Darshan UNIVERSITY

योग: कर्मसु कौशलम्

Python Programming - 2301CS404

Lab - 9

Roll No : 24010101034

Name : Prince S. Chandpa

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

In [4]:
```
def calculate_bmi(mass,height):
    return (mass/(height**2))

mass = int(input('Enter Mass: '))
height = int(input('Enter Height: '))

bmi = calculate_bmi(mass,height)

print(f'BMI = {bmi}')
```

```
BMI = 1.25
```

02) Write a function that add first n numbers.

In [6]:
```
def add_first_n(n):
    return int((n*(n+1))/2)

n = int(input('Enter N: '))

sum_of_n = add_first_n(n)

print(f'sum of first {n} numbers is : {sum_of_n}')
```

```
sum of first 10 numbers is : 55
```

03) Write a function that returns 1 if the given number is Prime or 0 otherwise.

In [11]:
```
def is_prime(n):
    if n <= 1:
        return 0
    for i in range(2, int(n**0.5) + 1):
        if n%i == 0:
            return 0
    return 1

n = int(input('Enter N: '))
print(f'{n} is {"not " if not is_prime(n) else ""}a Prime Number')
```

```
5 is a Prime Number
```

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

In [12]:
```
def prime_in_range(lower_range,upper_range):
    prime_list = []
    if upper_range < lower_range:
        upper_range,lower_range = lower_range,upper_range

    for i in range(lower_range,upper_range):
        if is_prime(i):
            prime_list.append(i)
    return prime_list

lower_range = int(input('Enter Lower Range: '))
upper_range = int(input('Enter Upper Range: '))
print(prime_in_range(lower_range,upper_range))
```

```
[11, 13, 17, 19]
```

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

In [15]:
```
def is_palindrome(s1):
    return s1 == s1[::-1]
s1 = input('Enter String: ')

is_palindrome(s1)
```

Out[15]: True

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

In [16]:
```
def sum_of_list(l):
    add = 0
    for i in l:
        add += i
    return add
l = [int(i) for i in input("Enter list: ").split()]
```

```
print(f'sum of list element : {sum_of_list(l)}')
```

```
sum of list element : 15
```

07) Write a function to calculate the sum of the first element of each tuples inside the list.

In [17]:
```
def sum_of_tuple_first(l):
    add = 0
    for t in l:
        add += t[0]
    return add

l = [
    (1,2,3),
    (4,5,6)
]

print(f'sum of tuple first element : {sum_of_tuple_first(l)}')
```

```
sum of tuple first element : 5
```

08) Write a recursive function to find nth term of Fibonacci Series.

In [54]:
```
def fibonacci(n,a = 0,b = 1, i = 1):
    if(n == i):
        return a
    return fibonacci(n, b, a+b, i+1)

n = int(input('Enter N: '))
fibonacci(n)
```

Out[54]: 5

09) Write a function to get the name of the student based on the given rollno.

Example: Given dict1 = {101:'Ajay', 102:'Rahul', 103:'Jay', 104:'Pooja'} find name of student whose rollno = 103

In [48]:
```
def name_by_rollno(rollno,dict1):
    return dict1[rollno]

dict1 = {101:'Ajay', 102:'Rahul', 103:'Jay', 104:'Pooja'}

rollno = int(input('Enter rollno: '))
name_by_rollno(rollno,dict1)
```

Out[48]: 'Jay'

10) Write a function to get the sum of the scores ending with zero.

Example : scores = [200, 456, 300, 100, 234, 678]

Ans = 200 + 300 + 100 = 600

In [55]:
```
def sum_of_scores(scores):
    add = 0
    for i in scores:
        if i%10 == 0:
            add += i
    return add

scores = [int(i) for i in input("Enter list: ").split()]

print(f'Ans = {sum_of_scores(scores)}')
```

```
Ans = 600
```

11) Write a function to invert a given Dictionary.

hint: keys to values & values to keys

Before : {'a': 10, 'b':20, 'c':30, 'd':40}

After : {10:'a', 20:'b', 30:'c', 40:'d'}

In [56]:
```
def reverse_key_value(d):
    return {value:key for key,value in d.items()}

d = {'a': 10, 'b':20, 'c':30, 'd':40}
reverse_dict = reverse_key_value(d)
print(reverse_dict)
```

```
{10: 'a', 20: 'b', 30: 'c', 40: 'd'}
```

12) Write a function that returns the number of uppercase and lowercase letters in the given string.

example : Input : s1 = AbcDEfgh ,Ouptput : no_upper = 3, no_lower = 5

In [57]:
```
def count_case(s):
    upper_count = 0
    lower_count = 0

    for i in s:
        if i.isupper():
            upper_count += 1
        elif i.islower():
            lower_count += 1
    return (upper_count,lower_count)

s = input('Enter String: ')

upper_count,lower_count = count_case(s)

print(f'no_upper = {upper_count}, no_lower = {lower_count}')
```

```
no_upper = 3, no_lower = 5
```

13) Write a lambda function to get smallest number from the given two numbers.

In [67]:
```
a = int(input('Enter a: '))
b = int(input('Enter b: '))

(lambda a,b : a if a<b else b )(a,b)
```

Out[67]: 10

14) For the given list of names of students, extract the names having more that 7 characters. Use filter().

In [70]:
```
names = [i for i in input("Enter list: ").split()]

print(list(filter(lambda name : len(name)>7 , names)))
```

```
['chandpaa']
```

15) For the given list of names of students, convert the first letter of all the names into uppercase. use map().

In [80]:
```
names = [i for i in input("Enter list: ").split()]
print(list(map(str.title, names)))
```

```
['Prince', 'Chandpa']
```

16) Write udfs to call the functions with following types of arguments:

1. Positional Arguments
2. Keyword Arguments
3. Default Arguments
4. Variable Legngth Positional(*args) & variable length Keyword Arguments (**kwargs)
5. Keyword-Only & Positional Only Arguments

In [88]:
```
def add(a,b):
    return a+b
print(add(10,30))

print(add(a=-1, b=40))

def power_of_b(a, b=2):
    return a**b
print(power_of_b(10))

def key_func(*args, **keyargs):
    print(args,keyargs)
key_func(1,2,3,a=2,b=4)

def divide(a,b,/):
    print(a/b)
```

```
divide(10,2)

def multiply(*,a,b):
    print(a*b)
multiply(a = 10, b = 2)
```

```
40
39
100
(1, 2, 3) {'a': 2, 'b': 4}
5.0
20
```