Python Programming - 2101CS405

Lab - 1

01) WAP to print “Hello World”

```
print('Hello World')
```

```
Hello World
```

02) WAP to print your address i) using single print ii) using multiple print

```
print('1. Using Single Print\n')
print('Vrundavan-02,\nAnkur main road,\n150ft ring road, \nRajkot-360004 \n')

print('2. Using multiple Print\n')
print('vrundavan-02,')
print('Ankur Main Road,')
print('150ft ring road')
print('Rajkot-360004')
```

```
1. Using Single Print

Vrundavan-02,
Ankur main road,
150ft ring road,
Rajkot-360004

2. Using multiple Print

vrundavan-02,
Ankur Main Road,
150ft ring road
Rajkot-360004
```

03) WAP to print addition of 2 numbers (without input function)

```
a=5
b=15
print('Addition of two numbers:',a+b)
```

```
Addition of two numbers: 20
```

04) WAP to calculate and print average of 2 numbers (without input function)

```
a=5
b=10
print('Average of two numbers:',(a+b)/2)
```

```
Average of two numbers: 7.5
```

05) WAP to add two number entered by user.

```
num1=int(input('Enter 1st number:'))
num2=int(input('Enter 2nd number:'))
print('Addition of two numbers:',num1+num2)
```

```
Enter 1st number:2
Enter 2nd number:2
Addition of two numbers: 4
```

06) WAP to calculate simple interest.

```
p=int(input('Enter a Principle Amount:'))
i=int(input('Enter an intrest Percentage:'))
t=int(input('Entter a time periods in year:'))
print('Simple intrest of the given amount:',(p*i*t)/100)
```

```
Enter a Principle Amount:1000
Enter an intrest Percentage:2
Entter a time periods in year:1
Simple intrest of the given amount: 20.0
```

07) WAP Calculate Area and Circumfrence of Circle

```
radius=int(input('Enter radius of circle:'))
print(f"Area of circle having radius {radius} is",(3.14*radius*radius))
print(f"Circumference of circle having radius {radius} is",2*3.14*radius)
```

```
Enter radius of circle:3
Area of circle having radius 3 is 28.259999999999998
Circumference of circle having radius 3 is 18.84
```

08) WAP to print Multiplication table of given number without using loops.

```
n=int(input(" Enter a number for multiplication table="))
print(n, "*", 1, "=", n*1)
print(n, "*", 2, "=", n*2)
print(n, "*", 3, "=", n*3)
print(n, "*", 4, "=", n*4)
print(n, "*", 5, "=", n*5)
print(n, "*", 6, "=", n*6)
print(n, "*", 7, "=", n*7)
print(n, "*", 8, "=", n*8)
print(n, "*", 9, "=", n*9)
print(n, "*", 10, "=", n*10)
```

```
 Enter a number for multiplication table=12
12 * 1 = 12
12 * 2 = 24
12 * 3 = 36
12 * 4 = 48
12 * 5 = 60
12 * 6 = 72
12 * 7 = 84
12 * 8 = 96
12 * 9 = 108
12 * 10 = 120
```

09) WAP to calculate Area of Triangle (hint: a = h * b * 0.5)

```
print('Area of Triangle\n')
h=float(input('Enter a Height of triangle:'))
b=float(input('Enter a base of triangle:'))
print('Area of Triangle:',h*b*0.5)
```

```
Area of Triangle

Enter a Height of triangle:2
Enter a base of triangle:2
Area of Triangle: 2.0
```

10) WAP to convert degree to Fahrenheit and vice versa.

```
print('Convert temperature celcius to fahrenheit')
c=int(input('Enter temprature in celcius:'))
print(f"Converted temp. from {c} °C to fahrenheit =",(c*(9/5))+32,"F")
print('\nConvert temprature fahrenheit to celcius')
f1=int(input('Enter tempratue in fahrenheit:'))
print(f"Converted temprature from {f1} F to celcius =",(f1-32)*(5/9),"°C")
```

```
Convert temperature celcius to fahrenheit
Enter temprature in celcius:40
Converted temp. from 40 °C to fahrenheit = 104.0 F

Convert temprature fahrenheit to celcius
Enter tempratue in fahrenheit:104
Converted temprature from 104 F to celcius = 40.0 °C
```

