OBJECT ORIENTED PROGRAMMING

Introduction to Python

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Introduction

- Developed in 1991 by Guido Van Rossum, named after Monty Python
- Managed by google
- Provides fast development of code with minimal time, widely used
- Influenced by ABC, Lisp, C/C++ and many more
- Used for:
    - Software development
    - Scripting Language
- Like MATLAB, python interpreter has capability of:
    - Interpreter (line by line execution)
    - Compiler (Execution of complete code)
- Used by:
    - Google
    - Youtube
    - Yahoo, etc.
- Indenting is used (in python) instead of curly brackets (in C++) to show the body of particular structure

Basic Operations

- ○ Print function to display something on screen
  - ○ e.g. **print(**_string/variables_**)**
  - ○ print function without any parameter(s) prints empty line
  - ○ String can be represented by single or double quotation
  - ○ Backslash operator are same as in C++
  - ○ * can be used to print multiple times
- ○ Variable
  - ○ No need to declare variable
  - ○ Type is automatically considered data assigned/stored
  - ○ Variables are considered as objects in python
- ○ Input function to input string value
  - ○ e.g. _variable_ = **input(**_String_Message_**)**
  - ○ Casting functions is used to store value in specific datatype
- ○ Arithmetic Operators
  - ○ Operators: + - * / % (plus ** for exponentiation)
  - ○ Precedence: () before ** before   * / % before + -
  - ○ // for integer division
  - ○ Increment/decrement operators aren't available

```
>>>print("Hi " * 3)
Hi Hi Hi
>>> 1 + 1
2
>>> 1 + 3 * 4 - 2
11
>>> 7 // 2
3
>>> 7 / 2
3.5
>>> 7.0 / 2
3.5
>>> a=input("Programming: ")
Programming: Python
>>> b = int(input("Value:\n"))
Value:
24
>>print('Number:', b)
Number: 24
```

Control Structures

- Comparison operators are same as in C/C++
- Decisional
  - If-else
    - Syntax_1   **if** *condition***:**
                      body/statement(s)

    - Syntax_2   **if** *condition***:**
                      body/statement(s)

                  else:
                      body/statement(s)

    - Syntax_3   **if** *condition_1***:**
                      body/statement(s)

                  elif *condition_2***:**
                  .   body/statement(s)
                  .
                  .

                  elif *condition_n***:**
                      body/statement(s)

                  else:
                      body/statement(s)

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Control Structures

- Loops
    - For Loop
        - Syntax_1   **for** *variable* **in** *sequence***:**

                           body/statement(s)

        - range function can be used generate sequence between two integer values.
            - e.g.   range(5), range(1,5), range(1,5,1),   i.e.   range**(***start***,** *end***,** *step_size***)**
    - While Loop
        - Syntax_1   **while** *condition***:**

                           body/statement(s)
    - Loop Control Statements
        - **break**, used to move control out of structure
        - **continue**, used to move control at beginning of structure
        - **pass**, null command mostly used to write conditions without body for future use.
- Unlike C/C++, Python doesn't have do-while loop and switch-case structure.
    - Whereas dictionary(ies) can be used in place of switch-case structure.

Questions