DAY 1 Assignment 1

21WU0102040

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

**Answer:**

Operators:

\*,-,/,+

Values:

‘hello’, -87.8, 6

2. What is the difference between string and variable?

**Answer:**

**1. Variables**

A **variable** is a symbolic name used to store data or values in a program. It acts as a container that holds information, which can be used and manipulated later. Variables can store different types of data, such as numbers, text, or even more complex data structures.

* **Purpose**: Variables are used to store values that can change or be manipulated during the execution of the program.
* **Data Type**: A variable can hold different data types, such as integers, floats, Booleans, strings, or objects, depending on the programming language.

**2. Strings**

A **string** is a specific type of data that represents a sequence of characters. It is used to store text in a program. Strings are enclosed in quotes (either single ', double ", or triple """ for multi-line strings, depending on the language).

* **Purpose**: A string holds textual data, such as names, addresses, sentences, etc.
* **Data Type**: In most languages, strings are a built-in data type.

3. Describe three different data types.

**Answer:**

**1. Integer (int)**

* **Description**: Represents whole numbers (positive, negative, or zero) without decimal points.
* **Example**: 5, -3, 42
* **Use case**: Used for counting, performing arithmetic operations, or indexing.

**2. Float (float)**

* **Description**: Represents numbers with decimal points, allowing for fractional values.
* **Example**: 3.14, -0.001, 2.0
* **Use case**: Used for calculations requiring precision, like scientific computations or measurements.

**3. Boolean (bool)**

* **Description**: Represents two possible values: True or False.
* **Example**: True, False
* **Use case**: Used for conditional logic, controlling the flow of programs (e.g., in if statements).

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

**Answer:**

An **expression** is made up of:

1. **Variables**: Names that represent data (e.g., x, age).
2. **Operators**: Symbols that perform operations on values or variables (e.g., +, -, \*, /).
3. **Values**: Constant data like numbers or strings (e.g., 5, "Hello").

Expressions **compute or evaluate to a value**. They combine variables, values, and operators to perform a calculation or produce 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?

**Answer:**

**Difference between an expression and a statement**:

* **Expression**: Computes a value (e.g., 2 + 3).
* **Statement**: Performs an action, like assigning a value (e.g., spam = 10).

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

bacon = 22

bacon + 1

**Answer:**

After running bacon = 22 and bacon + 1, the variable bacon still contains 22 because the expression bacon + 1 is not assigned back to bacon.

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

'spam' + 'spamspam'

'spam' \* 3

**Answer:**

'spam' + 'spamspam' → 'spamspamspam'

'spam' \* 3 → 'spamspamspam'

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

**Answer:**

Variable names cannot start with a number. eggs is valid because it starts with a letter, but 100 is not.

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

**Answer:**

int() for integer

float() for floating-point

str() for string

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

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

**Answer:**

'I have eaten ' + 99 + ' burritos.' causes an error because you can't concatenate a string with an integer.

**Fix**: Convert the integer to a string: 'I have eaten ' + str(99) + ' burritos.'