PYTHON BASIC 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.

ELEMENT	VALUES/EXPRESSION
*	Expression
'hello'	Value
-87.8	Value
-	Expression
/	Expression
+	Expression
6	Value

2. What is the difference between string and variable?

FEATURE	STRING	VARIABLE
Definition	Strings are texts or numbers enclosed within two single or double quotes.	Variables are like empty boxes that can be filled with data. It is a name given to a memory location where the value is stored in the memory. A python variable can take any value int, float, string etc.
Usage	It can be used to represent words, numbers or any other type of data.	It is a symbol that can be used to store data.
Example	The string "Hello World" is a representation of a phrase "Hello World". It can also be used to	If we want to store the number 123 in a variable, we can use the variable name "myNumber" and assign it the value 123.

	represent numbers as string like "123"	

3. Describe three different data types.

Three data types:

➢ **Numeric Data type:** The numeric data type in Python represents the data that has a numeric value. A numeric value can be an integer, a floating number, or even a complex number.

- **Integers**: This value is represented by int class. It contains positive or negative whole numbers (without fractions or decimals). In Python, there is no limit to how long an integer value can be.
- **Float**: This value is represented by the float class. It is a real number with a floating-point representation. It is specified by a decimal point.
- **Complex Numbers:** Complex number is represented by a complex class. It is specified as *(real part) + (imaginary part)j*. For example – 2+3j

➢ **Sequence Data type:** The sequence Data Type in Python is the ordered collection of similar or different data types. Sequences allow storing of multiple values in an organized and efficient fashion. There are several sequence types in Python –
- **String Data type**: String in Python are arrays of bytes representing Unicode characters. A string is a collection of one or more characters put in a single quote, double-quote, or triple-quote. In python there is no character data type, a character is a string of length one. It is represented by str class.
- **List Data type**: are just like arrays, declared in other languages which is an ordered collection of data. It is very flexible as the items in a list do not need to be of the same type.
- **Tuple data type**: Just like a list, a tuple is also an ordered collection of Python objects. The only difference between a tuple and a list is that tuples are immutable i.e., tuples cannot be modified after it is created. It is represented by a tuple class.

➢ **Boolean Data Type:** Data type with one of the two built-in values, True or False. Boolean objects that are equal to True are truthy (true), and those equal to False are false (false). But non-Boolean objects can be evaluated in a Boolean context as well and determined to be true or false. It is denoted by the class bool.

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

An expression is a sentence with a minimum of two numbers and at least one math operation. This math operation can be addition, subtraction, multiplication, and division. The structure of an expression is: In all the given expressions, a math operator is used between the two numbers.

A combination of operands and operators is called expression. The expression in Python produces some value or result after being interpreted by the python interpreter. An expression in python is a combination of operands and operators. An example of expression can be: x= x+10x = x+10x= x+10.

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

Expression	Statement
Expressions can be assigned or used as operands	Statements can only be declared.
Expressions are values or execute to values.	Statements create side effects to be useful
Expressions are unique in meaning	Statements are two-sided in execution
Expressions are the building blocks	Statements are the whole structure

6. After running the following code, what does the variable bacon contain?
   bacon = 22
   bacon + 1

   After running the above code, the output will be 23.

```
In [5]: bacon=22
In [6]: bacon+1
Out[6]: 23
```

7. What should the values of the following two terms be?
   'spam' + 'spamspam'
   'spam' * 3

   Both will give the same output i.e., **spamspamspam**

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

   Eggs is a valid variable name while 100 is not because a variable name 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?

Int(), float(), str() will evaluate to integer, floating-point number, or string version of a value passed to them.

10. Why does this expression cause an error? How can you fix it?
    'I have eaten' + 99 + 'burritos'

The above expression causes can error because a string can only be concatenated with a string and here 99 is an int so to fix this we will have to convert int into string.