CSCI 111 – Simple Sorting

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What Is Sorting?

- What are some examples of sorting?
  - Sorting cards in a hand by suit or value
  - Sorting a list of names lexicographically
  - Sorting a group of shapes
  - Google Search Results by relevance
  - Feature Films by Review

- The Problem: Given an array or list of items how do we order them
  - What do we mean by order?
  - How do we accomplish this ordering?
Real World Applications
Sorting Shapes

Given these shapes how would we sort them?

Now how would we sort them?
Sorting

Inputs
• A list or other linear data structure
• Composed of items with either a natural or specified means of order

Output
• The sorted data structure
How To Sort

| 5 | 5 | 3 | 2 | 1 |
**Algorithm**

**Func** BubbleSort(array)

**Input**: array – an unordered array

**Output**: array – the sorted input array

**do**

modified = false

**for** i = 0 to array.length – 1

if array[i] > array[i+1]

    temp = array[i]
    array[i] = array[i+1]
    array[i+1] = temp
    modified = true

endif

**endfor**

**while** modified

**return** array

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**Operation**

5 > 5 3 2 1

5 5 > 3 2 1

5 3 5 > 2 1

1 2 3 5 5
Questions

Now let us see this in action!