

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.

Solution:

* -----> Expression

'hello' -----> Value

-87.8 -----> Value

- -----> Expression

/ -----> Expression

+ -----> Expression

6 -----> Value

2. What is the difference between string and variable?

Solution

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.

3. Describe three different data types.

Solution

1. Python Numeric Data Type

Python numeric data type is used to hold numeric values like;

1. int - holds signed integers of non-limited length.
2. long- holds long integers (exists in Python 2.x, deprecated in Python 3.x).
3. float- holds floating precision numbers and it's accurate up to 15 decimal places.
4. complex- holds complex numbers.

2. Python String Data Type

The string is a sequence of characters. Python supports Unicode characters. Generally, strings are represented by either single or double quotes.

3. Python Dictionary

Python Dictionary is an unordered sequence of data of key-value pair form. It is like the hash table type. Dictionaries are written within curly braces in the form key: value. It is very useful to retrieve data in an optimized way among a large amount of data

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

Solution

An expression is a combination of values, variables, operators, and calls to functions. The expression in Python produces some value or result after being interpreted by the Python interpreter.

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

Solution

Assignment is the process in which Assignment operator (=) is used to assign a literal, value of a variable, the result of any expression or the return value of a method to a variable. Expression is a set of variables, constants, and arithmetical operators.

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

Solution

```
bacon = 22 -----> 22
```

```
bacon + 1 -----> 23
```

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

Solution

```
'spam' + 'spamspam'      = spamspamspam
```

```
'spam' * 3                = spamspamspam
```

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

Solution

According to the rules of variable assignment in python:

- 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)

Hence eggs is a valid variable while 100 isn't.

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

Solution

Casting in python is therefore done using constructor functions:

- `int()` - constructs an integer number from an integer literal, a float literal (by removing all decimals), or a string literal (providing the string represents a whole number)
- `float()` - constructs a float number from an integer literal, a float literal or a string literal (providing the string represents a float or an integer)
- `str()` - constructs a string from a wide variety of data types, including strings, integer literals and float literals

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

Solution

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

`'+99+'` expression is a string concatenation operation and thus accepts only strings. Since 99 is a numeric variable the expression fails and causes error.