

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.

Below given are the values and the expressions:

'hello', -87.8, 6 are the values.

('/', '*', '-', '+') are the mathematical operators (Expressions).

2. What is the difference between string and variable?

A variable is a named container that can hold various types of data, including strings, in python.

While a string is a data type representing textual information.

for eg:

```
a(variable) = "Hritik"(string)
```

3. Describe three different data types.

In Python, three data types are given as follows:

String: A string is the data type which is used to represent text and is enclosed in quotation marks.

Integer: An integer is the data type which represents whole numbers without decimals.

Float: A float is the data type which represents numbers with decimal points.

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

An expression in Python is made up of values, variables, operators, and functions. All expressions in Python evaluate to a value and can perform operations or calculations, by the manipulation and transformation of data.

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

An expression is a piece of code that produces a value when evaluated, such as mathematical calculations or function calls.

eg: `expression = spam + 10`

`while spam = 10` is the statement

Hence the main difference is that expressions produce values, while statements perform actions or operations.

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

contain?

bacon = 22

```
In [1]: bacon = 22  
bacon + 1  
# after running the code it was found that the variable bacon contains value of
```

Out[1]: 23

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

'spam' + 'spamspam'

'spam' * 3

```
In [2]: 'spam' + 'spamspam'
```

Out[2]: 'spamspamspam'

```
In [3]: 'spam' * 3
```

Out[3]: 'spamspamspam'

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

In Python, variable names must begin with an underscore or a letter and can contain a combination of letters, digits, and underscores. Therefore, "eggs" is a valid variable name because it starts with a letter, while "100" is invalid because it starts with a digit.

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

Following functions can be used to get the integer, floating-point number and string:

'int()': This function can be used to convert a value into an integer. It truncates any decimal places and returns the whole number part. eg:

int(54.40) = 54

'float()': This function converts a value into a floating-point number. It pulls the decimal places, allowing for both whole numbers and numbers with fractional parts. eg: float(54.40) = 54.40

'str()': This function converts a value into a string. It returns the textual representation of the value.

```
eg: str(54.40) = '54.4'
```

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

In above given expression you are trying to concatenate `string()` with and `integer()`. In Python, you cannot concatenate different data types without converting them to a compatible type first.

To fix the same we will have to convert 99 into string data type either by putting into string function or by putting quotation marks. eg: 'I have eaten ' + `str(99)` + ' burritos.'

```
In [4]: 'I have eaten ' + str(99) + ' burritos.' # or you can also write like this: 'I
```

```
Out[4]: 'I have eaten 99 burritos.'
```