

# Unit 3: Text-Based Programming

---

## Lesson 7

# Variable Types

You have seen that there are different variable types in python.

So far we have use integers and strings.

Integers are positive or negative numbers with no decimals, just like in math.

Strings are a collection of characters, it can be numbers, letters or symbols.

# Floats

Floats are numbers that have **decimals**. When we are working with numbers we will either be using floats or integers.

# Boolean

Boolean variables only have two possible values, True or False. They have to be capitalized. They are used for testing conditions.

# Converting

`str()` is used to change a variable to a string. Before f-strings were used we would have to convert integers and floats to strings so we could use concatenation to make print statements.

`int()` is used to change a float or a string to a integer. One thing to note is that when you change a float to an integer it just cuts it off at the decimal. It doesn't round the number off.

`int(6.75)` will give 6.

You can not convert a string that has a decimal directly to an integer.

# Converting

`float()` will change an integer to a float. It will add a decimal point and a 0 to the end of the integer.

```
>>> float(7)
7.0
>>>
```

`float()` will change a string that contains a decimal to a float.

```
>>> float("5.85")
5.85
>>> |
```

# User Input

Any time you use the `input()` function the information is stored as a **string**. If you want to do any math then you will need to convert it to a float or an integer.

**\*\*** You do not need to convert integers and floats to perform math operations, python will automatically convert the result to a float if it needs to.

# Declaring Variables

Python will automatically give your variables a type based on how you declare them.

`x = "Hi"`      would be a string

`y = 5`              would be an integer

`z = -2.75`          would be a float

# Links

<https://www.digitalocean.com/community/tutorials/how-to-convert-data-types-in-python-3>

[https://www.learnpython.org/en/Variables\\_and\\_Types](https://www.learnpython.org/en/Variables_and_Types)