**Python assignment 1**

**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.**

* Values are basic data items like 'hello', -87.8, and 6. They can be strings (text) or numbers.
* Expressions include operations like \* (multiplication), - (subtraction), / (division), and + (addition). These symbols are used to perform calculations.

**2. What is the difference between string and variable?**

* A string is a piece of text enclosed in quotes, like 'hello'. It represents words or sentences.
* A variable is a name that holds a value. For example, spam = 10 assigns the value 10 to the variable spam. You can change what a variable holds during a program.

**3. Describe three different data types.**

* **Integer**: Whole numbers like 5 or -10.
* **Float (floating-point number)**: Numbers with a decimal point, such as 3.14 or -0.001.
* **String**: A sequence of characters, like 'hello' or '123'.

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

An expression combines values and operators (like +, -, \*, /) to create a new value. It computes or evaluates to a result. For example, 5 + 3 is an expression that evaluates to 8.

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

* An **expression** produces a value. For instance, 2 + 3 calculates to 5.
* A **statement** is a complete instruction in code. spam = 10 is a statement that assigns 10 to the variable spam.

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

* Initially, bacon is set to 22.
* bacon + 1 calculates 22 + 1, which is 23.
* After running this code, bacon still holds 22. bacon + 1 only calculates the result but doesn't change bacon.

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

* spam + spamspam combines the strings to make 'spamspamspam'.
* spam \* 3 repeats 'spam' three times to get 'spamspamspam'.

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

**9. What three functions can be used to get the integer, floating-point number, or string**

**version of a value?**

* int (): Converts a value to an integer.
* float (): Converts a value to a floating-point number.
* str (): Converts a value to a string.

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