11) WAP to calculate total marks and Percentage.

```
sub1=int(input('Enter subject-1 marks:'))
sub2=int(input('Enter subject-2 marks:'))
sub3=int(input('Enter subject-3 marks:'))
sub4=int(input('Enter subject-4 marks:'))
sub5=int(input('Enter subject-5 marks:'))
total=sub1+sub2+sub3+sub4+sub5
percentage=total*100/500
print('Total marks:',total)
print('percentage:',percentage,'%')
```

```
Enter subject-1 marks:80
Enter subject-2 marks:70
Enter subject-3 marks:5
Enter subject-4 marks:57
Enter subject-5 marks:56
Total marks: 268
percentage: 53.6 %
```

12) Compute distance between two points taking input from the user (Pythagorean Theorem).

```
x1 = int(input("Enter X1 Coordinate : "))
x2 = int(input("Enter X2 Coordinate : "))
y1 = int(input("Enter y1 Coordinate : "))
y2 = int(input("Enter y2 Coordinate : "))
dis = ((x1-x2)**2+(y1-y2)**2)**0.5
print(f"Distance between ({x1},{x2}) and ({y1},{y2}) is",dis)
```

```
Enter X1 Coordinate : 4
Enter X2 Coordinate : 2
Enter y1 Coordinate : 4
Enter y2 Coordinate : 2
Distance between (4,2) and (4,2) is 2.8284271247461903
```

13) WAP to convert seconds into hours, minutes & seconds and print in HH:MM:SS

[e.g. 10000 seconds mean 2:46:40 (2 Hours, 46 Minutes, 40Seconds)]

```
sec=int(input('Enter second='))
hour=sec//3600
min=(sec%3600)//60
second=(sec%3600)%60
print(f"Time={hour}:{min}:{second}")
```

```
Enter second=10000
Time=2:46:40
```

14) WAP to enter distance into kilometer and convert it into meter, feet,inches, and centimeter

```
distance=int(input("Enter Distance in kilometre,(km) ="))
metre=distance*1000
feet=distance*3281
inches=distance*39370
cm=distance*100000
print(f"Distance {distance}km converted into diffrent parametres\n\n{distance}km = {metre}
```

```
Enter Distance in kilometre,(km) =2
Distance 2km converted into diffrent parametres

2km = 2000m (Meter)
2km = 6562ft (Feet)
2km = 78740in (Inches)
2km = 200000cm (Centimetre)
```

Python Programming - 2101CS405

Lab - 2

if..else..

01) WAP to check whether the given number is positive or negative.

```
n=int(input('Enter an number='))
if(n<0):
    print(f"Number {n} is negative")

if(n>0):
    print(f"Number {n} is positive")
if(n==0):
    print("Number is zero (0)")
```

```
Enter an number=-10
Number -10 is negative
```

02) WAP to check whether the given number is odd or even

```
n=int(input("Enter a number="))
if(n%2==0):
  print("Number {n} is Even")
else:
  print(f"Number {n} is odd")
```

```
Enter a number=13
Number 13 is odd
```

03) WAP to find out largest number from given two numbers using simple if and ternary operator.

```
n1=int(input("Enter a 1st number="))
n2=int(input("Enter a 2nd Number"))
if(n1>n2):
  print(f"Out of two number {n1} is greater than {n2}")
else:
  print(f"Out of two number, {n2} is greater than {n1}")

print("\nusing ternary oprator")
print(f"Out of two number {n1} is greater than {n2}") if n1>n2 else  print(f"Out of two nu
```

```
Enter a 1st number=1
Enter a 2nd Number2
Out of two number, 2 is greater than 1

using ternary oprator
Out of two number, 2 is greater than 1
```

04) WAP to find out largest number from given three numbers.

```
n1=int(input("Enter a 1st number= "))
n2=int(input("Enter a 2nd number= "))
n3=int(input("Enter a 3rd number= "))
if(n1>n2):
  if(n1>n3):
    print(f"Out of three number n1={n1} is greater number..")
  else:
    print(f"Out of three {n3} is greater number.")
elif(n2>n1):
  if(n2>n3):
    print(f"Out of three number {n2} is greater number.")
  else:
    print(f"Out of three {n3} is greater number.")
else:
```

```
  print("All numbers are same.")
```

```
Enter a 1st number= 1
Enter a 2nd number= 1
Enter a 3rd number= 1
All numbers are same.
```

05) WAP to check whether the given year is leap year or not.

