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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.

ANS

* :- Operator

'Hello':-Value

-87.8:-Value

- :- Operator

/ :- Operator

+ :- Operator

6 :-Value

2.What is the difference between string and variable?

ANS

A string is a data type used to represent a sequence of characters. It can include letters, numbers, symbols, and whitespace. They are used to store textual data.

A variable, on the other hand, is a named storage location that holds a value. It is used to store different types of data, including strings. Variables are used to store and manipulate data throughout a program. They can be assigned a value, and that value can change during the execution of the program. The difference between a string and a variable is that a string is a specific type of data, whereas a variable is a placeholder or container that can hold different types of data.

3.Describe three different data types

ANS

Integer (int): The integer data type represents whole numbers without any decimal points. Integers can be both positive and negative, including zero. They are used to perform mathematical operations like addition, subtraction, multiplication, and division

String (str): The string data type represents a sequence of characters. It is used to store textual data, such as names, sentences, or any other sequence of characters. Strings in Python are enclosed in either single quotes (") or double quotes (""")

Boolean (bool): The boolean data type represents a logical value that can be either true or false. Booleans are commonly used in programming for decision-making and control flow. They are often the result of comparisons or logical operations and can be assigned to variables. In Python, the keywords True and False (note the capitalization) are used to represent boolean values.

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

ANS

An expression in Python is a combination of values, variables, operators, and function calls that evaluates to a single value. It can be as simple as a single variable or value, or it can be more complex, involving multiple components. All expressions in Python have a specific purpose, which is to produce a value. An expression in Python can consist of values, operators and function calls. The value that an expression evaluates to depends on the specific components and operations involved.

```
x = 5
```

```
y = 3
```

```
result = x + y
```

In this code, `x + y` is an expression. It combines the variables `x` and `y` using the addition operator (+). The expression evaluates to 8, which is then assigned to the variable `result`. The expression performs the addition operation and produces the resulting value.

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

ANS

Expression: An expression in Python is a combination of values, variables, operators, and function calls that evaluates to a single value. It can be as simple as a single value or variable, or it can be more complex, involving multiple components. Expressions are used to perform calculations, generate values, or determine the truthiness of a condition.

For example, `5 + 3` and `len("Hello")` are expressions. They produce a value when evaluated. Expressions can be used within larger expressions, assigned to variables, or passed as arguments to functions.

Statement: A statement in Python is a complete instruction that performs a specific action. Statements are typically used to control the flow of execution, define structures, or manipulate data. Unlike expressions, statements do not produce a value. Instead, they execute a particular operation or sequence of operations.

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

```
bacon = 22
```

```
bacon + 1
```

ANS

After execution if we print the value of bacon we will get 23 as ans.

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

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

```
'spam' * 3
```

ANS

`'spam' + 'spamspam'`: This expression concatenates the strings `'spam'` and `'spamspam'`. The result is the string `'spamspamspam'`. The `+` operator, when used with strings, performs concatenation.

`'spam' * 3`: This expression multiplies the string `'spam'` by 3. The `*` operator, when used with a string and an integer, repeats the string a specified number

of times. In this case, the result is the string 'spamspamspam'. The string 'spam' is repeated three times.

So, the values of the two terms are both 'spamspamspam'.

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

ANS

Because variable name cannot start with numerical it can start with an alphabet.

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

ANS

float(): This function is used to convert a value to a floating-point number

str(): This function is used to convert a value to a string

int(): This function can be used to convert a value to an integer

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.' causes an error because you are attempting to concatenate a string ('I have eaten ') with an integer (99) without converting the integer to a string first.

To fix the error, you need to convert the integer to a string before concatenating it with the other strings. You can use the str() function to convert the integer to a string.

'I have eaten ' + str(99) + ' burritos.'

Now, the expression will output: 'I have eaten 99 burritos.'

