An Analytical and Experimental Comparison of Sorting Algorithms

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Introduction

- What does sorting algorithm mean?
- Which algorithms are compared in this presentation?
  - Insertion Sort
  - Quick Sort
  - Heap Sort
- Complexity of algorithms
- Special input cases of algorithms

Insertion Sort

- What it is?
- How it works?
- Special cases
- Complexity of $\mathcal{O}(n^2)$

8	**3**	5	1	4
3	8	**5**	1	4
3	5	8	**1**	4
1	3	5	8	**4**
1	3	4	5	8

Quick Sort

- What it is?
- How it works?
- Special cases
- Complexity of $\mathcal{O}(n \log n)$

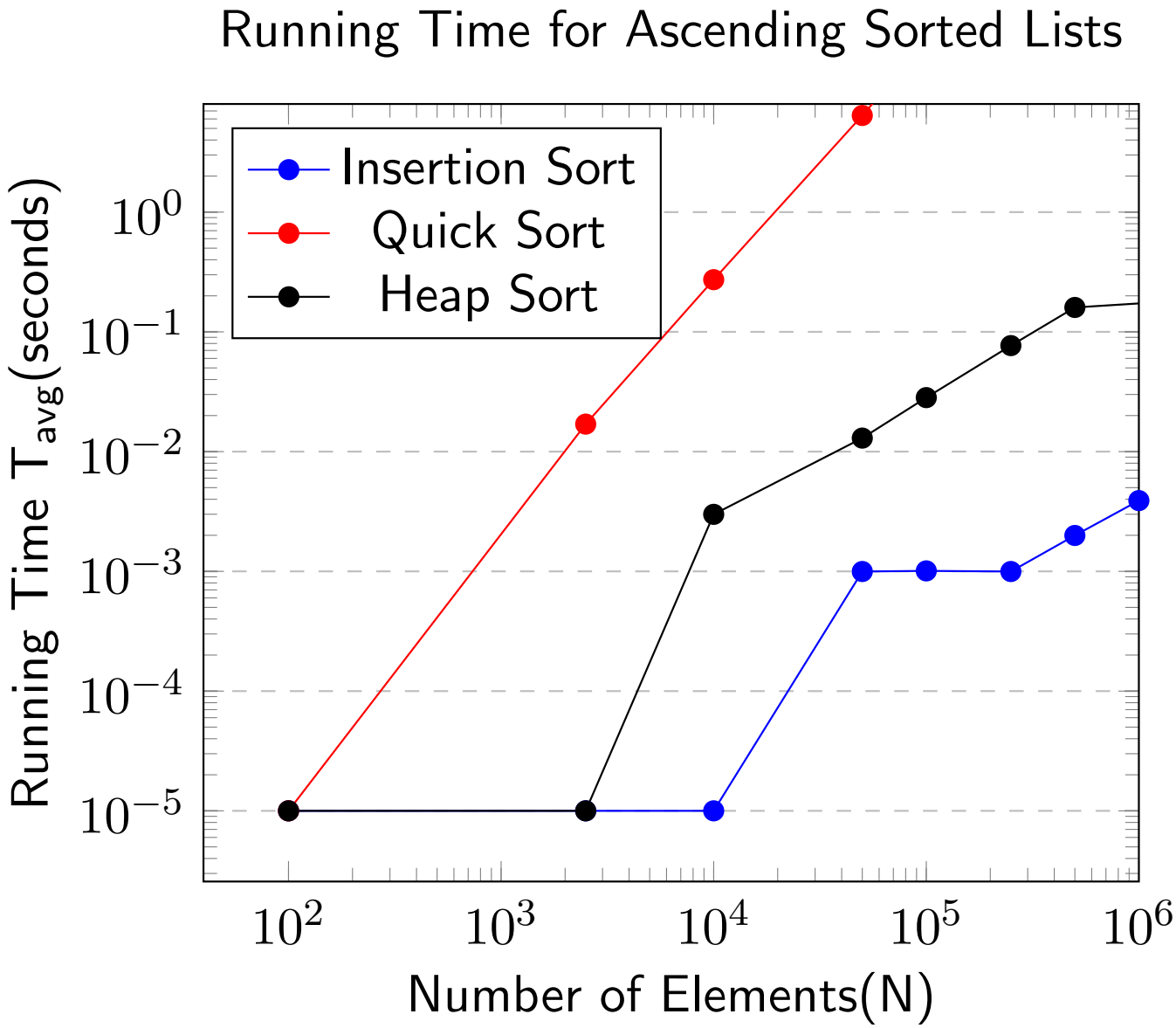
3	2	**5**	4	1
3	**2**	*1*	4	5
1	2	**4**	*3*	5
1	2	3	4	5

Heap Sort

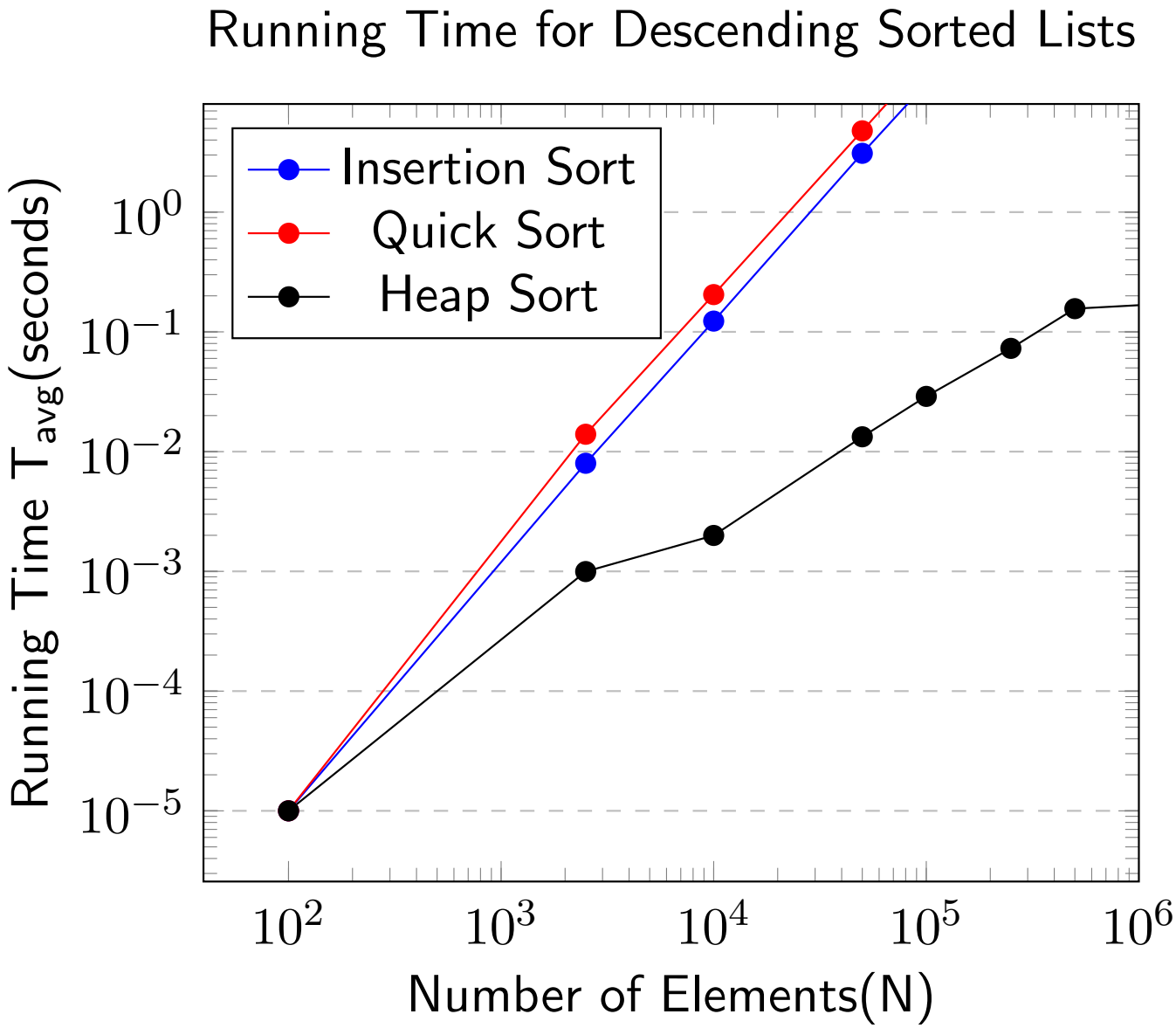
- What it is?
- How it works?
- Special cases
- Complexity of $\mathcal{O}(n \log n)$