[If a year can be divisible by 4 but not divisible by 100 then it is leap year but if it is divisible by 400 then it is leap year]

```
year=int(input("Enter a year="))
if(year%100==0):
  if(year%400!=0):
    print(f"{year} year is not a leap year.")
  else:
    print(f"{year} is a leap year.")
else:
  if(year%4==0):
    print(f"{year} year is leap year.")
  else:
    print(f"{year} is not a leap year.")
```

```
Enter a year=2200
2200 year is not a leap year.
```

06) WAP in python to display the name of the day according to the number given by the user

```
print("Enter number according the list\n1. Sunday\n2. Monday\n3. Tuesday\n4. Wednesday\n5.
day=int(input("\nEnter number for day according to above instruction= "))
if(day==1):
  print("Sunday")
elif(day==2):
  print("Monday")
elif(day==3):
  print("Tuesday")
elif(day==4):
  print("Wednesday")
elif(day==5):
  print("Thursday")
elif(day==6):
  print("Friday")
elif(day==7):
  print("Saturday")
```

```
Enter number according the list
1. Sunday
2. Monday
3. Tuesday
4. Wednesday
5. Thursday
6. Friday
7. Saturday

Enter number for day according to above instruction+ 1
Sunday
```

07) WAP to implement simple calculator which performs (add,sub,mul,div) of two no. based on user input.

```
n1=int(input("Enter a 1st number= "))
n2=int(input("Enter 2nd number= "))
print("Enter operator you want to use:\n\nAddition for '+'\nSubstraction for '-'\nMultipli
op=input("\nENter an operator= ")
if(op=='+'):
  print(f"{n1} {op} {n2} = ",n1+n2)
elif(op=='-'):
  print(f"{n1} {op} {n2} = ",n1-n2)
elif(op=='*'):
  print(f"{n1} {op} {n2} = ",n1*n2)
elif(op=='/'):
  print(f"{n1} {op} {n2} = ",n1/n2)
else:
  print("Invalid inputs")
```

```
Enter a 1st number= 12
Enter 2nd number= 12
Enter operator you want to use:

Addition for '+'
Substraction for '-'
Multiplication for '*'
Division for '/'

ENter an operator= *
12 * 12 =  144
```

08) WAP to calculate electricity bill based on following criteria. Which takes the unit from the user.

a. First 1 to 50 units – Rs. 2.60/unit

b. Next 50 to 100 units – Rs. 3.25/unit

c. Next 100 to 200 units – Rs. 5.26/unit

d. above 200 units – Rs. 8.45/unit

```
units=int(input("Enter your electricity units= "))
bill=0
if(units>=1 and units<50):
  bill=round((units*2.60),2)
  print("your electricity bill for {unit} is",bill,"Rs.")
elif(units>=50 and units<100):
  bill=round((units*3.25),2)
  print("your electricity bill for {unit} is",bill,"Rs.")
elif(units>=100 and units<200):
  bill=round((units*5.26),2)
  print("your electricity bill for {unit} is",bill,"Rs.")
elif(units>=200):
  bill=round((units*8.45),2)
  print("your electricity bill for {unit} is",bill,"Rs.")
else:
  print("you enter Invalid Units")
```

```
Enter your electricity units= 100
your electricity bill for {unit} is 526.0 Rs.
```

01) WAP to read marks of five subjects. Calculate percentage and print class accordingly.

Fail below 35

Pass Class between 35 to 45

Second Class

between 45 to 60

First Class between 60 to 70

Distinction if more than 70

```
sub1 = int(input("Enter Marks of subject 1: "))
sub2 = int(input("Enter Marks of subject 2: "))
sub3 = int(input("Enter Marks of subject 3: "))
sub4 = int(input("Enter Marks of subject 4: "))
sub5 = int(input("Enter Marks of subject 5: "))
percentage = (sub1+sub2+sub3+sub4+sub5)/5
if percentage < 35:
    print(f"You achieved ${percentage}% and you are Fail")
if percentage > 45 and percentage < 35:
    print(f"You achieved ${percentage}% and passed with Pass Class")
if percentage > 60 and percentage < 45:
    print(f"You achieved ${percentage}% and passed with Second Class")
if percentage > 70 and percentage < 60:
    print(f"You achieved ${percentage}% and passed with First Class")
if percentage > 70:
    print(f"You achieved ${percentage}% and passed with Distinction class")
```

```
Enter Marks of subject 1: 90
Enter Marks of subject 2: 90
Enter Marks of subject 3: 90
Enter Marks of subject 4: 90
```

```
Enter Marks of subject 5: 90
You achieved $90.0% and passed with Distinction class
```

