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.

\*

&#39;hello&#39;

-87.8

-

/

+

6

Ans - In the given elements, the values and expressions can be identified as follows:

Values:

'hello' (string)

-87.8 (float)

6 (integer)

Expressions:

(multiplication operator)

(subtraction operator)

/ (division operator)

(addition operator)

It's important to note that the operators listed here are considered expressions when used in a mathematical context.

1. What is the difference between string and variable?

Ans - String: A string is a data type used to represent a sequence of characters. It is typically used to store and manipulate textual data. In many programming languages, strings are enclosed in quotation. Strings can contain letters, numbers, symbols, and whitespace.

Variable: A variable is a named container that holds a value. It is used to store and represent data within a program. Variables have names (identifiers) and can store different types of data, including strings. The value of a variable can change during the execution of a program, hence the name "variable." Variables allow programmers to store and manipulate data dynamically.

1. Describe three different data types.

Ans - Integer: An integer is a data type that represents whole numbers without any fractional or decimal parts. It can be positive or negative (or zero). Integers are used for tasks that involve counting, indexing, or performing arithmetic operations without decimal precision. Examples of integers include -5, 0, and 10.

String: A string is a data type used to represent a sequence of characters. It is typically used to store and manipulate textual data such as names, sentences, or any other collection of characters. Strings are usually enclosed in quotation marks (either single or double). For example, "Hello, World!" and 'OpenAI ChatGPT' are both strings.

Boolean: A boolean is a data type that represents a logical value of either true or false. Booleans are used in programming to make decisions or comparisons based on conditions. They are often the result of logical operations or comparisons. For example, a boolean could be used to check if a condition is true or false, such as whether a number is greater than another number or if a certain condition is met.

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

Ans - An expression is made up of one or more operands and operators.

Operands: An operand is a value or a variable that is used in an expression. It can be a literal value, such as a number or a string, or it can be a variable that holds a value. For example, in the expression "2 + 3," the operands are the numbers 2 and 3.

Operators: Operators are symbols or keywords that represent specific actions or computations to be performed on the operands. They define the relationship or operation between the operands. Examples of operators include arithmetic operators (+, -, \*, /), comparison operators (>, <, ==), logical operators (&&, ||), and assignment operators (=).

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

Ans - The main difference between expressions and statements lies in their purpose and the context in which they are used. Expressions are focused on producing a value, whereas statements are focused on performing an action or controlling the flow of the program. Statements can contain expressions as part of their execution, but not all statements are expressions.

In the case of the assignment statement "spam = 10", it is a statement because it is an instruction that assigns the value 10 to the variable "spam". It doesn't produce a value as the result of its execution. However, the expression "10" is part of the statement, serving as the value being assigned to the variable.

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

bacon = 22

bacon + 1

Ans - In this case, bacon would be updated to 23.

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

Ans - Variable names can typically consist of letters (both uppercase and lowercase), digits (0-9), and underscores (\_). However, they cannot start with a digit. This means that "eggs" is a valid variable name since it consists of only letters, while "100" is invalid because it starts with a digit.

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

version of a value?

Ans – int(), float(), str()

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

&#39;I have eaten &#39; + 99 + &#39; burritos.&#39;

Ans - because it attempts to concatenate a string with an integer value directly. In Python, the + operator is used for both string concatenation and addition, but it requires operands of the same type.