Lab : Functions in python

1. Calculate simple interest.

```
def si(p,r,t):
        si = p+(p*r*t)/ 100
        return si

p = int(input("Enter the principal: "))
r = int(input("Enter the rate: "))
t = int(input("Enter the time period: "))
print(si(p,r,t))
```

Output:
Enter the principal: 100
Enter the rate: 2
Enter the time period: 4
108.0

2. Find the area of a triangle.

```
def find_area(base,hight):
        area = base*hight*.5
        return area
height = float(input("Enter the height: "))
base = float(input("Enter the base: "))
print(find_area(base,height) )
```

Output:
Enter the height: 34
Enter the base: 2
34.0

3. Calculate compound interest.

```
def com_interest(tmp, time , rate , principle):
        return principle*(1+(rate/time)**(time*tmp))

p = int(input("Enter the principle: "))
t = int(input("Enter the time period: "))
```

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```
r = int(input("Enter the rate of interest: "))
n = int(input("Enter the number of times: "))
print(com_interest(n,t,r,p))
```

Output:
Enter the principle: 100
Enter the time period: 2
Enter the rate of interest: 3
Enter the number of times: 2
606.25

4. Find the value of force when mass of a body and its acceleration is given.

```
def find_force(acc,mass):
    return acc*mass

a = int(input("Enter the acc: "))
m = int(input("Enter the mass: "))
print(find_force(a,m))
```

Output:
Enter the acc: 50
Enter the mass: 100
5000

5. Calculate the factorial of the given number

```
def fact(n):
    fact = 1;
    for i in range(1,n+1):
    fact *= i
    return fact

n = int(input("Enter a number: "))
print(fact(n))
```

Output:
Enter a number: 5
120

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6. Convert a temperature from Celsius to Fahrenheit.

```
def convert(c_tmp):
    return  (c_tmp*(9/5))+32

tmp = int(input("Enter the temp: "))
print(convert(tmp))
```

Output:
Enter the temp: 23
73.4

7. Convert a temperature from Fahrenheit to Celsius.

```
def convertF_C(a):
    return (a-32)*5/9

a = int(input("Enter a the temp in F: "))
print(convertF_C(a))
```

Output:
Enter a the temp in F: 34
1.1111111111111112

8. Compute the area of circle, when its diameter is given.

```
def area(d):
    r = d/2
    return 3.14*r**2
a = int(input("Enter the diameter of the circle: "))
print(area(a))
```

Output:
Enter the diameter of the circle: 3
7.065

9. Compute the area of a cylinder, when its height and diameter is given.

```
def area(h,d):
```

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```
        r = (d/2)
        return (2*3.14*r)*(h+r)
h = int(input("Enter the height: "))
d = int(input("Enter the diameter: "))
print(area(h,d))
```

Output:
Enter the height: 5
Enter the diameter: 3
61.23

10. Compute the volume of a cylinder, when its height and diameter is given.

```
def volume(h,d):
        return 3.14*((d/2)**2)*h
a = int(input("Enter the height: "))
b = int(input("Enter the diameter: "))
print(volume(a,b))
```

Output:
Enter the height: 32
Enter the diameter: 1
25.12

11. Compute the area of a rectangular prism, when its all sides are given.

```
def volume(l,b,h):
        return l*b*h
l = float(input("Enter the length: "))
b = float(input("Enter the breath: "))
h = float(input("Enter the height: "))
print(volume(l,b,h))
```

Output:
Enter the length: 2
Enter the breath: 3
Enter the height: 2
12.0

12. Compute the volume of a rectangular prism, when its all sides are given.

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A. Write a python function to print following shapes
(Hint: print one symbol at a time, don't print whole line in a single print statement)
B. Write a python function to print following shape

```
n = int(input("Enter the number: "))
for i in range(n*2+1):
        if(i%2 ==0):
        for j in range(n*2+1):
        if(j <  n*2):
                if(j%2 == 0):
                print("+", end="")
                else:
                print("----", end="")
        if(j == n*2):
                print("+")
        else:
        for j in range(4):
        for a in range(n*2+1):
                if(a <  n*2):
                if(a%2 == 0):
                print("|", end="")
                else:
                print("  ", end="")
                if(a == n*2):
                print("|")
```

Output:

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```
┌──(anzen@Silva)-[lab2%15F]
└─$ python 12.py
Enter the number: 2
+----+----+
|    |    |
|    |    |
|    |    |
|    |    |
+----+----+
|    |    |
|    |    |
|    |    |
|    |    |
+----+----+
```

D. Write a function named rightjustify that takes a string named s as a parameter and prints the string with enough leading spaces.

```
def rightjustify(s):
    length = len(s)
    for i in range(15-length):
    print(" ", end =")
    print(s)

s = input("Enter a sring: ")
t = s.split()
for i in t:
    rightjustify(i)
```

Output:

```
Enter a sring: Aman Singh Rawat
          Aman
          Singh
          Rawat
```

E. A function object is a value you can assign to a variable or pass as an argument.
1. Type this example into a script and test it.
2. Modify do_twice so that it takes two arguments, a function object and a value, and calls the function twice, passing the value as an argument.

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3. Write a more general version of print_sp, called print_2ice, which takes a string as a parameter and prints it twice.
4. Use the modified version of do_2ice to call print_2ice twice, passing 'spam' as an Argument.

```
def do_2ice(f,val):
        f(val)
        f(val)
def print_2ice(a):
        print (a)
s = input("Enter a input: ")
do_2ice(print_2ice,s)
```

Output:
Enter a input: spam
spam
spam

F. Write a function to print number 1 to 10 in ascending or descending order, based on user Choice.

```
def print_number(val):
        if(val == 'd'):
        print('duck')
        for i in range(10,0,-1):
        print(i)
        elif (val == 'a'):
        for j in range(1,11):
        print(j)
        else:
        print("Invalid input!!")

val = input("Enter 'a' or 'd': ")
print_number(val)
```

Output:
Enter 'a' or 'd': d
10
9
8

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```
7
6
5
4
3
2
1
```

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