02) WAP to find out the Maximum and Minimum number from given 4 numbers.

```
n1 = int(input("Enter A Number : "))
n2 = int(input("Enter A Number : "))
n3 = int(input("Enter A Number : "))
n4 = int(input("Enter A Number : "))

print(n1 if n1 > n2 and n1 > n3 and n1 > n4 else n2 if n2 >
      n3 and n3 > n4 else n3 if n3 > n4 else n4, "is largest")

print(n1 if n1 < n2 and n1 < n3 and n1 < n4 else n2 if n2 <
      n3 and n3 < n4 else n3 if n3 < n4 else n4, "is smallest")
```

```
Enter A Number : 10
Enter A Number : 8
Enter A Number : 15
Enter A Number : 7
15 is largest
7 is smallest
```

03) WAP to input an integer number and check the last digit of number is even or odd.

```
num = int(input("Enter A Number : "))
num1 = num % 10
if num1 % 2 == 0:
    print(f"{num1} is a last digit and it is Even")
else:
    print(f"{num1} is last digit and it is Odd")
```

```
Enter A Number : 12324
4 is a last digit and it is Even
```

04) WAP to determine the roots of the equation ax2+bx+c=0.

```
import math
a = float(input("Enter Value Of a : "))
b = float(input("Enter Value Of b : "))
c = float(input("Enter Value Of c : "))
d = (b*b-4*a*c)
val = math.sqrt(abs(d))
if d > 0:
    print("Real Roots")
```

```
        print(-b+val)/(2*a)
        print(-b-val)/(2*a)
    elif d == 0:
        print("Real & Same Roots : ", (-b)/(2*a))
    elif d < 0:
        print("Complex Roots")
        print(-b/(2*a), "+i", val)
        print(-b/(2*a), "-j", val)
```

```
 Enter Value Of a : 2
 Enter Value Of b : 4
 Enter Value Of c : 2
 Real & Same Roots :  -1.0
```

Python Programming - 2101CS405

Lab - 3

for and while loop

01) WAP to print 1 to 10

```
i=1
while i<=10:
  print(i,end=',')
  i+=1
```

```
   1,2,3,4,5,6,7,8,9,10,
```

02) WAP to print 1 to n

```
n=int(input("Enter a number:"))
i=1
```

```
while i<=n:
  print(i,end=',')
  i+=1
```

```
Enter a number:10
1,2,3,4,5,6,7,8,9,10,
```

03) WAP to print odd numbers between 1 to n

```
n=int(input("Enter number:"))
i=1
while i<=n:
  if(i%2!=0):
    print(i,end=',')
  i+=1
```

```
Enter number:10
1,3,5,7,9,
```

04) WAP to print numbers between two given numbers which is divisible by 2 but not divisible by 3

```
n1=int(input("Enter a initial number,n1:"))
n2=int(input("Enter a terminate number,n2:"))
i=n1
while i<n2:
  if(i%2==0 and i%3!=0):
    print(i,end=',')
  i+=1
```

```
Enter a initial number,n1:1
Enter a terminate number,n2:15
2,4,8,10,14,
```

05) WAP to print sum of 1 to n numbers

```
n=int(input("Enter a nth number: "))
i=1
sum=0
while i<=n:
  sum=sum+i
  i+=1
print(f'sum of 1 to {n} number:',sum)
```

```
Enter a nth number: 5
sum of 1 to 5 number: 15
```

06) WAP to print sum of series 1 + 4 + 9 + 16 + 25 + 36 + ...n

```
n=int(input("Enter a nth number:"))
i=1
sum=0
print("Square series 1 to Nth = ",end=' ')
while i<=n:
  print(pow(i,2),end=' + ')
  sum=sum+pow(i,2)
  i+=1
print('\r')
print("sum of series: ",sum)
```

```
Enter a nth number:5
Square series 1 to Nth =  1 + 4 + 9 + 16 + 25 +
sum of series:  55
```

07) WAP to print sum of series 1 − 2 + 3 − 4 + 5 − 6 + 7 ... n

```
n=int(input("Enter a nth number: "))
sum=0
i=1
while i<=n:
  if(i%2==0):
    sum=sum-i
  elif(i%2!=0):
    sum=sum+i
  i+=1
print("Sum of the given series: ",sum)
```

```
Enter a nth number: 5
Sum of the given series:  3
```

08) WAP to print multiplication table of given number.

```
n=int(input("Enter nth number for multiplication table: "))
i=1
while i<=10:

  print(n,'x',i ,'=',n*i )
  i+=1
```

```
Enter nth number for multiplication table: 5
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
```

```
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

09) WAP to find factorial of the given number

```
n=int(input("Enter a number: "))
i=n
fact=1
while i>=1:
  fact=fact*i
  i-=1
print('Factorial of number : ',fact)
```

```
Enter a number: 5
Factorial of number :  120
```

10) WAP to find factors of the given number

```
n=int(input("Enter a number : "))
i=1
count=1
print(f"Factors of {n} =",end=' ')
while i<=n:
  if(n%i==0):
      print(i,end=',')
  i+=1
```

```
Enter a number : 20
Factors of 20 = 1,2,4,5,10,20,
```

11) WAP to find whether the given number is prime or not.

