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

Ans. There are a total of 4 Operators and 3 Expressions, They are: Operators: *,-,/,+ Expressions: 'hello', 87.8, 6

2. What is the difference between string and variable?

Ans: A Variable is used to store of information, and a String is a type of information you would store in a Variable. A String is a group of characters or a single character usually enclosed in Double quotes " " or single quotes ' '

3. Describe three different Data Types ?

Ans: Three fundamental Data types in python are int, float, complex.

int data type: We can use int data type to represent whole numbers (integral values) float data type: We can use float data type to represent floating point values (decimal values) complex data type: Complex number is represented by complex class. It is specified as (real part) + (imaginary part)j.

In [3]:

```
# Example for int data type
int_num=27
print(int_num, type(int_num))

# Example for float data type
flo_num=1.26
print(flo_num, type(flo_num))

# Example for Complex data type
com_num=27+1.5j
print(com_num, type(com_num))
```

```
27 <class 'int'>
1.26 <class 'float'>
(27+1.5j) <class 'complex'>
```

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

Ans: An expression is a combination of values, variables, operators. Expressions need to be evaluated. If we ask Python to print an expression, the interpreter evaluates the expression and displays the result.

In [5]:

```
4*5+20-55 # Is an Expression, The Python Interpreter Evaluates it to -15
```

Out[5]:

```
-15
```

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

Ans: Expression: An expression is a combination of values, variables, operators, and function calls that produces a result. It can be thought of as something that evaluates to a value. Examples of expressions in Python include:

Arithmetic expressions: 2 + 3, x * y, 5 / (z + 1) Function calls: len("hello"), math.sqrt(9) Variable references: spam, x In Python, expressions can be used in various contexts, such as assigning values to variables, passing arguments to functions, or being part of larger expressions.

Statement: A statement, on the other hand, is a complete instruction that performs an action. It represents a specific operation or control flow within a program. Statements can include expressions but are not limited to them. Some examples of statements in Python are:

Assignment statements: spam = 10, x = x + 1 Conditional statements: if-else, elif Looping statements: for, while Function and class definitions: def, class Statements are the building blocks of a program and are executed sequentially or conditionally to perform tasks and control the flow of execution.

6.After running the following code, what does the variable bacon contain? bacon = 22 bacon + 1

Ans: The variable bacon is set to 22 .The expression bacon + 1 does not reassign the value in bacon (that would the case if the expression is like bacon = bacon + 1 instead of bacon + 1)

In [6]:

```
# Example Case#1
bacon=22
bacon+1
print(bacon)
```

```
22
```

7.What should the values of the following two terms be? 'spam'+'spamspam' 'spam'*3

Ans: Both expressions evaluate to the string 'spamspamspam' Where as the first expression follows String Concatentation and the second expression follows String Multiplication

In [7]:

```
print('spam'+'spamspam') # string concatenation
print('spam'*3) # string multiplication
```

```
spamspamspam
spamspamspam
```

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

Ans: As per python,Variable names cannot begin with a number. The python rules for naming a variable are :-

Variable name must start with a letter or the underscore character. Variable name cannot start with a number. Variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, & _). Variable names are case-sensitive (name, INEURON and ineuron are three different variables). The reserved words(keywords) cannot be used naming the variable

In [8]:

```python
egg='Ineuron' # Valid variable Initilization
100='hello' # Invalid Variable Initilization
print(egg) #prints the value of egg ie Ineuron
print(100) # Raises a Syntax Error as 100 is not a valid variable name
```

```
  Input In [8]
    100='hello' # Invalid Variable Initilization
    ^
SyntaxError: cannot assign to literal
```

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

Ans: The int(),float(),and str() functions will evaluate to the integer,floating-point number,string version of the value passed to them.

In [9]:

```python
# Examples:
print('int(10.0) -> ',int(10.0)) # int() function converts given input to int
print('float(10) -> ',float(10)) # float() function converts given input to float
print('str(10) -> ',str(10)) # str() function converts given input to string
```

```
int(10.0) ->  10
float(10) ->  10.0
str(10) ->  10
```

10.Why does this expression cause an error? how can you fix it? 'I have eaten ' + 99 + 'burritos.'

Ans: This cause of error is 99.because 99 is not a string. 99 must be typecasted to a string to fix this error. the correct way is:

Input: 'I have eaten ' + str(99) + 'burritos.'

Output: 'I have eaten 99 burritos.'

In [13]:

```python
print('I have eaten '+str(99)+' burritos')
```

```
I have eaten 99 burritos
```

In [ ]:

```python

```

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