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' - string

-87.8 - integer

- - expression

/ - expression

* - expression

6 - integer

2. What is the difference between string and variable?

**ANS**:

A Variable is a store of information, and a String is a type of information you would store in a Variable. A String is usually words, enclosed with "" Eg String x ="Welcome to SoloLearn" X is the Variable, and we declared it as a String, use the single = to assign the text to it.

Eg. String Variable : a = “Hello ineuron”

Variable can be of any type integer , string , etc.

3. Describe three different data types.

**ANS:**

In Python, numeric data type represent the data which has numeric value. Numeric value can be **integer, floating number or even complex numbers**.

In Python, sequence is the ordered collection of similar or different data types. Sequences allows to store multiple values in an organized and efficient fashion. There are several sequence types in Python –String , List ,Tuple

## 1) String

In Python, [Strings](https://www.geeksforgeeks.org/python-strings/) 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.

#### Creating String

Strings in Python can be created using single quotes or double quotes or even triple quotes.

## 2) List

[Lists](https://www.geeksforgeeks.org/python-list/) are just like the arrays, declared in other languages which is a ordered collection of data. It is very flexible as the items in a list do not need to be of the same type.

#### Creating List

Lists in Python can be created by just placing the sequence inside the square brackets[].

## 2) Tuple

Just like list, [tuple](https://www.geeksforgeeks.org/python-tuples/) is also an ordered collection of Python objects. The only difference between tuple and list is that tuples are immutable i.e. tuples cannot be modified after it is created. It is represented by tuple class.

#### Creating Tuple

In Python, [tuples](https://www.geeksforgeeks.org/python-tuples/) are created by placing a sequence of values separated by ‘comma’ with or without the use of parentheses for grouping of the data sequence. Tuples can contain any number of elements and of any datatype (like strings, integers, list, etc.).

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

**ANS**:

An expression is a combination of operators and operands that is interpreted to produce some other 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.

1. **Constant Expressions:**These are the expressions that have constant values only.
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.
3. **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. Studying logical expressions, we also come across some logical operators which can be seen in logical expressions most often.
4. **Bitwise Expressions:**These are the kind of expressions in which computations are performed at bit level.

Expressions are **representations of value**. They are different from statement in the fact that statements do something while expressions are representation of value.

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

**ANS**:

In programming language terminology, an “**expression**” is a combination of values and functions that are combined and interpreted by the compiler to create a new value, as opposed to a “**statement**” which is just a standalone unit of execution and doesn't return anything.

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

bacon = 22

bacon + 1

**ANS**:

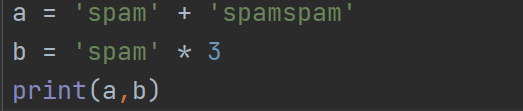
Variable bacon will contain value 22

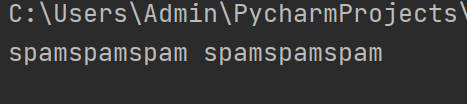
7. What should the values of the following two terms be?

'spam' + 'spamspam'

'spam' \* 3

If they are assigned to variable a and b then ,a and b would be equal





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

**ANS**:

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total\_volume).

Rules for Python variables:

* A variable name must start with a letter or the underscore character
* A variable name cannot start with a number
* A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and \_ )
* Variable names are case-sensitive (age, Age and AGE are three different variables)

Therefore eggs is valid variable name and 100 is invalid.

9. 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.

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

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

**ANS**:

It gives TypeError as 99 is integer and others are string.



To fix this we will typecast 99 -> str(99) and then add.

