

Name: Dheephiga A M

Temp ID: WDGET2024067

Task 3

In [15]:

```
"""
A class to calculate the area
and perimeter of a rectangle
"""
class Rectangle:
    def __init__(self,breadth,length):
        self.breadth = breadth
        self.length = length

    def area(self):
        return self.breadth*self.length

    def perimeter(self):
        return (2*(self.length+self.breadth))

rectangle1 = Rectangle(10,32)
print(f'The rectangle is of dimension {rectangle1.length}x{rectangle1.breadth}\nArea of the rectangle is {rectangle1.area()} units\nPerimeter of the rectangle is {rectangle1.perimeter()} units')
```

The rectangle is of dimension 32x10
Area of the rectangle is 320 units
Perimeter of the rectangle is 84 units

In [2]:

```
"""
Exception handling for
zero division error
"""
a = 9
b = 0

try:
    print(a/b)

except Exception as e:
    print(f'Error: {e}')
```

Error: division by zero

In [17]:

```
"""
Decorator function which
does sample functions before
executing a function
"""
import time
def Precursor(fn):
    def wrapper(*args,**kwargs):
        args_val = ','.join(str(arg) for arg in args)
        kwargs_val = ','.join(f'{k}: {v}' for k,v in kwargs.items())
        print(f'Function {fn.__name__} execution started at {time.time()}')
        print(f'Function has the args {args_val}')
        print(f'Function has the kwargs {kwargs_val}')
        print(f'Function {fn.__name__} execution ended at {time.time()}')
        return fn(*args,**kwargs)
    return wrapper
```

```
@Precursor
def Greet_User(name,city):
    print(f'Hey {name}, {city} this function is running under a decorator property!')

Greet_User('John', 'NY')
print('\nUsing keyword args\n')
Greet_User(name='Jane',city='Delhi')
```

Function Greet_User execution started at 1711817637.9702613
 Function has the args John,NY
 Function has the kwargs
 Function Greet_User execution ended at 1711817637.9702613
 Hey John, NY this function is running under a decorator property!

Using keyword args

Function Greet_User execution started at 1711817637.9712613
 Function has the args
 Function has the kwargs name: Jane, city: Delhi
 Function Greet_User execution ended at 1711817637.9712613
 Hey Jane, Delhi this function is running under a decorator property!

In [18]:

```
"""
Fibonacci Generator
"""
def fibonacci_generator(lower, upper):
    a, b = 0, 1
    while a <= upper:
        if a >= lower:
            yield a
        a, b = b, a + b

lower_limit = int(input("lower limit: "))
upper_limit = int(input("upper limit: "))
fibonacci_result = list(fibonacci_generator(lower_limit, upper_limit))
print(f'Fibonacci numbers between, {lower_limit} and {upper_limit} : {fibonacci_result}')
```

Fibonacci numbers between, 1 and 10 : [1, 1, 2, 3, 5, 8]

In [20]:

```
"""
Vowel Iterator
"""

class Vowels:
    def __init__(self, text):
        self.text = text
        self.index = 0

    def __iter__(self):
        return self

    def __next__(self):
        vowels = 'aeiou'
        while self.index < len(self.text):
            char = self.text[self.index]
            self.index += 1
            if char.lower() in vowels:
                return char
            raise StopIteration

text_to_iterate = "Hello, how are you?"
vowel_iterator = Vowels(text_to_iterate)

for vowel in vowel_iterator:
    print(vowel)
```

