

Programming in Python (CSE 3142)

MINOR ASSIGNMENT-1: BASIC ELEMENTS OF PYTHON PROGRAMMING

1. Evaluate the following expressions:
(x<y) or (not(z==y) and (z<x))
 - a. x =0, y=6, z=10
 - b. x=1, y=1, z=1
2. Evaluate the following expressions involving arithmetic operators:
 - a. -7*20+8/16*2+54
 - b. 7**2//9%3
 - c. (7-4*2)*10-25*8//5
 - d. 5%10+10-25*8//5
 - e. 'hello'*2-5
3. Evaluate the following expressions involving relational and logical operators:
 - a. 'hi' > 'hello' and 'bye' < 'Bye'
 - b. 'hi' > 'hello' or 'bye' < 'Bye'
 - c. 7 > 8 or 5 < 6 and 'I am fine' > 'I am not fine'
 - d. 10 !=9 and 29 >= 29
 - e. 10 !=9 and 29 >= 29 and 'hi' > 'hello' or 'bye' < 'Bye' and 7 <= 2.5
4. Evaluate the following expressions involving arithmetic, relational and logical operators:
 - a. 5 % 10 + 10 < 50 and 29 >= 29
 - b. 7 ** 2 <= 5 // 9 % 3 or 'bye' < 'Bye'
 - c. 5 % 10 < 8 and -25 > 1 * 8 // 5
 - d. 7 ** 2 // 4 + 5 > 8 or 5 != 6
 - e. 7/4 < 6 and 'I am fine' > 'I am not fine'
 - f. 10 + 6 * 2 ** 2 != 9//4-3 and 29 >= 29/9
 - g. 'hello' * 5 > 'hello' or 'bye' < 'Bye'
5. Evaluate the following expressions involving bitwise operators:
 - a. 15 & 22
 - b. 15 | 22
 - c. -15 & 22
 - d. -15 | 22
 - e. ~15
 - f. 22
 - g. -20
 - h. 15 ^ 22
 - i. 8 << 3
 - j. 40 >> 3
6. Differentiate between the following operators with the help of examples:
 - a. = and ==
 - b. / and %
 - c. / and //
 - d. * and **
7. What output will be displayed when the following commands are executed in Python shell in sequence:
 - a. >>> a = 6

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>>> a == 6
>>> a < 5.9
>>> a > 5.9
b. >>> b = 7
>>> b / 6
>>> b // 6
>>> b / 4
>>> b % 4
>>> b % 7
>>> b * 2
>>> b ** 2

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8. Construct logical expressions for representing the following conditions:
- marks scored should be greater than 300 and less than 400.
 - Whether the value of grade is an uppercase letter.
 - The post is engineer and experience is more than four years.

9. Write Python statements for the following equations:

a.

$$\text{root1} = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

b.

$$\text{result} = \frac{2xy - 9y}{2xy^3} - \frac{4yx^2}{2y}$$

c.

$$\text{result} = 2 \cos \frac{1}{2}(x + y) \cos \frac{1}{2}(x - y) + e^x - 1 - \frac{x}{4} + \tan x - \log(v)$$

10. How does the effect of the following two statements differ?

- `x += x + 10`
- `x = x + 10`