**Variable Types and Advanced Usage**

In this exercise, we will discuss how variable types are handled in PowerShell and a few advanced ways to interact with [variables](https://www.codecademy.com/resources/docs/powershell/variables), including enforcing types, creating multiple variables, and a few variable-related cmdlets.

**Variable Types**

The following are some common types of variables:

* Int: integers like 2, -5, 99
* String: zero or more characters enclosed in double quotes like "Codecademy!", "3X4mP|3"
* Boolean: two possible values: $True and $False
* Array: a collection of items like 25, "red", $False, 16.30

PowerShell assigns a type to the variable depending on the value we assign to it. This is called dynamic typing. The default type of any uninitialized variable is $null.

We can append .GetType().Name to the variable reference to determine a variable’s data type.

PS > $my\_string\_variable = "Hello, World!"  
PS > $my\_string\_variable.GetType().Name  
String

In the example above, we are accessing the Name property of the GetType() method of a variable we initialized.

* The GetType() method returns the name and base type property for a variable
* Accessing the Name property only returns the data type we desire
* The variable’s data type is String

**Constrained Variables**

If we wish to enforce a certain type on a variable, we can create a *constrained variable* via casting.

PS > [Int]$age = 25  
PS > $age  
25  
  
PS > [Int]$age = "twenty five"  
Cannot convert value "age" to type "System.Int32". Error: "Input string was not in a correct format."

When initializing a variable, we specify the type in brackets before referencing the variable. Attempting to assign a value of another type results in an error if PowerShell cannot convert it.

**Create Multiple Variables**

PowerShell allows us to create multiple variables using one statement. To initialize multiple variables with the same value,

$i = $j = $k = 0

To assign multiple values to multiple variables,

$number, $color, $bool = 25, "red", $false

We will next discuss a specific type of variable called an environment variable.