

## Practical 4

### Worksheet

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1.

The number of compares insertion sort makes on a sorted array is the number of elements in the array at  $O(n)$  i.e. Linear

2.

Stable sorting algorithms preserve the existing relative order of elements when comparing equal elements

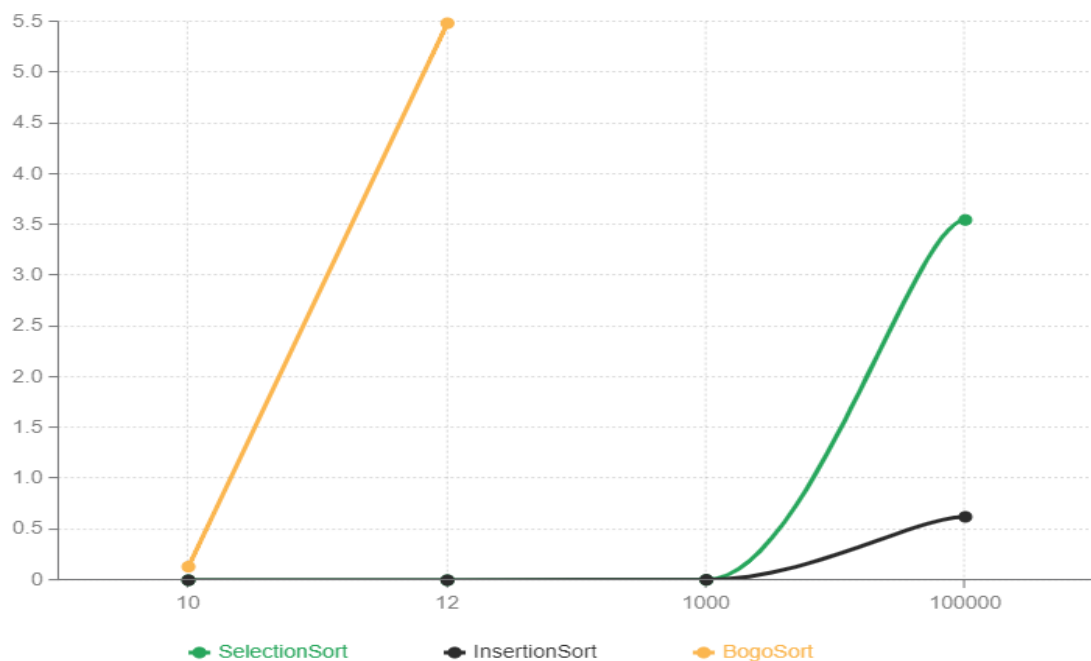
3.

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4.

- Internal or External
- Stability
- Space Complexity
- Recursive or iterative
- Time complexity
- Comparison or non-comparison

5.(part 2)



Size	Selection Sort	Insertion Sort	Bogo Sort
10	0.0	0.0	0.133
12	0.0	0.0	5.487
1000	0.003	0.004	
100,000	3.549	0.624	

## 6

Time complexities:

SelectionSort:  $O(n^2)$

InsertionSort:  $O(n^2)$

BogoSort:  $O(\infty)$  as the algorithm has no upper bound