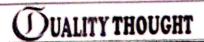## Python (Global Variables and Local Variables)

```python
# Global Variables and Local Variables

# Global variable `init`

init = 1

# Define `plus()` function to accept a variable number of arguments

def plus(*args):

# Local variable `sum()`

total = 0

print("Checking the global variable INIT : " + str(init))

for i in args:

total += i

return total


# Access the global variable

print("this is the initialized value " + str(init))


# (Try to) access the local variable

print("this is the sum " + str(total))

plus(10,20,30,40,50)
```

Anonymous Functions

```python
fromfunctools import reduce

my_list = [1,2,3,4,5,6,7,8,9,10]


# Use lambda function with `filter()`

filtered_list = list(filter(lambda x: (x*2 > 10), my_list))
```

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```python
# Use lambda function with `map()`

mapped_list = list(map(lambda x: x*2, my_list))


# Use lambda function with `reduce()`

reduced_list = reduce(lambda x, y: x+y, my_list)


print(filtered_list)

print(mapped_list)

print(reduced_list)
```

Calculating the Arithmatic Mean of the Values

```python
defarithmetic_mean(first, *values):
    """ This function calculates the arithmetic mean of a non-empty
arbitrary number of numerical values"""
    return (first + sum(values)) / (1 + len(values))

print(arithmetic_mean(45,32,89,78))

print(arithmetic_mean(8989.8,78787.78,3453,78778.73))

print(arithmetic_mean(45,32))

print(arithmetic_mean(45))
```

Function Calling another Function

```python
'''User input supplies function parameter'''

defhappyBirthday(person):
print("Happy Birthday to you!")
print("Happy Birthday to you!")
```

```
print("Happy Birthday, dear "+person+".")
print("Happy Birthday to you!")

def main():
userName=input("Enter the Birthday person's name: ")
happyBirthday(userName)

main()
```

```
'''Display any number of sum problems with a function.
Handle keyboard input separately
'''

def sumProblem(x, y):
sum= x + y
sentence='The sum of {} and {} is {}.'.format(x, y, sum)
print(sentence)

def main():
sumProblem(2, 3)
sumProblem(1234567890123, 535790269358)
    a =int(input("Enter an integer: "))
    b =int(input("Enter another integer: "))
sumProblem(a, b)

main()
```

Global Constants

```
'''Illustrate a global constant being used inside functions.'''

PI=3.14159265358979# global constant -- only place the value of PI is set

def circleArea(radius):
return PI*radius*radius# use value of global constant PI

def circleCircumference(radius):
return 2*PI*radius# use value of global constant PI

def main():
print('circle area with radius 5:',circleArea(5))
print('circumference with radius 5:',circleCircumference(5))

main()
```

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