

Python Programming - 2301CS404

Lab - 8

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4B 448 8th batch

User Defined Function

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

```
In [3]: mass = int(input("Enter Mass: "))
h = int(input("Enter height: "))

def BMI(mass , h):
    return mass/h**2
BMI(mass , h )
```

Out[3]: 4.0

02) Write a function that add first n numbers.

```
In [13]: def add(n):
ans = 0
for i in range(0,n+1):
    ans = ans + i
return ans

n = int(input("Enter: n="))
add(n)
```

Out[13]: 10

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

```
In [28]: def is_prime(n):
for i in range(2,n):
    if n % i == 0:
        return 0
    return 1
n = int(input("Enter number: "))
is_prime(n)
```

Out[28]: 1

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

```
In [44]: def prime_range(start,last):
```

```

l1 = []
count=0
for n in range(start+1, end):
    count=0
    if n > 1:
        for i in range(1, n+1):
            if n % i == 0:
                count+=1
        if count==2:
            l1.append(n);
return l1

start = int(input("Enter starting number: "))
last = int(input("Enter last number: "))
print(prime_range(start, last))

```

[3, 5, 7]

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

```

In [52]: def is_palindrome(s):
        return s == s[::-1]

s = input("Enter a string: ")
print(is_palindrome(s))

```

True

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

```

In [58]: def sum_of_list(l1):
        return sum(l1)

l1 = list(map(int, input("Enter numbers separated by space: ").split()))
print(sum_of_list(l1))

```

55

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

```

In [74]: def sum_first_elements(l1):
        return sum(t[0] for t in l1)

l1 = [(1, 2), (1, 4), (4, 6), (2, 8)]
print(sum_first_elements(l1))

```

8

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

```

In [90]: def fibonacci(n):
        if n <= 1:
            return n
        else:
            return fibonacci(n-1) + fibonacci(n-2)

n = int(input("Enter the term number: "))
print(fibonacci(n))

```

3

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 [92]: def get_student_name(rollno):
        students = { 101:'Ajay', 102:'Rahul', 103:'Jay', 104:'Pooja'}
        return students.get(rollno, "Student not found")

rollno = int(input("Enter roll number: "))
print(get_student_name(rollno))

```

Rahul

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 [94]: def sum_of_scores(scores):
        return sum(score for score in scores if score % 10 == 0)

scores = [200, 456, 300, 100, 234, 678]
print(sum_of_scores(scores))
```

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 [100]: def invert_dict(d):
        return {v: k for k, v in d.items()}

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

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

12) Write a function to check whether the given string is Pangram or not.

hint: Pangram is a string containing all the characters a-z atleast once.

"the quick brown fox jumps over the lazy dog" is a Pangram string.

```
In [104]: def is_pangram(s):
        s = s.lower()
        alphabet = set('abcdefghijklmnopqrstuvwxyz')
        s = set(s)
        return alphabet.issubset(s)

string = "the quick brown fox jumps over the lazy dog"
if is_pangram(string):
    print("The string is a Pangram.")
else:
    print("The string is not a Pangram.")
```

The string is a Pangram.

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

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

```
In [106]: def count_upper_lower(s):
        no_upper = 0
        no_lower = 0

        for char in s:
            if char.isupper():
                no_upper += 1
            elif char.islower():
                no_lower += 1

        return no_upper, no_lower

s1 = "AbcDEfgh"
no_upper, no_lower = count_upper_lower(s1)
print(f"no_upper = {no_upper}, no_lower = {no_lower}")
```

no_upper = 3, no_lower = 5

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

```
In [102]: smallest = lambda a, b: a if a < b else b

n1 = int(input("Enter first number: "))
n2 = int(input("Enter second number: "))
print(smallest(n1, n2))
```

3

15) For the given list of names of students, extract the names having more that 7 characters.

Use filter().

```
In [114... students = ["Aryan", "Jay", "rahul", "prit", "rohan", "dhruvin", "alexzander"]
names = list(filter(lambda name: len(name) > 7, students))

print(names)

['alexzander']
```

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

```
In [ ]:
```

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

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

```
In [ ]:
```

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