The running time of an algorithm depends on how long it takes a computer to run the lines of code of the algorithm—and that depends on the speed of the computer, the programming language, and the compiler or interpreter that translates the program (source program) from the programming language into runnable code that runs directly on the computer, among other factors.

***Running time of an algorithm-***

1. **Time** in terms of the size of its input.
2. Function growth with the input size. (**rate of growth** of the running time.)

Chart, line chart

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For example, suppose that an algorithm, running on an input of size n, takes 6n^2 + 100n + 300 & 0.6n^2 + 1000n + 3000 machine instructions.

By dropping the less significant terms and the constant coefficients, we can focus on the important part of an algorithm's running time—its rate of growth

Here's a list of functions in asymptotic notation that we often encounter when analyzing algorithms, ordered by slowest to fastest growing:

Graphical user interface, application, Excel

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