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PYTHON BASICS

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- Types
- Expression and variables
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Learning Objectives

- Understand how to interact with a program
- Know the main basic data types
- Know how do create and manipulate variables
- Use String Operations



A Simple Program

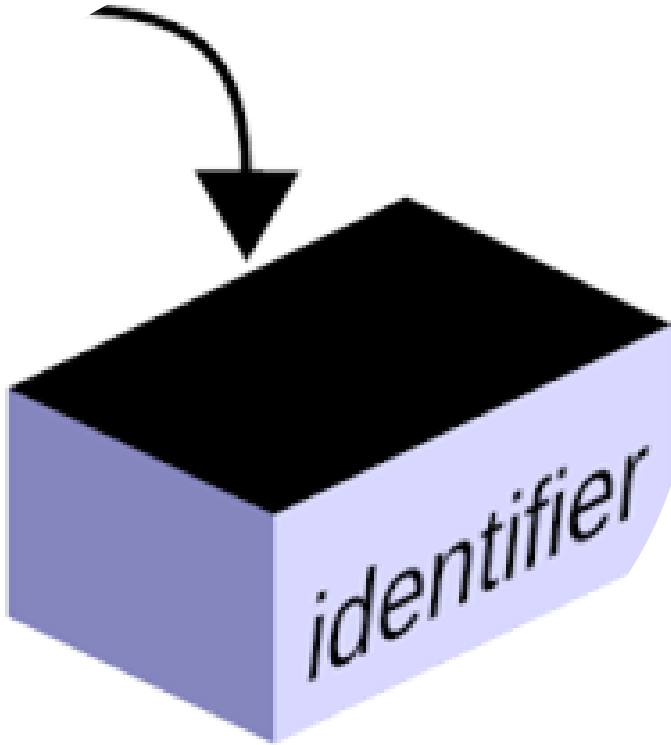
- Code:

```
Print("Hello! I am here!")
```

- Result

```
Hello! I am here!
```

Variables



- One of the most powerful features of a programming language is the ability to manipulate variables.
- A variable is a name that refers to a value.
- Variable is a space memory used to store values

- Integer

- String

- Boolean



Types

- Integer
- Float
- String
- Boolean



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Statement

- A statement is an instruction that the Python interpreter can execute.
- Example of statements: print and assignment

Operator

Operators are special symbols that represent computations like addition and multiplication.

The values the operator uses are called operands.

Operators

4 Basic Operations

$+$ $-$ $/$ $*$

Remainder

$\%$

Power

$**$

Other operations:

$+=$, $-=$, $*=$, $/=$ $\%=$ $\%=$, $**=$



Conditional expressions and Comparison operations

- Conditional Expression:
 $4 > 2$
- Comparison operations
 - $>$
 - $<$
 - $==$
 - $<>, !=$
 - $>=$
 - $<=$
 - is
 - in

Logical and setting Operators

- Logical operators:
 - And
 - Or
 - Not
- Setting operator:
 - =

A = 5

B = 4

C = A == B

Input and Output Functions

- There are two built-in functions in Python for getting keyboard input:

```
n = raw_input("Please enter your name: ")  
print (n)  
n = input("Enter a numerical expression: ")  
print (n)
```


String Operations

- Substitution: %
Example:
`print ("Today is %02d/%02d/%03d" % (26, 2, 2019))`
- Concatenation
+
- Data type
Type(variable)



String Operations

- What is the type of n?

```
n = input("Enter a numerical expression: ")  
print (n)
```

String Operations

- What is the type of n?

```
n = input("Enter a numerical expression: ")  
print (n)  
floatNumber=float(n)  
intNumber=int(n)
```

String Operations

- length of a string in characters

`len(a)`

- Lower

`a.lower()`

- Upper

`a.upper()`

- Delete space

`a.strip()`

- Replace characters in a string

`a.replace("M", "B")`

Comments

- Several lines

“”

Comment


“”

comment

Exercises

- Calculate the interest earned by an investor that invested a capital of 200 during 3 years with an interest rate of 3%. (simple interest)
- Capital that an investor obtained after investing a capital of 200 during 3 years with an interest rate of 3%. (Compound interest)
- Calculate your BMI (Body Mass Index)
- Calculate the Golden ratio





CONCLUSION

- First Program
- Types
- Expression and variables
- String Operations