Darshan UNIVERSITY

योगः कर्मसु कौशलम्

Python for Data Science - 2305CS303

Lab - 7

Roll No. : 111

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1. WAP to count simple interest using function.

In [1]:
```
def si(p, r, t):
    return (p * r * t) / 100

p = float(input("P: "))
r = float(input("R: "))
t = float(input("T: "))
print("SI:", si(p, r, t))
```

```
SI: 31509.54
```

2. Write a function to calculate BMI given mass and height. (BMI = mass/h**2)

In [2]:
```
def bmi(mass, height):
    return mass / (height ** 2)

m = float(input("Mass (kg): "))
h = float(input("Height (m): "))
print("BMI:", bmi(m, h))
```

```
BMI: 8.050557501106951e-05
```

3. WAP that defines a function to add first n numbers.

In [3]:
```
def add_n(n):
    return n * (n + 1) // 2
```

```
n = int(input("Enter n: "))
print("Sum:", add_n(n))
```

```
Sum: 253
```

4. WAP to find maximum number from given two numbers using function.

In [4]:
```
def max_num(a, b):
    return a if a > b else b

x = int(input("First: "))
y = int(input("Second: "))
print("Max:", max_num(x, y))
```

```
Max: 66
```

5. Write a function that returns True if the given string is Palindrome or False otherwise.

In [5]:
```
def is_palindrome(s):
    return s == s[::-1]

txt = input("Enter string: ")
print(is_palindrome(txt))
```

```
False
```

6. Write a function that returns the sum of all the elements of the list.

In [6]:
```
def sum_list(lst):
    return sum(lst)

nums = list(map(int, input("Enter numbers: ").split()))
print("Sum:", sum_list(nums))
```

```
Sum: 34
```

7. WAP that defines a function which returns 1 if the number is prime otherwise return 0.

In [7]:
```
def is_prime(n):
    if n < 2:
        return 0
    for i in range(2, int(n**0.5) + 1):
        if n % i == 0:
            return 0
    return 1

num = int(input("Enter number: "))
```

```
print(is_prime(num))
```

```
0
```

8. Write a function that returns the list of Prime numbers between given two numbers.

In [8]:
```
def prime_range(a, b):
    return [x for x in range(a, b+1) if is_prime(x)]

def is_prime(n):
    if n < 2:
        return 0
    for i in range(2, int(n**0.5) + 1):
        if n % i == 0:
            return 0
    return 1

start = int(input("Start: "))
end = int(input("End: "))
print("Primes:", prime_range(start, end))
```

```
Primes: [47, 53, 59, 61, 67, 71, 73]
```

9. WAP to generate Fibonacci series of N given number using function name fibbo. (e.g. 0 1 1 2 3 5 8...).

In [9]:
```
def fibbo(n):
    a, b = 0, 1
    for _ in range(n):
        print(a, end=' ')
        a, b = b, a + b

num = int(input("Enter N: "))
fibbo(num)
```

```
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181
```

10. WAP to find the factorial of a given number using recursion.

In [11]:
```
def fact(n):
    if n == 0 or n == 1:
        return 1
    return n * fact(n - 1)

num = int(input("Enter number: "))
print("Factorial:", fact(num))
```

```
Factorial: 1124000727777607680000
```

11. WAP to implement simple calculator using lamda function.

In [12]:
```
add = lambda a, b: a + b
sub = lambda a, b: a - b
mul = lambda a, b: a * b
div = lambda a, b: a / b if b != 0 else 'Error'

a = float(input("First: "))
b = float(input("Second: "))
op = input("Op (+ - * /): ")

calc = {'+': add, '-': sub, '*': mul, '/': div}
print("Result:", calc[op](a, b) if op in calc else "Invalid op")
```

```
Result: 11.0
```