```
n=int(input("Enter a number:"))
flag=0
i=2
while i<n/2:
  if(n%i==0):
    falg=0
    break;
  else:
    flag=1
  i+=1

if(flag==0):
  print(f"{n} is not a prime number.")
else:
```

```
  print(f"{n} is a prime number.")
```

```
Enter a number:11
11 is a prime number.
```

12) WAP to print sum of digits of given number

```
n=int(input("Enter a number:"))
temp1=n
sum=0
while n>=1:
  temp=n%10
  sum=sum+temp
  n=n//10
print(f"Sum of digits of number '{temp1}'= ",sum)
```

```
Enter a number:123
Sum of digits of number '123'=  6
```

13) WAP to check whether the given number is palindrome or not

```
n=int(input("Enter a number: "))
temp=n
temp1=0
while n>=1:
  r=n%10
  temp1=(temp1*10)+r
  n=n//10
print(f"Revere number of {temp} = ",temp1)

if(temp==temp1):
  print(f"Number {temp} is a Palindrome number.")
else:
  print(f"Number {temp} is not a Palindrome number.")
```

```
Enter a number: 121
Revere number of 121 =  121
Number 121 is a Palindrome number.
```

01) WAP to check whether the given number is Armstrong or not.

```
n=int(input("Enter a number:"))
temp=n
temp1=n
count=0
```

```
sum=0
count=len(str(n))
while temp>=1:
  r=temp%10
  sum=sum+pow(r,count)
  temp=temp//10
if(temp1==sum):
  print(f"Entered number {temp1} is an Armstrong number.")
else:
    print(f"Entered number {temp1} is not an Armstrong number.")
```

```
 Enter a number:1634
 Entered number 1634 is an Armstrong number.
```

02) WAP to find out prime numbers between given two numbers.

```
n1=int(input("Enter a number,n1= "))
n2=int(input("Enter a number,n2= "))
while n1<=n2:
  n=n1
  flag=0
  i=2
  while i<n/2:
    if(n%i==0):
      falg=0
      break;
    else:
      flag=1
    i+=1

  if(flag==1):
    print(f"{n} is a prime number.")
  n1+=1
```

```
 Enter a number,n1= 1
 Enter a number,n2= 10
 5 is a prime number.
 7 is a prime number.
 9 is a prime number.
```

03) WAP to calculate x^y without using any function.

```
x=int(input("Enter amount of x : "))
y=int(input("Enter amount of y: "))
ans=1
for i in range(1,y+1):
  ans=ans*x

print(f"{x}^{y} = ",ans)
```

```
Enter amount of x : 12
Enter amount of y: 2
12^2 =  144
```

04) WAP to check whether the given number is perfect or not.

[Sum of factors including 1 excluding number itself]

```
n=int(input("Enter a Number : "))
sum=0
for i in range(1,n):
  if(n%i==0):
    sum=sum+i
if(sum==n):
  print(f"number {n} is a perfect number.")
else:
  print(f"number {n} is not a perfect number.")
```

```
Enter a Number : 28
number 28 is a perfect number.
```

05) WAP to find the sum of 1 + (1+2) + (1+2+3) + (1+2+3+4)+...+ (1+2+3+4+....+n)

```
n=int(input("Enter a Nth number of series : "))
sum=0
for i in range(1,n):
  for j in range(1,i+1):sum+=j
print("Sum of given series = ",sum)
```

```
Enter a Nth number of series : 4
Sum of given series =  10
```

06) WAP to print Multiplication Table up to n

```
n=int(input("Enter number of multiplication table,n : "))
for i in range(1,n+1):
  j=1
  while(j<=10):
    print(i,'x',j ,'=',i*j)
    j+=1
```

```
Enter number of multiplication table,n : 3
1 x 1 = 1
1 x 2 = 2
```

```
1 x 3 = 3
1 x 4 = 4
1 x 5 = 5
1 x 6 = 6
1 x 7 = 7
1 x 8 = 8
1 x 9 = 9
1 x 10 = 10
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
2 x 10 = 20
3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
3 x 10 = 30
```

Python Programming - 2101CS405

Lab - 4

String

01) WAP to check given string is palindrome or not.

