Task 4 - Numerical Data Types

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Librabies

In [1]:
```
import math
```

Question 1

Compulsory Task 1

Follow these steps:

- Create a new Python file in this folder called **numbers.py**.
- Ask the user to enter three different integers
- Then print out:
    - The sum of all the numbers
    - The first number minus the second number
    - The third number multiplied by the first number
    - The sum of all three numbers divided by the third number

Solution 1

In [135]:
```
numbers = [] #Varibale numbers is a list data types which are storing three digit integers
#For loop for taking input of three different integers
#input are number 1 = 20, number 2 = 75, and number 3 = 35
for i in range(3):
    user_number = int(input("Enter your number: "))
    numbers.append(user_number)

#The sum of all the numbers
summation = sum(numbers)

#The sum of all the numbers
subtraction = numbers[0]-numbers[1]

#The Third number multiplied by the first number
multiplication = numbers[2]*numbers[1]

#The sum of all three numbers divided by the third number
division = summation/numbers[2]

print("\nThree different integers list:", numbers,"\n")
print("\n1. The Sum of all the numbers: ",summation)
print("\n2. The first number minus the second numbers: ",subtraction)
print("\n3. The Third number multiplied by the first number: ",multiplication)
print("\n3. The Third number multiplied by the first number: ",(round(division,2)))
```

```
Enter your number: 20
Enter your number: 75
Enter your number: 35

Three different integers list: [20, 75, 35]


1. The Sum of all the numbers:  130

2. The first number minus the second numbers:  -55

3. The Third number multiplied by the first number:  2625

3. The Third number multiplied by the first number:  3.71
```

In [130]:
```
#Three different integers are stored into num1, num2 and num3 variables
#num1 = 10, num2 = 20, num3 = 30
num1, num2, num3 = 10,20,30
#The sum of all the numbers
summation = num1+num2+num3
#The sum of all the numbers
subtraction = num1-num2
#The Third number multiplied by the first number
multiply = num3*num1
#The sum of all three numbers divided by the third number
division = summation/num3

print(f"number1: {num1}, number2: {num2}, and number3: {num3}\n")
print("\n1. The Sum of all the numbers: ",summation)
print("\n2. The first number minus the second numbers: ",subtraction)
print("\n3. The Third number multiplied by the first number: ",multiply)
print("\n3. The Third number multiplied by the first number: ",division)
```

```
number1: 10, number2: 20, and number3: 30


1. The Sum of all the numbers:  60

2. The first number minus the second numbers:  -10

3. The Third number multiplied by the first number:  600

3. The Third number multiplied by the first number:  2.0
```

Question 2

Compulsory Task 2

Follow these steps:

- Create a new Python file in this folder called **shopping.py**.
- Once this is done, ask the user to enter the names of three products
- Now ask for the price of each product. Each product must have two decimal values.
- Calculate the total of all three products.
- Calculate the average price of the three products. *(Hint: you may want to look up round())*
- Then print out the following sentence after performing your calculations:
  - "The Total of [product1], [product2], [product3] is Rxx,xx and the average price of the items is Rxx,xx."

Solution 1

In [126]:
```
#input string value and save in variable product1
#product1 = "Shirt"
product1 =input("Enter first product name: ")

# a = 24.99
#float() built-in function types for product one price
a =float(input("Enter price of first product £: "))

#input string value and save in variable product2
#product2 = "Shoes"
product2 =input("\nEnter second product name: ")

#float() built-in function types for product two price
#b = 119.99
b =float(input("Enter price of second product £: "))

#input string value and save in variable product3
#product3 = "Jacket"
product3 =input("\nEnter third product name: ")

#float() built-in function types for product three price
#c = 84.99
c =float(input("Enter price of your third product £: "))

#feeding a,b,c float value in defining function()
def shopping(a,b,c):
    a,b,c = a,b,c
    return a,b,c
result = shopping (a,b,c)

#change into data type to list
product = [result]

#storing value to value from silicing method
price1 = product[0][0]
price2 = product[0][1]
price3 = product[0][2]

#sum of all price
total = price1+price2+price3

#average of price
#using tupple cuz of immutable properties
average = (price1+price2+price3)/3

print("\nTotal of all three products:", round(total,2),)
print("Average price of three products:", round(average, 2),)
print(f"\n {product1} : £{price1}")
print(f" {product2} : £{price2}")
print(f" {product3} : £{price3}")
#Using f-string to representing values
print(f"\nThe Total of {product1}, {product2}, {product3} is {round(total,2)} and the average price of the items is {round(average,2)}")
```

```
Enter first product name: Shirt
Enter price of first product £: 24.99

Enter second product name: Shoes
Enter price of second product £: 119.99

Enter third product name: Jacket
Enter price of your third product £: 84.99

Total of all three products: 229.97
Average price of three products: 76.66

 Shirt : £24.99
 Shoes : £119.99
 Jacket : £84.99

The Total of Shirt, Shoes, Jacket is 229.97 and the average price of the items is 76.66
```

