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# Important Prerequisites

## Mathematical Background

We expect that the student is comfortable with basic mathematics at the level of a US College first year STEM student. This includes basic notions such as

- Sets and Functions: Properties of sets, definition and properties of functions.
- Logarithms and Exponentials: and their properties.
- Basic series summations: arithmetic and geometric series summations.
- Probability theory: basic definition of probability, independence of events, probability distributions and expectations.

CLRS has a helpful appendix but the student unfamiliar with these concepts can find numerous high quality explanations online.

## Programming Background

The course involves solving programming assignments in Python. You must be comfortable with python programming.

- Basic control structures in python: conditional branches, for loops and recursion.
- Functions: defining and calling functions, and recursion.
- In-built data structures: Lists and Dictionaries
- Classes

Our use of python will get more sophisticated as the course progresses to accommodate some learning of python.

✓ **Completed**

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