ASSIGNMENT 1

THEORY ANSWERS

1. In the below elements which of them are values or an expression? eg:- values can be integer or string and expressions will be mathematical operators.

Ans

* \* is an expression
* ‘hello’ is an expression
* -87.8 is a value
* - , / , + is an expression
* 6 is a value

2. What is the difference between string and variable?

Ans. A variable is something that can hold a value.

Whereas, string is one of many types of values.

* String is a classified element. Specifically used for data stored such as sentences and texts.
* Variable is a broad term to classify everything.

3. Describe three different data types.

Ans.

* INTEGER : Numeric data type for numbers without fractions.

Example : 650 , 24

* Boolean : Determine true or false values.

Example : 1(false) , 2(true)

* Floating point : Numeric data type of numbers with fractions.

Example : 909.877 , 8.65 , 4.642

4. What is an expression made up of? What do all expressions do?

Ans. An expression is a combination of values, variables, operators, and calls to functions. Expressions need to be evaluated. So that if there is more than one operator in an expression, their precedence decides which operation will be performed first. We have many different types of expressions.

1. Constant Expressions: These are the expressions that have constant values only.

EXAMPLE

x = 15 + 1.3

print(x)

16.3

2. Arithmetic Expressions: An arithmetic expression is a combination of numeric values, operators, and sometimes parenthesis. The result of this type of expression is also a numeric value. The operators used in these expressions are arithmetic operators like addition, subtraction, etc. Here are some arithmetic operators in Python:

Addition(+) = x + y

Subtraction(-) = x - y

Multiplication(\*) = x \* y

Division(/) = x / y

1. Integral Expressions: These are the kind of expressions that produce only integer results after all computations and type conversions.

EXAMPLE :

a = 13

b = 12.0

c = a + int(b)

print(c)

25

1. Floating Expressions: These are the kind of expressions which produce floating point numbers as result after all computations and type conversions.

EXAMPLE :

a = 13

b = 5

c = a / b

print(c)

2.6

1. Relational Expressions: In these types of expressions, arithmetic expressions are written on both sides of relational operator (> , < , >= , <=). Those arithmetic expressions are evaluated first, and then compared as per relational operator and produce a boolean output in the end. These expressions are also called Boolean expressions.

EXAMPLE :

a = 21

b = 13

c = 40

d = 37

p = (a + b) >= (c - d)

print(p)

TRUE

1. Logical Expressions: These are kinds of expressions that result in either True or False. It basically specifies one or more conditions. For example, (10 == 9) is a condition if 10 is equal to 9. As we know it is not correct, so it will return False.

EXAMPLE

P = (10 == 9)

Q = (7 > 5)

# Logical Expressions

R = P and Q

S = P or Q

T = not P

print(R)

print(S)

print(T)

FALSE

TRUE

TRUE

1. Bitwise Expressions: These are the kind of expressions in which computations are performed at bit level.

EXAMPLE

a = 12

x = a >> 2

y = a << 1

print(x, y)

3,24

1. Combinational Expressions: We can also use different types of expressions in a single expression, and that will be termed as combinational expressions.

EXAMPLE :

a = 16

b = 12

c = a + (b >> 1)

print(c)

22

5. This assignment statements, like spam = 10. What is the difference between an expression and a statement?

* Statements create side effects to be useful, while expressions are values or execute to values.
* Expressions are unique in meaning, while statements are two-sided in execution.
* For example, 1 has a certain value while go( ) may be executed or not.
* Statements are the whole structure, while expressions are the building blocks. For example, a line or a block of code is a statement.

1. Why is eggs a valid variable name while 100 is invalid?

Ans. Because valid variable name cannot begin with number. It always starts with a name.

1. What three functions can be used to get the integer,

floating-point number, or string version of a value?

Ans. The int(), float(), and str() functions will evaluate to the integer, floating-point number, and string versions of the value passed to them.