PYTHON 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?**

Those quantities, whose values may change during the execution of program are called variables.

There are two types of variable:

a) Numeric variable: It contains only numeric kind of data, we can store only numeric values.

Eg: x, a1, sum, average,…

b) String variable: It contains string type of data. String values must be enclosed in double quote.

Eg: "Hello","abc"…

A **variable** is something that can hold a value. A **string** is one of many *types* of values. Strings represent texts. Integers represent whole numbers, etc. A variable is a "place" where you can store any of these types of values, but is not in itself a value.

3. **Describe three different data types.**

1. Integer

Integer data types often represent whole numbers in programming. An integer's value moves from one integer to another without acknowledging fractional numbers in between. The number of digits can vary based on the device, and some programming languages may allow negative values.

2. Character

In coding, alphabet letters denote characters. Programmers might represent these data types as (CHAR) or (VARGCHAR), and they can be single characters or a string of letters. Characters are usually fixed-length figures that default to 1 octet—an 8-bit unit of digital information—but can increase to 65,000 octets.

<u>3. Floating point (real)</u>

Floating-point data types represent fractional numbers in programming. There are two main floating-point data types, which vary depending on the number of allowable values in the string:

Float: A data type that typically allows up to seven points after a decimal.

Double: A data type that allows up to 15 points after a decimal.

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

An expression is a combination of operators and operands that is interpreted to produce some other value. All expressions will eventually get reduce down to a single value. In any programming language, an expression is evaluated as per the precedence of its operators. 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 in Python. Some of them are:-

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

  Eg: x = 15 + 1.3

- 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.

  Eg: x = 40

      y = 12

      add = x + y

      sub = x − y

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

  Eg: a = 13

      b = 12.0

      c = a + int(b)

5. **What is the difference between an expression and a statement?**

Statement in Python	Expression in Python
A statement in Python is used for creating variables or for displaying values.	The expression in Python produces some value or result after being interpreted by the Python interpreter.

Statement in Python	Expression in Python
A statement in Python is not evaluated for some results.	An expression in Python is evaluated for some results.
The execution of a statement changes the state of the variable.	The expression evaluation does not result in any state change.
A statement can be an expression.	An expression is not a statement.
Example: x=3 **Output :** 3	**Example**: x=3+6 **Output :** 9

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

bacon = 22

bacon + 1

Answer: 22, since bacon+1 is not stored in any variable.

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

a)'spam' + 'spamspam'

b) 'spam' * 3

Answer: a) spamspamspam

      b) spamspamspam

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

100 is an invalid variable name, because variable names cannot begin with a number.

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

The functions that can be used to get:

- The integer : int()

- The floating-point number: float()
- The string version of a value: str()

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

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

This expression causes and error because in this line 'I have eaten' and 'burritos' are strings, while 99 is treated as integer. In order to fix the error and print 'I have eaten 99 burritos.', 99 needs '' around it to treat it as a string.