Variables are something that every programming language has in common. When you take away the particulars of a programming language they are nothing but named storage containers for data. This data can take a lot of different forms. Sometimes the language helps you decide, sometimes you decide as a programmer. Let’s take a look at what a variable looks like by creating one:

int currentYear = 2021;

There are a few parts here and we will examine them all closely in turn. The first part (int currentYear = 2021;) is the type of data that the variable will contain. In this instance, int which is short for Integer or whole numbers. These are often referred to as data types and there are a few different varieties that fall in different categories such as whole numbers (integer and long), fractional numbers (decimal, float), characters (string and char) and so on.

The second part of the variable is the name that we are giving the container (int currentYear = 2021;). These names are created by the programmer and should be descriptive to the purpose of the variable. For instance, if we wanted to create a variable that would be used to hold the age of the user, a good name would be something like userAge, AgeOfUser or so on. You might have also noticed the strange use of capitalization, this is a naming convention used in programming called camel case (used to make compound words more readable). You should also note that there are certain keywords in most programming languages that the be usable as a variable name (you will learn more about keywords as you learn about programming). In this instance, data types are keywords which means we can’t create a variable called int or any of the other types or keywords.

The third part of the variable creation is the assignment operator (int currentYear = 2021;). In programming, what is on the right side of the equal sign is put placed into (assigned) variable. So in our example, currentYear is getting the value 2021.

The fourth part of the variable is the value and a semi colon at the end (int currentYear = 2021;). The value is what we want placed in the variable. The semi colon plays a role in many programming languages to show the termination of instructions, in this case the end of the line of code.

Now that we have learned about the various parts of a variable we can put that to good use by seeing what else a variable can do. Not only can variables hold a value, but we can change that value if needed as well like the following:

int currentYear = 2021;

currentYear = 2022;

You might have noticed that we left out the data type when we changed the value. This is because the computer has already created and set aside the memory for the variable (or in other words the computer already knows what currentYear is). Also note that you can actually assign the contents of another variable to our current one the same way (you will learn more about this later on). Beyond changing the value by reassigning the contents, we can also modify the contents using other operators as well. Just like in math, we can use addition (+), subtraction (-), multiplication (\*) and division (/) at least if they are a numeric data type (you will learn more about how types behave later). Now let’s modify our variable using this technique.

int currentYear = 2021;

currentYear = currentYear + 1;

When this code runs, currentYear will be assigned the value of currentYear plus one, making it’s value 2022. We can also accomplish this using a compound operator as well. Compound operators (+=, -=, \*=, /=) do the same thing in less code. The same code can be written like so with the compound operator +=:

int currentYear = 2021;

currentYear += 1;