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

**Values**: 'hello', -87.8, 6

**Expressions**: -, /, +

2. What is the difference between string and variable?

 **String**: A data type representing a sequence of characters.

 **Variable**: A named storage location that can hold different types of data.

3. Describe three different data types.

Integer (int): An integer is a whole number that can be positive, negative, or zero. It does not have any fractional or decimal part.

String (str): A string is a sequence of characters enclosed within quotation marks (single, double, or triple quotes). It can include letters, numbers, symbols, and whitespace.

Boolean (bool): Booleans are used to control the flow of a program by making decisions based on conditions. They are essential in if-else statements, loops, and logical expressions.

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

expressions are fundamental building blocks in programming that combine literals, variables, operators, function calls, and parentheses to perform calculations, manipulate data, and return values. They enable programmers to write concise and powerful code to achieve various tasks.

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

In essence, expressions are the building blocks that evaluate to values, while statements are the instructions that form the logic and flow of a program.

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

bacon = 22

bacon + 1

The variable bacon will still contain the value 22. The second line bacon + 1 performs the operation but doesn't assign the result back to the variable bacon. Therefore, the value of bacon remains unchanged.

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

'spam' + 'spamspam'

'spam' \* 3

both terms evaluate to the same value: 'spamspamspam'.

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

Eggs are valid because it follows all the rules for variable names, while 100 is invalid because it starts with a number

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

 int():

* **Purpose**: Converts a value to an integer.
* **Example**: int(3.5) will return 3.

 float():

* **Purpose**: Converts a value to a floating-point number.
* **Example**: float(3) will return 3.0.

 str():

* **Purpose**: Converts a value to a string.
* **Example**: str(3.5) will return '3.5'

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

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

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