In [56]:
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# SYMON KIMITEI
# Sigma notation and Python looping structures
# Question: Find Sigma(i+10, i=1 to i=4)
# Note: range(1,5) yields the numbers 1, 2, 3, 4
# Goal: Find the sum of (1+10)+(2+10)+(3+10)+(4+10)
#=================================================
# 1st Solution: Apply the for looping structure

sum_i = 0
for i in range (1,5):
    sum_i = sum_i + (i+10)

print ("(1+10)+(2+10)+(3+10)+(4+10)=",sum_i)
```

```
(1+10)+(2+10)+(3+10)+(4+10)= 50
```

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In [57]:
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# Question: Find Sigma(i+10, i=1 to i=4)
# Goal: Find the sum of (1+10)+(2+10)+(3+10)+(4+10)
#=================================================
# 2nd Solution: Apply the while looping structure

i = 1
sum_i=0
while i <=4:
    sum_i = sum_i + (i+10)
    i = i +1
print ("(1+10)+(2+10)+(3+10)+(4+10)=",sum_i)
```

```
(1+10)+(2+10)+(3+10)+(4+10)= 50
```

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In [58]:
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# Question: Find Sigma(i+10, i=1 to i=4)
# Goal: Find the sum of (1+10)+(2+10)+(3+10)+(4+10)
#================================================
# 3rd Solution:Apply the Python summation function.
# This method is tedious but simpler.

numbers = [(1+10),(2+10),(3+10),(4+10)]
print ("(1+10)+(2+10)+(3+10)+(4+10)=",sum(numbers))
```

```
(1+10)+(2+10)+(3+10)+(4+10)= 50
```

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In [59]:
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# Apply the summation formula
# Question: Find Sigma(i+10, i=1 to i=4)
# Goal: Find the sum of (1+10)+(2+10)+(3+10)+(4+10)
#================================================
# 4th Solution: Create a function that uses the summation formulas

def Sigma (n):
    return (n*(n+1)/2) + 10 *n

print ("(1+10)+(2+10)+(3+10)+(4+10)=",Sigma(4))
```

```
(1+10)+(2+10)+(3+10)+(4+10)= 50.0
```

In [ ]: