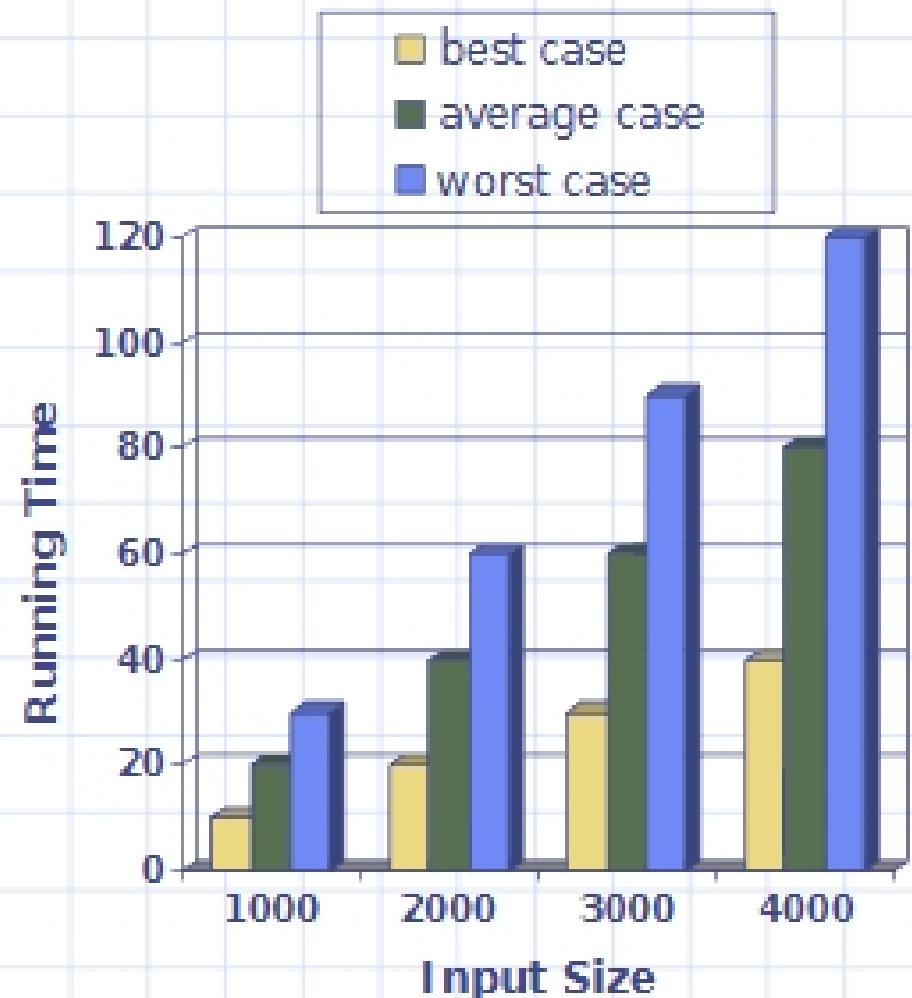


Analysis of Algorithms

An **algorithm** is a step-by-step procedure for solving a problem in a **finite** amount of time.

Running Time (§1.1)

- ◆ Most algorithms transform input objects into output objects.
- ◆ The running time of an algorithm typically grows with the input size.
- ◆ Average case time is often difficult to determine.
- ◆ We focus on the worst case running time.
 - Easier to analyze
 - Crucial to applications such as games, finance and robotics



Experimental Studies (§ 1.6)

- ◆ Write a program implementing the algorithm
- ◆ Run the program with inputs of varying size and composition
- ◆ Use a method like `System.currentTimeMillis()` to get an accurate measure of the actual running time
- ◆ Plot the results

