Operators

Ch-4

Operator

- It is a symbol that performs an operation.
- Operand
- Unary operator
  - Acts on a single operand
- Binary operator
  - Acts on two operands
- Tertiary operator
  - Acts on three operands

Types of operators

- Arithmetic operator
- Assignment operator
- Unary minus operator
- Relational operator
- Logical operator
- Boolean operator
- Bitwise operator
- Membership operator
- Identity operator

Arithmetic operators

- + for addition
  - a+b
- - for subtraction
  - a-b
- * for multiplication
  - a*b
- / for division
  - a/b
- % modulus operator. Gives a remainder of division
  - a%b
- ** for exponent calculation
  - a**b 2**3 gives 8
- // for integer division
  - a//b 10//3 gives 3

Order of operators execution

- Parenthesis
- Exponentiation
- Multiplication, division, modulus : all at equal priority
- Addition and subtraction
- Assignment
- E.g.: d = (1+2)*3**2//2+3
    - First parenthesis are evaluated. d = 3*3**2//2+3
    - Exponentiation is done next. d = 3*9//2+3
    - Multiplication, division, modulus at equal priority. d = 27 // 2+3 and then d = 13 + 3
    - Addition, subtraction. d = 16
    - Finally, assignment is performed. Finally d -----> 16.

Using python interpreter as calculator

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Assignment operator

- =
- +=
- -=
- *=
- /=
- %=
- **=
- //=
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Unary minus

- n = 7
- print(-n)
- m = -n

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Relational operators

- >
- >=
- <
- <=
- ==
- !=

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Logical operators

- and
  - x and y : if x is False, it returns x, otherwise it returns y.
- or
  - x or y : if x is False, it returns y, otherwise it returns x.
- not
  - not x : if x is False, it returns True, otherwise it returns False.

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Boolean operators

- and
- or
- not

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Bitwise operators

- Bitwise
  - Complement operator (~)
  - AND operator (&)
  - OR operator (|)
  - XOR operator (^)
  - Left shift operator (<<)
  - Right shift operator (>>)

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Membership operator

- in
- not in

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Identity operators

- They compare the memory locations of two objects.
- Hence, it is possible to know whether the two objects are same or not.
- id() function: used to see memory location of an object.
  - It returns an integer number, called the identity number that internally represents the memory location of the object.
  - E.g.
    - id(a)

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Identity operators

- ‘is’ operator
  - Useful to compare whether two objects are same or not
  - It internally compares the identity number of the objects.
- ‘is not’ operator