Global Variable Vs Local Variable

In [1]:

```
a=10
print(a)
```

```
10
```

In [3]:

```
a = 10  #-- globla variable

def something():

    b = 15 #local variable
    print('in function',b)
    print('out function',a)
```

In [4]:

```
a = 10

def something():
    b = 15
    print('in function',b)

print('out function',a)
```

```
out function 10
```

In [5]:

```
a = 10

def something():
    a = 15

print('in function',a)

print('out function',a)
```

```
in function 10
out function 10
```

In [6]:

```
a = 10

def something():
    b = 15
    print('in function',b)  # local variable

something()

print('out function', a) #gloabl variable

# 1st preference is always local variable
```

```
in function 15
out function 10
```

In [7]:

```
a = 10
```

```
def something():

    print('in function',a)

something()

print('out function',a)
```

```
in function 10
out function 10
```

In [8]:

```
a = 10
b = 25

def something():
    b= 15
    #if we remove this variable then can befault it consider as global variable
    print('in function',b)

something()
print('out function',a)
```

```
in function 15
out function 10
```

In [9]:

```
a = 10

def something():
    global a
    b = 15 # 15 is converted to local when user assigned global a
    print('in function',b)
    print('gloabl variable', a)

something()

print('out function',a)
```

```
in function 15
gloabl variable 10
out function 10
```

In [10]:

```
import keyword
keyword.kwlist
```

Out[10]:

```
['False',
 'None',
 'True',
 'and',
 'as',
 'assert',
 'async',
 'await',
 'break',
 'class',
 'continue',
 'def',
 'del',
 'elif',
 'else',
 'except',
 'finally',
 'for',
 'from',
 'global',
 'if',
 'import',
 'in',
 'is',
 'lambda',
 'nonlocal',
 'not',
 'or',
 'pass',
 'raise',
 'return',
 'try',
 'while',
 'with',
 'yield']
```

In [11]:

```
x = 10  # Global variable

def update_x():
    global x  # Declare that we are using the global variable x
    x += 10    # Modify the global variable

update_x()
print(x)  # Output: 15
```

```
20
```

In [12]:

```
x = 10  # Global variable

def update_x():
    globals()['x'] += 20  # Access and modify the global variable using the diction

update_x()
print(x)  # Output: 15
```

```
30
```

How to pass list to Function

In [13]:

```
def count(lst):

    even = 0
    odd = 0

    for i in lst:
        if i%2 == 0:
            even += 1
        else:
            odd +=1
    return even,odd

lst = [10, 9, 8, 23, 50, 8, 9, 100 ]
even, odd = count(lst)

print(even)
print(odd)
```

```
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```

In [14]:

```
def count(lst):

    even = 0
    odd = 0

    for i in lst:
        if i%2 == 0:
            even += 1
        else:
            odd +=1
    return even,odd

lst = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10,11,12,13]
even,odd = count(lst)

print("Even Number: {} and odd Number : {}".format(even,odd))
#format is function belongs to string & bydefault you need to pass any parameter
```

```
Even Number: 6 and odd Number : 7
```

In [15]:

```
def wish():
    print('hello')
    print('hi')
wish()
```

```
hello
hi
```

In [16]:

```
def wish():
    print('hello')
    print('hi')
    wish()
wish()
```

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---------------------------------------------------------------------------
RecursionError                            Traceback (most recent call last)
Cell In[16], line 6
      3     print('hi')
      4     wish()
----> 6 wish()

Cell In[16], line 4, in wish()
      2 print('hello')
      3 print('hi')
----> 4 wish()

Cell In[16], line 4, in wish()
      2 print('hello')
      3 print('hi')
----> 4 wish()

    [... skipping similar frames: wish at line 4 (2970 times)]

Cell In[16], line 4, in wish()
      2 print('hello')
      3 print('hi')
----> 4 wish()

Cell In[16], line 2, in wish()
      1 def wish():
----> 2     print(       )
      3     print('hi')
      4     wish()

File ~\AppData\Roaming\Python\Python313\site-packages\IPython\core\interactiveshell.
py:3056, in InteractiveShell._tee.<locals>.write(data, *args, **kwargs)
   3054 if not data:
   3055     return result
-> 3056 execution_count = self.execution_count
   3057 output_stream = None
   3058 outputs_by_counter = self.history_manager.outputs

File ~\AppData\Roaming\Python\Python313\site-packages\traitlets\traitlets.py:687, in
TraitType.__get__(self, obj, cls)
    685     return self
    686 else:
--> 687     return t.cast(G, self.get(obj, cls))

File ~\AppData\Roaming\Python\Python313\site-packages\traitlets\traitlets.py:666, in
TraitType.get(self, obj, cls)
    664     raise TraitError("Unexpected error in TraitType: default value not set p
roperly") from e
    665 else:
--> 666     return t.cast(G, value)

RecursionError: maximum recursion depth exceeded
```

In [17]:

```
import sys
sys.getrecursionlimit()
```

Out[17]:

```
3000
```

In [18]:

```
import sys
sys.setrecursionlimit(200)
print(sys.getrecursionlimit())
```

```
200
```

In [22]:

```
import sys
sys.setrecursionlimit(150)
print(sys.getrecursionlimit())
i = 0
def wish():

     global i
     i += 1
     print('hello', i)
     wish()
wish()
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---------------------------------------------------------------------------
RecursionError                            Traceback (most recent call last)
Cell In[22], line 11
      9     print('hello', i)
     10     wish()
---> 11 wish()

Cell In[22], line 10, in wish()
      8 i += 1
      9 print('hello', i)
---> 10 wish()

Cell In[22], line 10, in wish()
      8 i += 1
      9 print('hello', i)
---> 10 wish()

    [... skipping similar frames: wish at line 10 (120 times)]

Cell In[22], line 10, in wish()
      8 i += 1
      9 print('hello', i)
---> 10 wish()

Cell In[22], line 9, in wish()
      7 global i
      8 i += 1
----> 9 print(       , i)
     10 wish()

File ~\AppData\Roaming\Python\Python313\site-packages\IPython\core\interactiveshell.
py:3056, in InteractiveShell._tee.<locals>.write(data, *args, **kwargs)
   3054 if not data:
   3055     return result
-> 3056 execution_count = self.execution_count
   3057 output_stream = None
   3058 outputs_by_counter = self.history_manager.outputs

File ~\AppData\Roaming\Python\Python313\site-packages\traitlets\traitlets.py:687, in
TraitType.__get__(self, obj, cls)
    685     return self
    686 else:
--> 687     return t.cast(G, self.get(obj, cls))

File ~\AppData\Roaming\Python\Python313\site-packages\traitlets\traitlets.py:666, in
TraitType.get(self, obj, cls)
    664     raise TraitError("Unexpected error in TraitType: default value not set p
roperly") from e
    665 else:
--> 666     return t.cast(G, value)

RecursionError: maximum recursion depth exceeded
```

Factorial using Recursion

In [24]:

```
def fact(n):
     if n == 0:
        return 1
     return n * fact(n-1)
result = fact(5)
result
```

Out[24]:

```
120
```