```
a=input("Enter a String : ")
rev=a[::-1]
if(a==rev):
  print("String is palindrom.")
else:
  print("String is not Palindrom.")
```

```
Enter a String : aabbbaa
String is palindrom.
```

02) WAP to reverse the words in given string.

```
a=input("Enter Sentence : ")
rev=a.split(" ")
for i in rev[::-1]:
  print(i,end=" ")
```

```
Enter Sentence : Himanshu kasundra Hit javoya
javoya Hit kasundra Himanshu
```

03) WAP to remove ith character from given string

```
a=input("Enter a String: ")
b=int(input("Enter a position of Character you want to remove : "))
string=a[:b-1]+a[b:]
string
```

```
Enter a String: Himanshu
Enter a position of Character you want to remove : 3
'Hianshu'
```

04) WAP to find length of String without using len function.

```
a=input("Enter a String : ")
count=0
for i in a:
  count+=1
print("Length of string is : ",count)
```

```
Enter a String : Himanshu Kasundra
Length of string is :  17
```

05) WAP to print even length word in string.

```
a=input("ENter a String : ")
ch=a.split(" ")
print("String : ",ch)
print("Even length Word in String : ")
for i in ch:
  if len(i)%2==0:
    print(i,end=",")
```

```
ENter a String : this is a python program
String :  ['this', 'is', 'a', 'python', 'program']
Even length Word in String :
this,is,python,
```

06) WAP to count numbers of vowels in given string.

```
a=input("Enter a String : ")
count=0
for i in a:
  if (i=='a' or i=='e' or i=='i' or i=='o' or i=='u' or i=='A' or i=='E' or i=='I' or i=='
    count+=1
print("Total vowels in a String = ",count)
```

```
Enter a String : Darshan University
Total vowels in a String =  6
```

07) WAP to convert given array to string.

```
a=['I','AM','Student','Of','Darshan','University']
s=" "
print(s.join(a))
```

```
I AM Student Of Darshan University
```

01) WAP to find out duplicate characters in given string.

```
string = input("Enter String : ").lower()
dictionary={}
for i in string:
    if string.count(i) > 1:
        dictionary[i]=string.count(i);
print(dictionary)
```

```
Enter String : Darshan University
{'a': 2, 'r': 2, 's': 2, 'n': 2, 'i': 2}
```

02) WAP to capitalize the first and last character of each word in a string.

```
s=input("Enter a String : ")
list=s.split(" ")
st=' '
for i in list:
  st+=i[0].upper()+i[1:len(i)-1]+i[len(i)-1].upper()+" "
print(st)
```

```
Enter a String : himanshu kasundra
 HimanshU KasundrA
```

03) WAP to find Maximum frequency character in String.

```
string = input("Enter String : ").lower()
dictionary={}
for i in string:
    if string.count(i) > 1:
        dictionary[i]=string.count(i);
print(max(dictionary,key=dictionary.get),end=' ')
print("=",dictionary[max(dictionary,key=dictionary.get)])
```

```
Enter String : himanshu kasundra
a = 3
```

04) WAP to find Minimum frequency character in String.

```
string = input("Enter String : ").lower()
dictionary={}
for i in string:
    dictionary[i]=string.count(i);
print(min(dictionary,key=dictionary.get),end=' ')
print("=",dictionary[min(dictionary,key=dictionary.get)])
```

```
Enter String : himanshu kasundra
i = 1
```

05) WAP to check if a given string is binary string or not

```
string=input("Enter a String : ")
for i in string:
  if i not in ["0","1"]:
    print("Given String is not a Binary String.")
    break;
else:
    print("Given String is a Binary String.")
```

```
Enter a String : 010101
Given String is a Binary String.
```

Python Programming - 2101CS405

Lab - 5

list

01) WAP to find sum of all the elements in List.

```
l1=[]
n=int(input("Enter a number of element into list : "))

for i in range(0,n):
    l1.append(int(input("Enter a element : ")))

print(sum(l1))
```

```
 15
```

02) WAP to find largest element in a List.

```
l1=[]
n=int(input("Enter a number of element into list : "))

for i in range(0,n):
    l1.append(int(input("Enter a element : ")))
print("Max element of List : ",max(l1))

# max=l1[0]
# for i in l1:
#   if l1[i]>max:
#     max=i
```

```
Enter a number of element into list : 3
Enter a element : 123
Enter a element : 323
Enter a element : 637838
Max element of List : 637838
```

03) WAP to split the List into two and append the first part to the end.

