

python.epsilonpi.club

Variables, Expressions, and Statements

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Reserved Words

You cannot use reserved words as variable names / identifiers

False class return is finally

None if for lambda continue

True def from while nonlocal

and del global not with

as elif try or yield

assert else import pass

break except in raise



Constants



- FIXED VALUES SUCH AS NUMBERS, LETTERS, AND STRINGS, ARE CALLED “CONSTANTS” BECAUSE THEIR VALUE DOES NOT CHANGE



- NUMERIC CONSTANTS ARE AS YOU EXPECT



- STRING CONSTANTS USE SINGLE QUOTES (') OR DOUBLE QUOTES (")

```
>>> PRINT(123)
```

```
123
```

```
>>> PRINT(98.6)
```

```
98.6
```

```
>>> PRINT('HELLO WORLD')
```

```
HELLO WORLD
```


Constants



**When you try to
define constants**

PYTHON

We don't do that here

imgflip.com



Variables



- A VARIABLE IS A NAMED PLACE IN THE MEMORY WHERE A PROGRAMMER CAN STORE DATA AND LATER RETRIEVE THE DATA USING THE VARIABLE "NAME"
- PROGRAMMERS GET TO CHOOSE THE NAMES OF THE VARIABLES
- YOU CAN CHANGE THE CONTENTS OF A VARIABLE IN A LATER STATEMENT

$x = 12.2$

$y = 14$


Python Naming Conventio

n

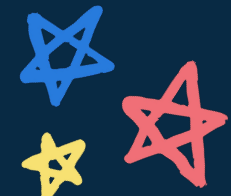


When you try to choose
a meaningful variable name.





Python Variable Name Rules



- MUST START WITH A LETTER OR UNDERSCORE _



- MUST CONSIST OF LETTERS, NUMBERS, AND UNDERSCORES



- CASE SENSITIVE

GOOD: SPAM EGGS SPAM23 _SPEED

BAD: 23SPAM #SIGN VAR.12

What is this code even doing ?

```
XIQ3Z9OCD = 35.0  
XIQ3Z9AFD = 12.50  
XIQ3P9AFD = XIQ3Z9OCD * XIQ3Z9AFD  
PRINT(XIQ3P9AFD)
```



Just do this

!!

```
XIQ3Z9OCD = 35.0  
XIQ3Z9AFD = 12.50  
XIQ3P9AFD = XIQ3Z9OCD * XIQ3Z9AFD  
PRINT(XIQ3P9AFD)
```

```
A = 35.0  
B = 12.50  
C = A * B  
PRINT(C)
```



Sentences or Lines

$x = 2$



ASSIGNMENT STATEMENT

$x = x + 2$



ASSIGNMENT WITH EXPRESSION

`PRINT(x)`



PRINT STATEMENT

Assignment Statements

- WE ASSIGN A VALUE TO A VARIABLE USING THE ASSIGNMENT STATEMENT (=)
- AN ASSIGNMENT STATEMENT CONSISTS OF AN EXPRESSION ON THE
- RIGHT-HAND SIDE AND A VARIABLE TO STORE THE RESULT

$$x = 3.9 * x * (1 - x)$$



Order of Evaluation

WHEN WE STRING OPERATORS TOGETHER - PYTHON MUST KNOW WHICH ONE TO DO
FIRST

THIS IS CALLED “OPERATOR PRECEDENCE”

WHICH OPERATOR “TAKES PRECEDENCE” OVER THE OTHERS?

$$x = 1 + 2 * 3 - 4 / 5 ** 6$$


Operator Precedence Rules

HIGHEST PRECEDENCE RULE TO LOWEST PRECEDENCE RULE:

PARENTHESES ARE ALWAYS RESPECTED

EXPONENTIATION (RAISE TO A POWER)

MULTIPLICATION, DIVISION, AND REMAINDER

ADDITION AND SUBTRACTION

LEFT TO RIGHT



Expressions

NUMERIC EXPRESSIONS

+

Addition

-

Subtraction

*

Multiplication

/

Division

**

Power

%

Remainder

Tell me and I forget,
teach me and I may
remember, involve me and
- Benjamin Franklin
I learn.

MAY WE HAVE FUN AND PRODUCTIVE
LEARNING SESSIONS AHEAD.
WELCOME TO GENERAL MATHEMATICS!

