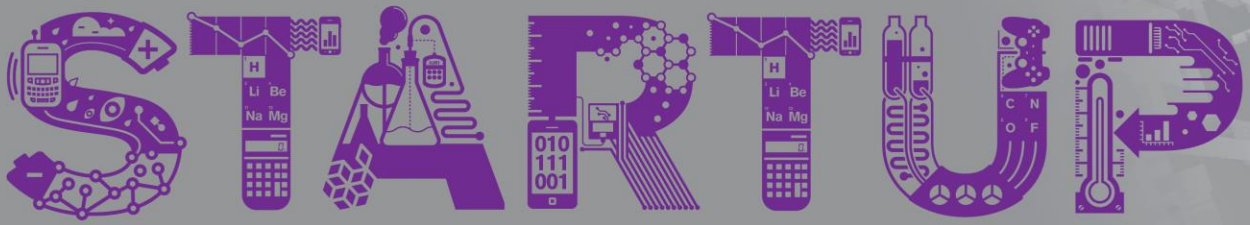
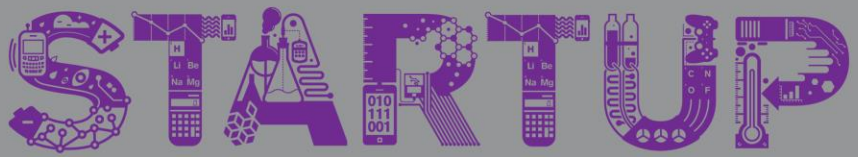
Bloomberg



Bloomberg



Python Lesson 3

Conditionals

Review: Variables and Functions

```
x = 5
y = 1.2
print(x + y)
```

```
x = "Hello "
y = "Johnny"
print(x + y)
```

```
def print_menu():
    print("Welcome to the Python Explorer.")
    print("Good luck!!")
```

```
Welcome to the Python Explorer.
Good luck!!
```

Conditionals: Introduction

If it rains tomorrow, I will bring an umbrella.

- What happens if it rains?
- What happens if it is sunny?

Conditionals: Booleans

A boolean has the value of either True or False.

```
print(4 > 3)
print(4 > 5)
print(3 >= 3)
print(3 < 4)
print(3 < 2)
print(3 <= 3)
```

```
True
False
True
True
False
True
```

```
print(3 == 3)
print(3 == 4)
print(3 != 3)
print(3 != 4)
print("Hello" == "Hello")
print("Hello" == "World")
print("Hello" != "Hello")
print("Hello" != "World")
```

```
True
False
False
True
True
False
False
True
```

== and **!=** tell the program you are comparing two values.
The comparison produces a boolean value.

Conditionals: Booleans

What does the following code output?

```
x = 10
y = 5
print(x == y)
print(x != y)
print(x < y)
print(x > y)
```

```
False
True
False
True
```

```
x = "apple"
y = "orange"
z = "apple"
print(x == y)
print(x != y)
print(x == z)
print(y == z)
print(y != z)
```

```
False
True
True
False
True
```

Conditionals: If Statements

if *boolean expression*:

    statements

Example:

```
money_in = float(input("Enter a dollar amount: "))

if money_in <= 0.0:
    print("Cannot have non-positive dollar amount", money_in)
```

```
Enter a dollar amount: -1.5
Cannot have non-positive dollar amount -1.5
```

Anatomy of If Statements

if tells the program you are starting a conditional statement.

A condition that evaluates to either **True** or **False**.

: tells the program you are starting the statements block.

```
if money_in <= 0.0:
    print("Cannot have non-positive dollar amount", money_in)
```

The statements must all be indented the same amount.

The statements get executed only if the condition is **True**.

Import and Random

- Python has modules to provide existing functions that you can use.
- You can import a module to use the functions.

```
import random
```

- The random module provides functions to generate random numbers.

```
random_number = random.randint(1, 10)
print("The random number is", random_number)
```

```
The random number is 3
```

```
The random number is 5
```

Conditionals: Practice

What's the difference between these two statements?

```
x = 5
x == 5
```

Write a high low guessing game. You will need to use the random module.

Add-on: Change the code to use nested if-else.

Conditionals: Else Statements

If it rains tomorrow, I will bring an umbrella. Otherwise, I will bring a pair of sun glasses.

- What happens if it rains?
- What happens if it is sunny?

Conditionals: Else Statements

if *boolean expression*:

    statements

else:

    statements

```
Enter a dollar amount: 5.0
Your input dollar amount is 5.0
```

Example:

```
money_in = float(input("Enter a dollar amount: "))

if money_in <= 0.0:
    print("Cannot have non-positive dollar amount", money_in)
else:
    print("Your input dollar amount is", money_in)
```

Anatomy of Else Statements

else tells the program you want to execute the statements if the condition is **False**.

: tells the program you are starting the statements block.

```
    oney_in <= 0.0:
        print("Cannot have non-positive dollar amount", money_in)
else:
    print("Your input dollar amount is", money_in)
```

The statements must all be indented the same amount.

The statements get executed only if the condition is **False**.

Python Explorer Game

```
user_input = input("Please enter a direction: ")
user_input_upper = user_input.upper()

if user_input_upper == 'N':
    print("Walking towards north")
else:
    if user_input_upper == 'S':
        print("Walking towards south")
    else:
        print("Looking around")
```

Python Explorer Game

```
Please enter a direction: n
Walking towards north
```

```
Please enter a direction: S
Walking towards south
```

```
Please enter a direction: look
Looking around
```

Recap

- A boolean has the value of either True or False.
- == is for comparison. = is for value assignment.
- To write conditional statements,

```
if boolean expression:
    statements
else:
    statements
```

- All the statements inside a code block should be indented the same amount.