```
l1=[12,21,31,1,3,4,6]
l2=l1[0:len(l1)//2]
l3=l1[len(l1)//2::]
l3.extend(l2)
l3
```

```
Once deleted, variables cannot be recovered. Proceed (y/[n])? y
```

04) WAP to interchange first and last elements in list entered by a user.

```
l1=[]
n=int(input("Enter a number of element into list : "))

for i in range(0,n):
    l1.append(int(input("Enter a element : ")))
l1[0],l1[-1]=l1[-1],l1[0]
l1
```

```
Enter a number of element into list : 5
Enter a element : 1
Enter a element : 2
Enter a element : 3
Enter a element : 4
Enter a element : 5
[5, 2, 3, 4, 1]
```

05) WAP to interchange the elements on two positions entered by a user.

```
# %reset
l1=[]
n=int(input("Enter a number of element into list : "))

for i in range(0,n):
    l1.append(int(input("Enter a element : ")))
i=int(input("Enter a position to element : "))
j=int(input("Enter a position of element you want to put element : "))
while(True):
  if(i>len(l1) or j>len(l1)):
    print("Enter position according to list length")
    i=int(input("Enter a position to element : "))
    j=int(input("Enter a position of element you want to put element : "))
  else:
    break;
l1[i-1],l1[j-1]=l1[j-1],l1[i-1]
l1
```

```
Enter a number of element into list : 5
Enter a element : 1
Enter a element : 2
Enter a element : 3
Enter a element : 4
Enter a element : 5
Enter a position to element : 7
Enter a position of element you want to put element : 1
Enter position according to list length
Enter a position to element : 4
Enter a position of element you want to put element : 1
[4, 2, 3, 1, 5]
```

06) WAP to reverses the list entered by user.

```
# %reset
l1=[12,54,6,23,11,23]
print(l1[::-1])
```

```
Once deleted, variables cannot be recovered. Proceed (y/[n])? y
[23, 11, 23, 6, 54, 12]
```

07) Python program to remove multiple elements from a list using list comprehension

```
# l1=[]
# n=int(input("Enter a number of element into list : "))
```

```
# for i in range(0,n):
#     l1.append(int(input("Enter a element : ")))
# l2=[i for i in list if list.count(i)>1]
# l2
```

```
Enter a number of element into list : 4
Enter a element : 1
Enter a element : 1
Enter a element : 2
Enter a element : 3
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-36-3bda28810bd8> in <module>
      4 for i in range(0,n):
      5     l1.append(int(input("Enter a element : ")))
----> 6 l2=[i for i in list if list.count(i)>1]
      7 l2
      8

TypeError: 'type' object is not iterable
```

SEARCH STACK OVERFLOW

08) Create a list from the specified start to end index of another list.

```
l1=[1,2,3,4,5,6,7,8,9,12,123, 12234]
l2=l1[3:6:1]
l2
```

```
[4, 5, 6]
```

09) Input comma separated elements, convert into list and print.

```
string1="1,2,3,4,5,6,7,8"
l1=string1.split(",")
l2=[int(i) for i in l1]
l2
```

```
[1, 2, 3, 4, 5, 6, 7, 8]
```

01) WAP to count Even and Odd numbers in a List.

```
l1=[]
n=int(input("Enter a number of element into list : "))
even=0
odd=0
```

```
for i in range(0,n):
    l1.append(int(input("Enter a element : ")))
for i in l1:
  if i%2==0:
    even+=1
  else:
    odd+=1
print(f"Odd number in list : {odd}\nEven number in list : {even}")
```

```
 Enter a number of element into list : 4
 Enter a element : 1212
 Enter a element : 121
 Enter a element : 2131
 Enter a element : 1212
 Odd number in list : 2
  Even number in list : 2
```

02) Python program to find N largest and smallest elements from the list

03) WAP to print duplicates from a list of integers

```
l1=[]
n=int(input("Enter a no. of element into list : "))
for i in range(0,n):
  l1.append(int(input("Enter a element : ")))
```

Python Programming - 2101CS405

Lab - 6

Tuples, dictionary, set

A

```
# dic={"name":"Himanshu","age":20,"roll_no":213,"darshan":"university"}

# for i in dic:
#   print(i)

# for i in dic.values():
#   print(i)

# for i in dic.keys():
#   print(i)
```

```
# for i in dic.items():
#   print(i)
```

01) WAP to sort python dictionary by key or value.

