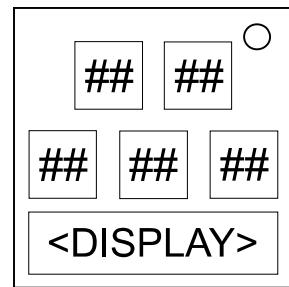


## On the Subject of Sorting

*What is the point of implementing a sorting algorithm if you are going to do it manually anyway?*

The module has a screen at the bottom, among 5 buttons above it, each with a 2-digit label laid out in an offset layout. To defuse this module, refer to the algorithm specified by the bottom panel and follow its instructions.



The defuser must be aware that positions refer to appearances from left to right, ignoring vertical offset. For example, 1st position classifies as bottom left.

### Bubble Sort

Section 1
Swap them if...
1st position's label is greater than 2nd position's label.
2nd position's label is greater than 3rd position's label.
3rd position's label is greater than 4th position's label.
4th position's label is greater than 5th position's label.
Refer to Section 1 unless sorted.

### Merge Sort

Section 1	
Swap them if...	
1st position's label is greater than 2nd position's label.	
4th position's label is greater than 5th position's label.	
If the first digit in the serial is odd?	Otherwise...
Swap 1st position with smallest label from positions 1-3.	Swap 5th position with biggest label from positions 3-5.
Swap 2nd position with 2nd smallest label from positions 1-3.	Swap 4th position with 2nd biggest label from positions 3-5.
Refer to Selection Sort	

**Insertion Sort**

Section 1	
Swap them if...	Otherwise...
1st position's label is greater than 2nd position's label.	Nothing.
2nd position's label is greater than 3rd position's label.	Refer to Section 2
1st position's label is greater than 2nd position's label.	
Section 2	
Swap them if...	Otherwise...
3rd position's label is greater than 4th position's label.	Refer to Section 3
2nd position's label is greater than 3rd position's label.	
1st position's label is greater than 2nd position's label.	
Section 3	
Swap them if...	
4th position's label is greater than 5th position's label.	
3rd position's label is greater than 4th position's label.	
2nd position's label is greater than 3rd position's label.	
1st position's label is greater than 2nd position's label.	

**Cycle Sort**

Section 1	
If...	Then...
1st position isn't smallest?	Swap 1st position with the position it will be on assuming it's sorted. Refer to Section 1.
2nd position isn't 2nd smallest?	Swap 2nd position with the position it will be on assuming it's sorted. Refer to Section 1.
3rd position isn't 3rd smallest?	Swap 3rd position with the position it will be on assuming it's sorted. Refer to Section 1.
Swap 4th position with the position it will be on assuming it's sorted.	

## Radix Sort

If multiple numbers match a rule, the leftmost numbers are smaller.
---

Section 1
-----------

Swap...
---------

The smallest least-significant* digit with 1st position.
--

The 2nd smallest least-significant* digit with 2nd position.
--

The 3rd smallest least-significant* digit with 3rd position.
--

The 4th smallest least-significant* digit with 4th position.
--

Section 2
-----------

Swap...
---------

The smallest most-significant** digit with 1st position.
--

The 2nd smallest most-significant** digit with 2nd position.
--

The 3rd smallest most-significant** digit with 3rd position.
--

The 4th smallest most-significant** digit with 4th position.
--

Section 3
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Since this Radix Sort isn't meant exclusively for swapping, if the labels still aren't sorted, you are free to do any remaining swaps to sort the labels. We are sorry that Radix Sort was unable to fully help you in this situation. It will strike if 250 swaps have been performed in a row without a solve/strike.
---

\*Least-significant digit is the lowest digit in a label, located at the far right of a number. For example, in the number 16, the "6" is the least significant digit.

\*\*Most-significant digit is the highest digit in a label, located at the far left of a number. For example, in the number 16, the "1" is the most significant digit.

## Selection Sort

Section 1
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Swap lowest label and 1st position.
-------------------------------------

Swap 2nd lowest label and 2nd position.
---

Swap 3rd lowest label and 3rd position.
---

Swap 4th lowest label and 4th position.
---

## Heap Sort

Section 1
Swap them if...
2nd position's label is smaller than 4th position's label.
2nd position's label is smaller than 5th position's label.
1st position's label is smaller than 2nd position's label.
1st position's label is smaller than 3rd position's label.
2nd position's label is smaller than 4th position's label.
2nd position's label is smaller than 5th position's label.
Swap 1st position and 5th position.
Section 2
Swap them if...
1st position's label is smaller than 2nd position's label.
1st position's label is smaller than 3rd position's label.
2nd position's label is smaller than 4th position's label.
Swap 1st position and 4th position.
Section 3
Swap them if...
1st position's label is smaller than 2nd position's label.
1st position's label is smaller than 3rd position's label.
Swap 1st position and 3rd position.
Swap 1st position and 2nd position.

## Bogo Sort

### Section 1

You can perform any swap, but with a limit of 250 swaps before automatically striking. The defuser cannot see the labels, but the module is solvable. You can return to the previous state by pushing any button repeatedly.

## Comb Sort

Section 1
<b>Swap them if...</b>
1st position's label is greater than 4th position's label.
2nd position's label is greater than 5th position's label.
1st position's label is greater than 3rd position's label.
2nd position's label is greater than 4th position's label.
3rd position's label is greater than 5th position's label.
<b>Refer to Bubble Sort</b>

## Odd-Even Transposition Sort

Section 1
<b>Swap them if...</b>
1st position's label is greater than 2nd position's label.
3rd position's label is greater than 4th position's label.
2nd position's label is greater than 3rd position's label.
4th position's label is greater than 5th position's label.
<b>Refer to Section 1 unless sorted.</b>

## Quick Sort

When starting, pivot = 1 and current = 5.	
Section 1	
<b>If...</b>	<b>Then...</b>
Pivot's and current's positions are not sorted?	Swap pivot's and current's position. Switch the values of pivot and current.
Set current 1 closer to pivot.	
Pivot is the same as current?	Pivot = earliest unsorted position. Current = latest unsorted position.
<b>Refer to Section 1 unless sorted.</b>	

**Five Sort**

Swap the 3rd largest number with 3rd position.	
Section 1	
If...	Then...
1st position's label bigger than 3rd largest number?	Swap 1st position with the earliest position after 3rd position that is smaller than either.
2nd position's label bigger than 3rd largest number?	Swap 2nd position with the earliest position after 3rd position that is smaller than either.
<b>Swap them if...</b>	
1st position's label bigger than 2nd position.	
4th position's label bigger than 5th position.	

**Cocktail Shaker Sort**

Section 1
<b>Swap them if...</b>
<b>Do Section 1 forwards unless sorted.</b>
1st position's label is greater than 2nd position's label.
2nd position's label is greater than 3rd position's label.
3rd position's label is greater than 4th position's label.
4th position's label is greater than 5th position's label.
<b>Do Section 1 backwards unless sorted.</b>