

# Python and Computer Memory

## Computer Memory

For the purpose of this course, you may think of *computer memory* as a long list of storage locations where each location is identified with a unique number and each location houses a value. This unique number is called a *memory address*. Typically, we will write memory addresses as a number with an "id" as a prefix to distinguish them from other numbers (for example, `id201` is memory address 201).

Variables are a way to keep track of values stored in computer memory. A *variable* is a named location in computer memory. Python keeps variables in a separate list from values. A variable will contain a memory address, and that memory address contains the value. The variable then refers to the value. Python will pick the memory addresses for you.

## Terminology

A value has a memory address.

A variable contains a memory address.

A variable refers to a value.

A variable points to a value.

Example: Value 8.5 has memory address `id34`.

Variable `shoe_size` contains memory address `id34`.

The value of `shoe_size` is 8.5.

`shoe_size` refers to value 8.5.

`shoe_size` points to value 8.5.