In [ ]:

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```
#  Find  outputs  (Home  work)
x = 25
y = F'{x}'
print(y) # 25
print(type(y)) # <class 'str'>
x = 10.8
y = F'{x}'
print(y) # 10.8
print(type(y)) # <class 'str'>
x = [10,20,30,40]
y = F'{x}'
print(y) # [ 10 20 30 40 ]
print(type(y)) # <class 'str list'>



#Find  outputs  (Home  work)
a ,  b , c = 25 , 10.8 , 'Hyd'
print(F'{a}  \t  {b}  \t  {c}') # 25                10.8                Hyd
print(F'a = {a}  \t  b  =  {b}  \t  c  =  {c}') # a = 25        b = 10.8
print(F'{a=}  \t  {b=}  \t  {c=}') # a = 25        b = 10.8        c = Hyd
print(F'{a:}  \t  {b:}  \t  {c:}') # error
print('a  =  {a}  \t  b  =  {b}  \t  c  =  {c}') # a  =  {a}                b
print(F'a  =  a  \t  b  =  b  \t  c  =  c') # a  =  a                b  =  b
print(F'{x =}  \t  {y =}  \t  {z =}') # error



#  Find  outputs  (Home  work)
x = 25
print(F'{x}')  #  25
print(F'{{x}}')  #  {x}
print(F'{{{x}}}')  #  {25}
print(F'{{{{x}}}}') # {{x}}
print(F'{{{{{x}}}}}') # {{25}}
print(F'{{{{{{x}}}}}}') # {{{x}}}
print(F'{{{{{{{x}}}}}}}') # {{{25}}}
print(F'{{{{{{{{x}}}}}}}}') # {{{{x}}}}



'''
1) What  is  printed  when  'x'  is  in  even  number  of  braces ?  --->  'x'

2) What  is  printed  when  'x'  is  in  odd  number  of  braces ?  --->  Valu

3) How  many  braces  are  printed  in  the  output ?  --->  Number  of  brace
```

```
'''
```

''' Write a program to determine sum , difference , product , quotient , largest and smallest of two numbers. Also find remainder, sqrt of first input , power, gcd and factorial of first input

Hint: Use F string to print results

Let inputs be 10 and 7, What is the sum ? ---> 17 What is the difference ? ---> 3 What is the product ? ---> 70 What is the quotient ? ---> 1.42 What is the remainder ? ---> 3 What is the largest number ? ---> 10 What is the smallest number ? ---> 7 What is the sqrt of 1st input ? ---> 3.16 What is the result of power? ---> 10000000 What is the gcd of 2 numbers ? ---> 1 What is the factorial of 1st input ? ---> 10! '''

In [ ]:
```
from math import *
a = int(input("Enter 1st integer number : "))
b = int(input("Enter 2nd integer number : "))
result = a + b
print(f'{a} + {b} = {result}')
result = a - b
print(f'{a} - {b} = {result}')
result = a * b
print(f'{a} * {b} = {result}')
result = a / b
print(f'{a} / {b} = {result}')
result = a % b
print(f'{a} % {b} = {result}')
result = max(a,b)
print(f'max({a},{b}) = {result}')
result = min(a,b)
print(f'min({a},{b}) = {result}')
result = a ** b
print(f'{a} ^ {b} = {result}')
result = sqrt(a)
print(f'sqrt({a}) = {result}')
result = gcd(a,b)
print(f'gcd({a},{b}) = {result}')
result = factorial(a)
print(f'fact({a}) = {result}')
```

''' Write a program to swap values of any two objects in a single statement without using 3rd object

Let 'x' be 25 and 'y' be 'Hyd' What are 'x' and 'y' after swap ? ---> Hyd and 25

Hint: Swap references but not objects '''

In [ ]:
```
x = eval(input("Enter a message : "))
```

```
y = eval(input("Enter a message : "))
x,y = y,x
print(x)
print(y)
```

''' Write a program to determine largest of three inputs without using max() function

1. What is the output if inputs are 10 , 20 and 15 ? ---> 20
2. What is the output if inputs are 35.8 , 42.8 and 27.9 ? ---> 42.8
3. What is the output if inputs are 'RAMA' , 'RAKESH' and 'RAJESH' ? ---> 'RAMA'
4. What is the output if inputs are [10 , 20 , 15 , 18] , [10 , 20 , 32, 19] and [10 , 20 , 25, 17] ? ---> [10 , 20 , 32 , 19]
5. Inputs can be integers , floats , strings and so on
6. Use nested ternary operator '''

In [ ]:
```
try:
     a = eval(input("Enter operand 1 : "))
     b = eval(input("Enter operand 2 : "))
     c = eval(input("Enter operand 3 : "))
     result = a if a>b else b if b>c else c
     print('largest input : ' , result)
except:
    print('string should be within quotes')
```

