

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.

*

'hello'

-87.8

-

/

+

6

Ans : * -> Expression

'hello' -> Value

-87.8 -> Value

- -> Expression

/ -> Expression

+ -> Expression

6 -> Value

2. What is the difference between string and variable?

Ans : **String** is a specific data type which is used for storing text. **Variables** can store different type of data including numbers, lists, dictionaries etc. These variables can be used to store and manipulate data in a program.

3. Describe three different data types.

Ans : i) Integer(int) : Represents whole numbers without any decimal points.

ii) Float(float) : Represents real numbers with decimal points.

iii) String(str) : Represents sequences of characters, typically used for text.

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

Ans : An expression is a combination of values, variables, operators that can be evaluated to produce a value. The value can be a number, string, list or dictionaries depending upon the data type of the variable that we use in an expression. Expressions can represent computations, comparisons, or operations on data.

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

Ans : **Expression** : It is a combination of values, variables, operators that always produces a value.

Statement : It is a complete line of code that may or may not include expressions. It represents an instruction. It is generally used to control the flow of a program, define structures, or perform actions.

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

```
bacon = 22
```

```
bacon + 1
```

Ans : After running the code, the variable "bacon" contains the value 22. The expression "`bacon + 1`" evaluates to 23, but it doesn't update the value of "bacon" unless it's assigned back to the variable.

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

```
'spam' + 'spamspam'
```

```
'spam' * 3
```

Ans : `'spam' + 'spamspam'` -> `spamspamspam`

`'spam' * 3` -> `spamspamspam`

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

Ans : Variables can consist of letters, numbers and underscores but cannot start with a number. So, `100` is not a valid variable name.

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

Ans : `int()` -> Integer function

`float()` -> Float function

`str()` -> String function

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

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

Ans : The expression `'I have eaten ' + 99 + ' burritos.'` is a combination of two different data types, two strings and an integer. For any expression to produce a value it should contain same data type variables/values. In order to fix this we need to convert the integer 99 to a string ('99'). So, the final expression will be **`'I have eaten ' + str(99) + ' burritos.'`**