Name:

Variables and Data Types

Primary Definition

A variable is a concept where we store information in a container. This information can be set, read, and changed throughout our code. In Java, a variable must have a type. This type is called a Data Type. There are 8 primary, or primitive, types. They are listed below:

- byte
- char
- short
- int
- boolean
- long
- float
- double

A type is assigned to a variable before the variable is created.

Analogy

Recognizing the Primary Definition may be more complicated with the more technical language, here's an analogy below.

A variable is similar to a box of information. This box can be opened and we can look at what is inside. We can put something in the box originally, or we can start with the box being empty. We can place something in the box later, or we can replace what is inside the box. Imagine this box can only store a single item or piece of information at a time. When we open this box to view what's inside, we are effectively "getting" the information in the variable. When we put something in the box in the beginning, we are "setting" the information in the variable. When we replace the contents of the box, we are "updating" the information in the variable.

Adding to this analogy, when we create the box, we write a label and a one-word description of what information will be in the box. Once we write this label and description, we cannot change it. This label is considered the "name" of the variable. This one-word description is considered the "data type" of the variable.

Blueprint

```
type name = value;
```

Example 1

```
int x = 1;
```

This variable has a type of an int. It is named x. It has a value of 1.

Example 2

```
char c = e;
```

This variable has a type of a char. It is named c. It has a value of e.

Your Definition

Now it's your turn, write your own definition. How would you define a variable and a data type?