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.

Ans:

\* = Mathematical operators

'hello' = strings

-87.8 = values

- = mathematical operators

/ = mathematical operators

* = mathematical operators

6 = integers

1. What is the difference between string and variable?

Ans: A variable is a named storage location in a computer's memory that can hold a value. It is used to store and manipulate data during the execution of a program. Variables can hold different types of data, such as numbers, characters, or complex objects. They allow programmers to store and retrieve values as needed, and they can be modified or reassigned during program execution.

A string, on the other hand, is a specific type of data that represents a sequence of characters. It is typically used to store and manipulate textual information. In many programming languages, including Python, Java, and C++, strings are considered a primitive data type. They can be created by enclosing characters within single quotes ('...') or double quotes ("...").

1. Describe three different data types.

Ans: Sequence Types:

str: Represents a sequence of characters (e.g., "Hello", 'Python').

list: Represents an ordered collection of items, mutable (e.g., [1, 2, 3]).

tuple: Represents an ordered collection of items, immutable (e.g., (1, 2, 3)).

Mapping Type:

dict: Represents a collection of key-value pairs (e.g., {'name': 'John', 'age': 25}).

Set Types:

set: Represents an unordered collection of unique items (e.g., {1, 2, 3}).

frozenset: Represents an immutable version of a set (e.g., frozenset({1, 2, 3})).

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

Ans: An expression is made up of various elements that combine to create a meaningful statement or representation of an idea or calculation. Here are the key components typically found in an expression:

Variables: Symbols that represent unknown values or quantities. Commonly denoted by letters such as x, y, or z.

Constants: Fixed values that are known and do not change throughout the expression. Examples include numbers like 2, 5, or 10.

Operators: Symbols that perform specific mathematical or logical operations on variables, constants, or other expressions. Examples include + (addition), - (subtraction), \* (multiplication), / (division), and = (equality).

Functions: Mathematical operations or predefined procedures that take one or more inputs (arguments) and produce an output. Examples include sin(x), cos(x), log(x), and sqrt(x), where x is a variable.

Top of Form

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

Ans: Expressions are often used within statements to perform calculations, assign values to variables, or determine the condition for control flow constructs (e.g., if statements or loops).

Statements are used to perform tasks such as variable assignments, control flow (e.g., conditional branching and loops), function and method definitions, and more.

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

bacon = 22

bacon + 1

Ans= 23

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

'spam' + 'spamspam'

'spam' \* 3

Ans: spamspamspam

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

Ans:100 is variable which is valid variable

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

Ans: Integer conversion:

Function: int()

Usage: int(value)

Example: int(10.5) returns 10

Floating-point conversion:

Function: float()

Usage: float(value)

Example: float("3.14") returns 3.14

String conversion:

Function: str()

Usage: str(value)

Example: str(42) returns "42"

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

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

Ans: 'I have eaten ' + String(99) + ' burritos.'