

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.

`*, 'hello', -87.8, -, /, +, 6`

Solution

Values = 'hello', -87.8, 6 (The above mentioned are string float and integer)

Expression = *, +, -, / (expressions will be mathematical operators)

2. What is the difference between string and variable?

String is a one of the data type in python and it should be written within double quotes or single quotes eg "Naveen Prakash k v". String is immutable

Variable is an identifier used to store value. variables can be change their value during execution of programme

name=" Naveen Prakash k v"

name is variable and "Naveen Prakash k v" is string

3. Describe three different data types.

a) integer: int data type is a numeric data type store positive and negative integer and zero without decimal point

eg

`x=4`

`y=10`

`z=x+y`

`print(z)`

o/p 14

b) float: Float data type will contain decimal point values and used to represent decimal and floating point numbers

eg:

`x=4.0`

```
y=10.5
```

```
z=x+y
```

```
print(z)
```

o/p 14.5

c)string: String is a one of the data type in python and it should be written within double quotes ore single quotes eg "Naveen Prakash k v". String is immutable

```
name= "Naveen prakash k v"
```

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

An expression in programming is made up of one or more elements that, when evaluated, produce a value. Expressions can consist of various components, including string literals, variables, operators

Literals: These are specific constant values such as numbers (e.g., 42, 3.14), strings (e.g., "Hello"), or Boolean values (e.g., True, False).

Variables: These are symbolic names that represent values stored in memory. When you use a variable in an expression, it evaluates to the value currently stored in that variable.

Operators: Operators are symbols or keywords that perform operations on one or more operands. Common operators include arithmetic operators (+, -, *, /), comparison operators (==, <, >, !=), and logical operators (and, or, not).

Function Calls: Expressions can also involve function calls. When a function is called, it can return a value, and that value can be part of an expression.

For example, in the following Python expression:

```
result = 4 * (6+ 8)
```

result is a variable. And *, +are operators.

When this expression is evaluated, it calculates the value of 6 + 8, which is 14, then multiplies it by 4, resulting in 56. The final value 56 is assigned to the result variable.

In general, expressions in programming languages are used to perform computations, make decisions, and produce values. They can be part of assignments, conditions, function calls, and more. The primary purpose of expressions is to compute values that can be used in various ways within a program, such as assigning values to variables, making decisions in conditional statements, or generating output for display.

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

In programming, expressions and statements are fundamental concepts, and they serve different purposes:

Expression:

An expression is a combination of values, variables, operators, and function calls that can be evaluated to produce a single value and this value can be of various data types, such as numbers, strings, or Booleans.

Example

```
x = 10 + 5
```

```
y = x + 10
```

Statement: A statement is a complete line of code that performs an action or an operation. Statements can include assignments, conditionals, loops, function definitions, and more to control the flow of a program, perform actions, or make decisions. Unlike expressions, statements may not necessarily result in a value.

Examples

- Assignment statement: `x = 10`
 - Conditional statement: `if x > 5`
 - Loop statement: `for item in my_list`
 - Function definition: `def my_function()`
- Expressions are used to calculate values, and they always return a value.
- Statements are used to perform actions, control the flow of a program, or define the structure of the program. Statements may or may not produce a value as a result.

In the assignment statement `val = 10`

it is a statement because it performs the action of assigning the value 10 to the variable `val`. The expression on the right side of the assignment (10) is an expression because it can be evaluated to produce a value, but the whole line is a statement because it's a complete action in the program.

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

```
bacon = 22
```

```
bacon + 1
```

solution:

```
bacon = 22
```

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

```
'spam' + 'spamspam'
```

```
'spam' * 3
```

solution:

spamspamspam

spamspamspam

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

solution:

identifiers (variable name) Never start with digit only start with alphabet or underscore (for private and protected variable).that is variable name 100 is invalid

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

solution:

type cast to integer - int()

type cast to float- float()

type cast to string- str()

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

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

solution:

we couldn't concatenate string with integer here 'I have eaten' and ' burritos.' Is string and 99 is an integer, that is why this is error