4	10	3	5	1
10	4	*3*	5	1
1	4	3	*5*	**10**
5	4	3	1	10
1	4	3	**5**	**10**
4	3	1	**5**	**10**
1	3	**4**	**5**	**10**

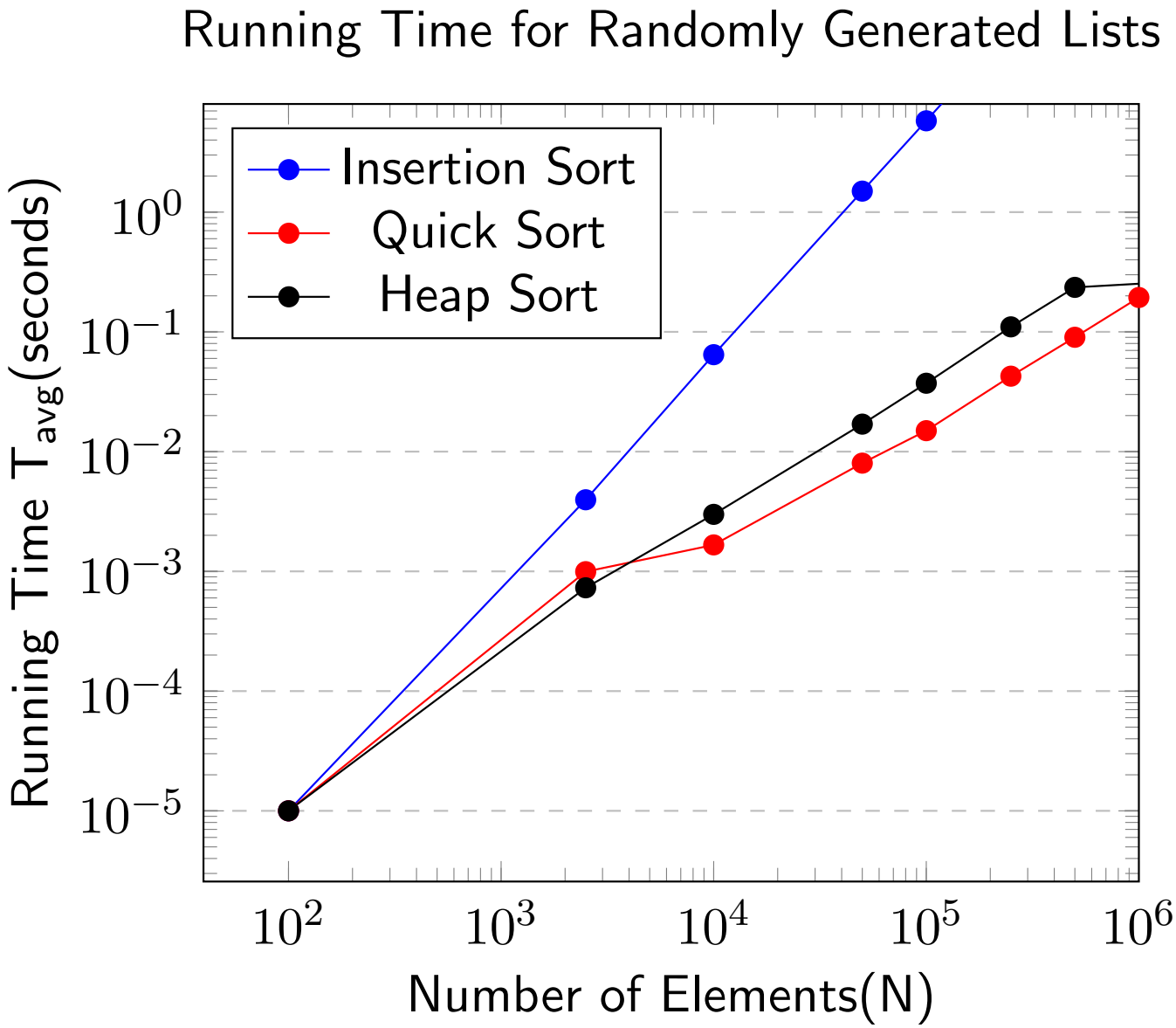
Input with ascending sorted numbers



Input with descending sorted numbers



Input with randomly generated numbers



Questions

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