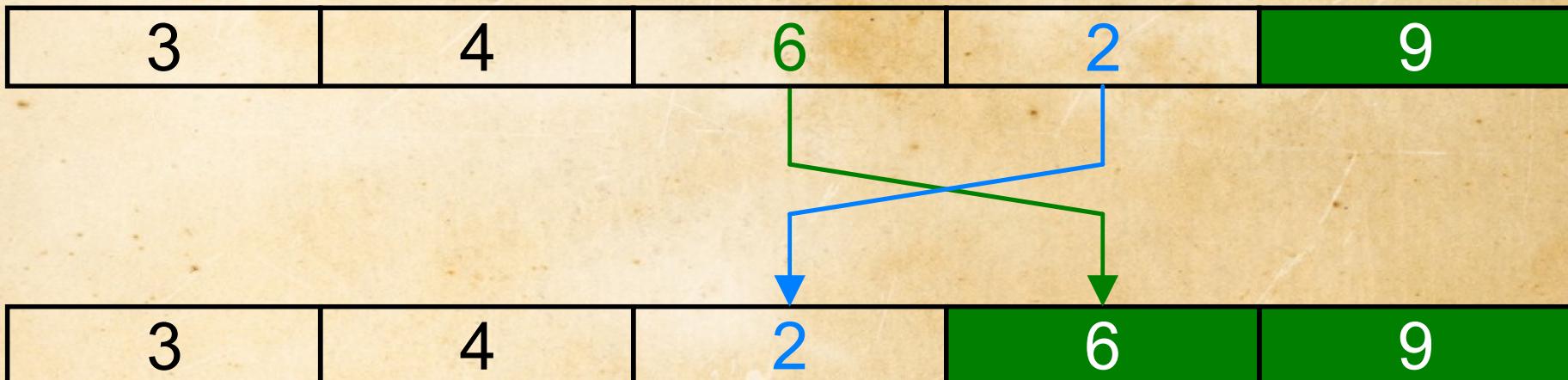
Bubble Sort Algorithm

- Moving along...
 - In this case, the first is not greater, so we do not swap.



Bubble Sort Algorithm

- Moving along...
 - We don't need to continue past here, since the last element is already sorted.



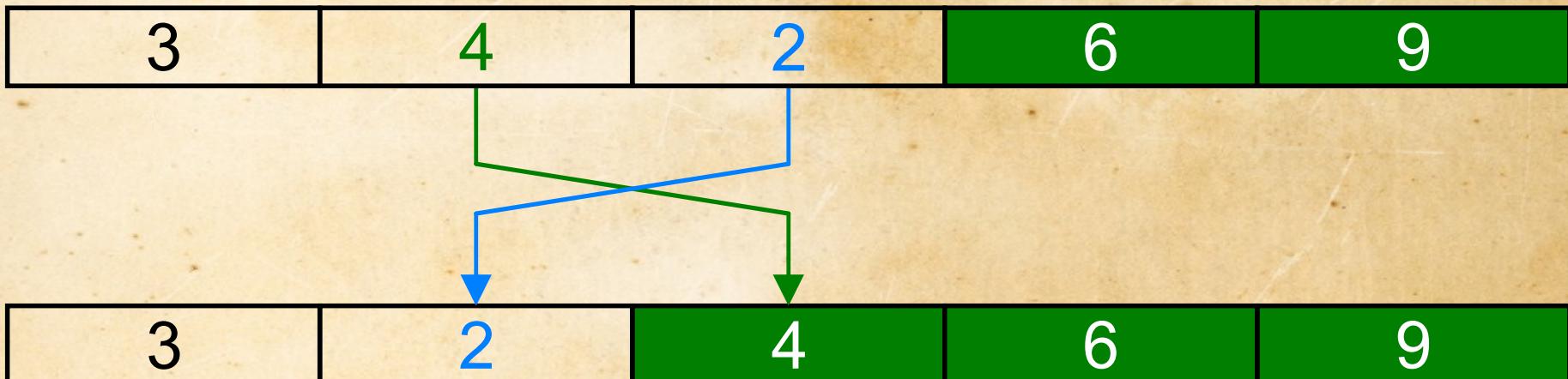
Bubble Sort Algorithm

- Again from the beginning...
 - Not swapping if the second is greater.



Bubble Sort Algorithm

- Again from the beginning...
 - Swapping if the first is greater.



Bubble Sort Algorithm

- Again from the beginning...
 - Swapping if the first is greater.



Bubble Sort Algorithm



- And we're done.





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The *Bubble Sort* Algorithm

