

Basic Sorting

Intermediate Programming
Leap@CMU 2017

Bubble Sort

Bubble sort involves scanning through an array and flips two pieces of data in the incorrect order. Scans are repeated until the array is sorted.

1254397 -> 1245379 -> 1243579 -> 1234579

Selection Sort

Selection sort involves scanning through the array and looking for the smallest element and takes it out of the array, then places it in the 0th index of a result array. Then, the process is repeated until all pieces of data of the initial array are properly placed.

Initial: 14832 -> 4832 -> 483 -> 48 -> 8 ->

Result: -> 1 -> 12 -> 123 -> 1234 -> 12348

Insertion Sort

Insertion sort takes each member of the initial array and inserts it into the correct position in the result array.

Initial: 14826

Result: 1 -> 14 (4 is inserted after 1) -> 148 -> 1248 -> 12468

Goal

Implement these sorts in Java: For example, the bubble sort method should start as follows:

```
int[] bubbleSort(int[] list)
```

Be mindful of strategies and shortcuts you can use to make your sort more efficient.