**Assignment - 1**

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.

\* ->> Expression

'hello' ->> Value

-87.8 ->> Value

- ->> Expression

/ ->> Expression

* ->> Expression

6 ->> Value

2. What is the difference between string and variable?

Ans:- A string is a sequence of characters, typically used to represent text. It's a specific data type in programming languages. A variable, on the other hand, is a placeholder for storing data in a program. It can hold different types of data, including strings. Strings are one of many possible values that variables can hold.

3. Describe three different data types.

Ans:- Three different data types commonly used in programming are:

Integer: Integer data type represents whole numbers without any decimal points. Examples include -5, 0, 42.

Float (Floating-point): Float data type represents numbers with decimal points. Examples include -3.14, 0.25, 10.75.

Boolean: Boolean data type represents logical values indicating either true or false. It's often used in conditional statements and comparisons. Examples include true and false.

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

Ans:- An expression is made up of operands and operators. Operands can be constants, variables, function calls, or other expressions. Operators are symbols that perform operations on operands, such as arithmetic (+, -, \*, /), comparison (==, !=, <, >), or logical (and, or, not) operations.

All expressions evaluate to a single value. They combine operands and operators to produce a result, which can be assigned to variables, used in conditional statements, or passed as arguments to functions.

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

Ans:- Expression: An expression is a combination of values, variables, operators, and function calls that evaluates to a single value. It can be thought of as something that produces a value. Ex: 2+3 is an expression.

Statement: A statement is a complete line of code that performs some action. It can consist of one or more expressions and usually has an effect, such as assignment, control flow, or function invocation.

6. After running the following code, what does the variable bacon contain?

bacon = 22

bacon + 1 = 23

7. What should the values of the following two terms be?

'spam' + 'spamspam' = ‘spamspamspam’

'spam' \* 3 = ‘spamspamspam’

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

Ans: "eggs" is a valid variable name because it starts with a letter and contains only letters, making it conform to the rules for variable naming.

"100" is invalid because it starts with a digit, violating the rule that variable names cannot start with a digit. However, something like "eggs100" would be valid because it starts with a letter and can contain digits.

9. What three functions can be used to get the integer, floating-point number, or string version of a value?

Ans: int(): This function is used to convert a value to an integer.

float(): This function is used to convert a value to a floating-point number.

str(): This function is used to convert a value to a string.

10. Why does this expression cause an error? How can you fix it?

'I have eaten ' + 99 + ' burritos.'

Ans:- The expression causes an error because Python doesn't allow concatenation of a string with an integer directly without explicit conversion.

Solution: 'I have eaten ' + "99" + ' burritos.'