```
largest value  20
```

''' Write a program to print '>' if 1st input > 2nd input, '<' if 1st input < 2nd input and '=' if inputs are same

1. What is the result if inputs are 10 and 20 ? ---> <
2. What is the result if inputs are 70 and 60 ? ---> >
3. What is the result if inputs are 25 and 25 ? ---> =
4. Inputs can be integers , floats , strings and so on
5. Use ternary operator '''

In [2]:
```
a = eval(input("Enter 1st input : "))
b = eval(input("Enter 2nd input : "))
res = '>' if a > b else ('<' if a < b else '=' )
```

```
print('Result : ', res)
```

```
Result :  <
```

''' Write a program to print 1 if input is +ve , -1 if input is -ve and 0 if input is 0

1. What is the result if input is -25 ? ---> -1
2. What is the result if input is 75 ? ---> 1
3. What is the result if input is 0 ? ---> 0
4. Use nested ternary operator '''

In [11]:
```
a = int(input("Enter any number : "))
res = '1' if a > 0 else ('-1' if a < 0 else '0')
print('Result : ', res)
```

```
Result :  0
```

''' Write a program to test input is even number or odd number

1. What is an even number ? ---> Divisible by 2
2. What is an odd number ? ---> Not divisible by 2
3. Use ternary operator '''

In [18]:
```
a = int(input("Enter any +ve integer : "))
res = 'Even number' if a % 2 == 0 else 'Odd number'
print (res)
```

```
Odd number
```

''' (Home work) Write a program to determine area and perimeter of rectangle

1. What are the inputs ? ---> length and breadth
2. What are the outputs ? ---> area and perimeter
3. What is the area of rectangle ? ---> length * breadth
4. What is the perimeter of rectangle ? ---> 2 * (length + breadth) '''

In [27]:
```
a = float(input("Enter length : "))
b = float(input("Enter breadth : "))
area = a * b
perimeter = 2 * ( a + b )
print('Area : ' , area )
print('Perimeter : ', perimeter)
```

```
Area :  30.0
Perimeter :  22.0
```

''' (Home work) Write a program to determine volume of a sphere

1. What is the input ? ---> radius
2. What is the output ? ---> volume
3. What is the volume of sphere ? ---> 4 / 3 * pi * r ^ 3 '''

In [29]:
```
rad = float(input("Enter radius of sphere : "))
vol = 4 / 3 * 3.14 * rad ** 3
print("Volume of the sphere : " , vol)
```

```
Volume of the sphere :  113.03999999999999
```

''' (Home work) Write a program to determine simple interest and compound interest

1. What are the inputs ? ---> principle , time and rate of interest
2. What are the outputs ? ---> Simple interest and compound interest
3. What is simple interest formula ? ---> ptr / 100
4. What is compound interest formula ? ---> p * (1 + r / 100) ^ t - p '''

In [34]:
```
PA = float(input("Enter Principle Amount : "))
Int = int(input("Enter Rate of Interest : "))
T = int(input("Time : "))
SA = (PA*T*Int) / 100
CI = PA * (1 + Int / 100 ) ** T - PA
print("Simple Interest : " , SA)
print("Compound Interest : " , CI)
```

```
Simple Interest :  60.0
Compound Interest :  60.0
```

''' (Home work) Write a program to swap values of two objects using 3rd object

Let x = 10 and y = 25 What are the values of x and y after swap ? ---> x = 25 and y = 10 '''

In [36]:
```
x = int(input("Enter a number : "))
y = int(input("Enter another number : "))
Temp = x
x = y
y = Temp
print(x)
print(y)
```

```
2
1
```

''' (Home work) Write a program to swap values of two objects without using 3rd object

Hint: One addition and two subtractions

x = 25 y = 10 '''

In [39]:
```
x = int(input("Enter a number : "))
y = int(input("Enter another number : "))
x = x + y
y = x - y
x = x - y
print(x)
print(y)
```

```
10
25
```

''' (Home work) Write a program to swap values of two objects without using 3rd object

Hint: One multiplication and two divisions

x = -200 y = 100 '''

In [40]:
```
x = int(input("Enter a number : "))
y = int(input("Enter another number : "))
x = x * y
y = x / y
x = x / y
print(x)
print(y)
```

```
100.0
-200.0
```