

Session 1

Data Types

Numbers

There are three types of number in Python

- Integer `int`
- Float `float`
- Complex `complex`

```
# int
print(5)
print(125453453)
print(-125)

print(type(5))
print(type(125453453))
print(type(-125))

# float
print(5.10)
print(1.2)
print(-125.35)
print(35e3)
print(-87.7e100)

print(type(5.10))
print(type(1.2))
print(type(-125.35))
print(type(35e3))
print(type(-87.7e100))

# complex
print(5+3j)
print(5j)
print(-9j)

print(type(5+3j))
print(type(5j))
print(type(-9j))
```

Strings

Strings in python are surrounded by either single quotation marks, or double quotation marks.

```
#string
print("Hello")
print('Hello')
```

Quotes Inside Quotes

PYTHON

```
print("It's alright")
print("He is called 'Johnny'")
print('He is called "Johnny"')
print("We are the so-called \"Vikings\" from the north.")
```

Multiline Strings

PYTHON

```
print("""Lorem ipsum dolor sit amet,
consectetur adipiscing elit,
sed do eiusmod tempor incididunt
ut labore et dolore magna aliqua.""")
```

Boolean

Booleans represent one of two values: **True** or **False**.

PYTHON

```
print(10 > 9)
print(10 == 9)
print(10 < 9)
```

Variables

Variables are containers for storing data values.

PYTHON

```
x = 8
y = "Mohammad"
print(x)
print(y)
```

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume). Rules for Python variables:

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number

- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive (age, Age and AGE are three different variables)
- A variable name cannot be any of the *Python keywords*.

Casting

PYTHON

```
x = str(3.25)
y = int(3.85)
z = float(3)
```

Operators

Operators are used to perform operations on variables and values. Python divides the operators in the following groups:

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators

Arithmetic operators

PYTHON

```
x = 5
y = 8

print(x + y)
print(y - x)
print(x * y)
print(x / y)
print(x % y)
print(x ** y)
print(x // y)
```

Assignment operators

PYTHON

```
x = 30
x += 5

print(x)
```

Comparison operators

PYTHON

```
x = 10
y = 15

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

Logical operators

PYTHON

```
x = 5
y = 9

print(x == 5 and y > 7)
print(x == 5 or y < 7)
print(not(x == 5 and y > 7))
```

Conditional Statements **if**, **elif** and **else**

PYTHON

```
num = 55

if num > 0:
    print("The number is positive.")
elif num < 0:
    print("The number is negative.")
else:
    print("The number is zero.")
```