In [127]:
```
#List to store product name
product_name  = []
#List to store product price
product_price = []

#using foor loop to call input function 3 times
#for iterate in range (start, end, step):
for i in range(3):
    #input in string for product name
    #product1 = Coat, product2 = Pant, Product3 = Belt
    product =input("\nEnter product name: ")
    #input in float for product price
    #price1 = 55.50, price2 = 44.99, price3 = 20.89
    price = float(input("Enter price of your product: £ "))

    #Storing input() value in product_name
    product_name.append(product)

    #Storing input() value in product price
    product_price.append(price)

#Storing value in different vaibale or segregation of price
price1 = product_price[0] #slicing for price2
price2 = product_price[1] #slicing for price2
price3 = product_price[2] #slicing for price3

product1 = product_name[0] #slicing for product name 1
product2 = product_name[1] #slicing for product name 1
product3 = product_name[2] #slicing for product name 1
```

```
total = sum(product_price)
average = (sum(product_price)/len(product_price))
print(f"\nAverage price of three products:{round(sum(product_price),2)}") #Math function sum() for caculating total of all value
print(f"Average price of three products: {round((sum(product_price)/len(product_price)),2)}") #Forging formula for mean vlaue

print(f"\n {product1} : £{price1}")
print(f" {product2} : £{price2}")
print(f" {product3} : £{price3}")

#Using f-string to representing values
print(f"\nThe Total of {product1}, {product2}, {product3} is {round(total,2)} and the average price of the items is {round(average,2)}")
```

```
Enter product name: Coat
Enter price of your product: £ 55.50

Enter product name: Pant
Enter price of your product: £ 44.99

Enter product name: Belt
Enter price of your product: £ 20.89

Average price of three products:121.38
Average price of three products: 40.46

 Coat : £55.5
 Pant : £44.99
 Belt : £20.89

The Total of Coat, Pant, Belt is 229.97 and the average price of the items is 76.66
```

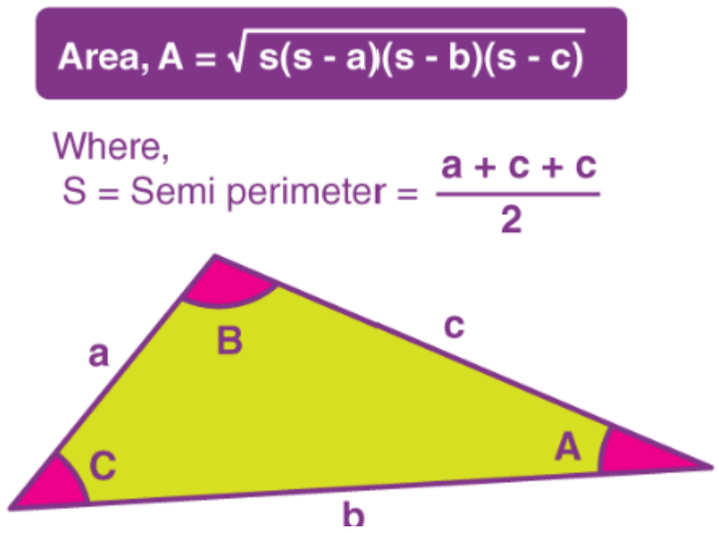
Bonus Task

Optional Bonus Task

Follow these steps:

- Create a new Python file in this folder called **optional_task.py**.
- Ask the user to enter the lengths of all three sides of a triangle.
- Calculate the area of the triangle.
- Print out the area.
- *Hint: If side1, side2 and side3 are the sides of the triangle:*
  - *s = (side1 + side2 + side3)/2 and*
  - *area = √(s(s-a)*(s-b)*(s-c))*

imp



In [153]:
```
import math
```

In [182]:
```
side1 = 20
side2 = 15
side3 = 20
```

In [185]:
```
s = ((side1+side2+side3)/2)
print(s)
```

```
27.5
```

In [187]:
```
area = math.sqrt(s*(s-a)*(s-b)*(s-c))
print(area)
```

```
605.8243872216603
```

In [188]:
```
def triangle(side1, side2, side3):
    s = ((side1+side2+side3)/2)
    area = math.sqrt(s*(s-a)*(s-b)*(s-c))
    return s, area

triangle(side1, side2, side3)
```

Out[188]:
```
(27.5, 605.8243872216603)
```

In [ ]:
```
import math
side1 = 20
side2 = 15
side3 = 20
s = ((side1+side2+side3)/2)
print(s)
area = math.sqrt(s*(s-a)*(s-b)*(s-c))
print(area)

def triangle(side1, side2, side3):
    s = ((side1+side2+side3)/2)
    area = math.sqrt(s*(s-a)*(s-b)*(s-c))
    return s, area

triangle(side1, side2, side3)
```