Python Programming

Variables Assignments

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Variables Assignments

- We will learn how to create, assign and change the value of variables!
- *Take a minute to read the program*
  - Maybe make a guess :)
- Initially, the memory has nothing
- Let's run the interpreter
- It goes **line by line** to execute it
- Initially, we have an empty RAM

```
3   print(55)       # 55
4
5   # Create variable
6       # in some memory location
7   # Its name it age (identifier)
8   # Its current type is integer
9   age = 55
10      # = means assign a value 55
11
12  print(age)      # 55
13  print(age + 5)  # 60
14
15  # A floating variable named weight
16  # Assign value 75.8
17  weight = 75.8
18
19  print(weight)   # 75.8
```

Variables Assignments

- **Line 3:**
  - Just print 55
  - No effect on RAM

```
3  print(55)        # 55
4
```

Memory Before

Memory After

Variables Assignments

- **Line 9:** age = 5
  - Create variable in the memory
    - Name = age
    - Value = 55
    - Type = int
- When you see var **=** something
  - = means assign right value to left var
- Each variable has a name
  - We call it identifier
  - Has some memory location (0x2045)

```
5   # Create variable
6       # in some memory location
7   # Its name it age (identifier)
8   # Its current type is integer
9   age = 55
10      # = means assign a value 55
```

Memory Before

Memory After

age: 55 (type int)

Variables Assignments

- **Line 12:** print(age)
  - Print receives age, which is var
  - Its value in memory 55
  - So equal to
  - print(55) ⇒ 55
- **Line 13:** print(age + 5)
  - Print receives **age + 5**
  - **age** + 5 is an expression
  - What is **age** in memory? 55
  - So what us **age**+5? 55 + 5
  - Print(60) ⇒ 60
- No memory effects

```
12    print(age)      # 55
13    print(age + 5)  # 60
```

Memory Before

age: 55 (type int)

Memory After

age: 55 (type int)

Variables Assignments

- **Line 17:** weight = 75.8
  - Create another variable in the memory
    - Name = weight
    - Value = 75.8
    - Type = float
- **Line 19:** print(weight)
  - print(75.8) ⇒ 75.8

```
15  # A floating variable named weight
16  # Assign value 75.8
17  weight = 75.8
18
19  print(weight)   # 75.8
```

Memory Before

age: 55 (type int)

Memory After

age: 55 (type int)
weight: 75.8 (type float)

Limits

- What is the maximum number of characters in a string?
  - No limit. Up to your machine physical memory
- What about int?
  - *In python 3: there is **no limit** on the maximum value to use an integer*
  - *193485903485904385903459834098590348508439509348 98…..43985798435*
- What about float?
  - Up to **1.79**76931348623157 * 10^{308}
    - Approximately 2 followed by 308 zeros = That is a 309 digits number
  - Consider that: float is an approximated number. Not accurate!
  - **import** sys
  - print(sys.float_info.min, sys.float_info.max)
    - 2.2250738585072014e-308 1.7976931348623157e+308

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."