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

```
In [7]:   ##    list= ['hello', -87.8, -, / ,+, 6]
          ##    'hello'  is string so it is value
          ##    -87.8 is float data type so 87.8 is value and '-' is mathematical operator so thi
          ##    '/' is mathematical operator because it give 4/2 is 2.0( float type quotient ) .s
          ##     + is also an expression
          ##    6 is an integer. so it is a value'' '
```

What is the difference between string and variable?

```
In [8]:      # variable store information .values are stored in varibale memory block
          a=5           # here 5 is store in the memory block of variable " a"
             # while string is an information which is store in varible i.e string is constant
          str1= 'go with flow'    # str1 is variable and in single quote i.e string
```

3. Describe three different data types.

```
In [10]:  # integer type
          # those variables store integer value are called intger data type
          i = 78        # 78 is integer and store in 'i'
          print(type(i),i)


          # float type
          # those variables store real value and decimal are called float data type
          f = 78.5
          print(type(f),f)


          # boolean type
          # in boolean data type ,data is stored in a form of True and False ,i.e 1 and 0 respec
          a = 5>3
          print(type(a),a )
```

```
<class 'int'> 78
<class 'float'> 78.5
<class 'bool'> True
```

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

In [11]:
```python
# exressions are made up with the combinations of operators and operands. Expression e
a= 5
b=7
c= a+b # a and b are operands and "+" is operator.a+b is an expression to give some va
print('the sum is :', c)
```

```
the sum is : 12
```

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

In [17]:
```python
# a statement is an complete line of code that perform some action while expression is
a= 5+8 #  full line is an statement and 5+8 is an  expression
print(a)# print the value is also a statement
spam = 10 # this is an assignment statement
if ( a==13):# this is and control flow statement
    print('true')
```

```
13
true
```

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

bacon = 22

bacon + 1

In [22]:
```python
bacon = 22
bacon + 1      # bacon variable store 22 and after increment +1 i.e 23
```

Out[22]:
23

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

'spam' + 'spamspam'

'spam' * 3

```
In [23]:  a = 'spam' + 'spamspam'      # concatenation of two string
          print(a)
          b='spam'*3                   # three times same string repeat
          print(b)
```

```
spamspamspam
spamspamspam
```

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

```
In [26]:  # because varible name should start with alphabet that's why 100 is invalid
          egg='non veg'
          print(egg)
```

```
non veg
```

```
In [27]:  100 ='number'
```

```
  Input In [27]
    100 ='number'
       ^
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?

```
In [48]:  # int is used for integer data type
          # float is used for floating data type
          # str is used for string data type

          x =int(input('enter the number'))
          print(type(x),x)
          y = float(input('enter value'))
          print(type(y),y)
          z = input(" enter anything")              # input() always take value as a string
          print(type(z))                            # to convert any data type into string we use
          a = 56
          b= str(a)
          print(type(b),b)
```

```
enter the number 5
<class 'int'> 5
enter value 56.6
<class 'float'> 56.6
 enter anything grtrt
<class 'str'>
<class 'str'> 56
```

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

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

In [51]: `'I have eaten ' + 99 + ' burritos.'  # single quote doesn't  print under other single`

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Input In [51], in <cell line: 1>()
----> 1 'I have eaten ' + 99 + ' burritos.'

TypeError: can only concatenate str (not "int") to str
```

In [50]: `'''I have eaten ' + 99 + ' burritos.''' # write single quote under triple quote`

Out[50]: `"I have eaten ' + 99 + ' burritos."`