```
dic={"name":"Himanshu","age":"20","roll_no":"213","darshan":"university"}
sort_by_key=sorted(dic.items(),key=lambda x:x[0])
sort_by_value=sorted(dic.items(),key=lambda x:x[1])
print(sort_by_value)
print(sort_by_key)

# l=list(dic.keys())
# for i in l:
#   print(dic[i])
```

```
[('age', '20'), ('roll_no', '213'), ('name', 'Himanshu'), ('darshan', 'university')]
[('age', '20'), ('darshan', 'university'), ('name', 'Himanshu'), ('roll_no', '213')]
```

02) WAP to merge two dictionaries given by user.

```
dic1={}
dic2={}
for i in range(int(input("ENter length of dictionary 1 : "))):
  key=input("Enter a key: ")
  dic1[key]=input("ENter a value : ")

for i in range(int(input("ENter length of dictionary : "))):
  key=input("Enter a key: ")
  dic2[key]=input("ENter a value : ")
dic1.update(dic2)
print(dic1)
```

```
ENter length of dictionary 1 : 2
Enter a key: a
ENter a value : 1
Enter a key: b
ENter a value : 2
ENter length of dictionary : 2
Enter a key: c
ENter a value : 3
Enter a key: d
ENter a value : 4
{'a': '1', 'b': '2', 'c': '3', 'd': '4'}
```

03) WAP to find tuples that have all elements divisible by K from a list of tuples.

```
k=int(input("Enter a number : "))
list_of_tupple=[(12,12,11),(10,20,25,55,110),(11,112,111,23)]
def check(list_of_tupple):
```

```
  for i in list_of_tupple:
    if i%k!=0:
      return False
  return True
print(list(filter(check,list_of_tupple))[0])
```

```
Enter a number : 5
(10, 20, 25, 55, 110)
```

04) WAP to find Tuples with positive elements in List of tuples.

```
l1=[(12,12,-11),(10,20,25),(11,112,111)]
for a,b,c in l1:
  if a>0 and b>0 and c>0:
    print(a,b,c)
```

```
10 20 25
11 112 111
```

05) WAP which perform union of two sets.

```
set1={1,2,3,4,5}
set2={6,7,8,9,10}
print(set1.union(set2))
```

```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

B

01) WAP to convert binary tuple into integer.

```
tupple=("1","1","1","1")
str="".join(tupple)
print(int(str))
```

```
1111
```

02) WAP to count frequency in list by dictionary.

```
d1={}
l1=["a","b","c","b","a","a"]
for i in l1:
  if i in d1:
```

```
    d1[i]+=1
  else:
    d1[i]=1
print(d1)
```

```
{'a': 3, 'b': 2, 'c': 1}
```

03) WAP to remove all the duplicate words from the list using dictionary.

```
l1=["a","b","c","b","a","a","b"]
dic1=list(dict.fromkeys(l1))
print(dic1)
```

```
['a', 'b', 'c']
```

Python Programming - 2101CS405

Lab - 7

Functions

01) WAP to count simple interest using function.

```
def simpleIntrest(a,r,t):
  intrest=amount*rate*time//100
  return intrest
amount=float(input("Enter Ptincipal amount : "))
rate=float(input("ENter intrest rate : "))
time=float(input("Enter a time in year : "))
print(f"simple intrest : {simpleIntrest(a=amount,r=rate,t=time)}")
```

```
Enter Ptincipal amount : 1000
ENter intrest rate : 2
Enter a time in year : 1
simple intrest : 20.0
```

02) WAP that defines a function to add first n numbers.

```
def addition(n):
  sum=0
  for i in range(n):
    sum+=i
  return sum
num1=int(input("ENter a last number,n : "))
print(f"Sum of 1 to n number is : {addition(num1+1)}")
```

```
ENter a last number,n : 10
Sum of 1 to n number is : 55
```

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

```
max1=lambda a,b : a if a>b else b
num1=int(input("Enter a 1st number : "))
num2=int(input("ENter 2nd number : "))
print(f"max number : {max1(num1,num2)}")
```

```
Enter a 1st number : 12
ENter 2nd number : 11
max number : 12
```

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

```
def primeNumber(n):
  for i in range(2,int(n**0.5)+1):
    if(n%i==0):
      return False
  else:
    return True
n=int(input("Enter a number : "))
primeNumber(n)
```

```
Enter a number : 1
True
```

05) Write a function called primes that takes an integer value as an argument and returns a list of all prime numbers up to that number.

```
# def primeNum(n):
  # for j in range(2,n+1):
  #   for i in range(2,int(j**0.5)+1):
```

```
  #     if(j%i==0):
  #       break;
  #   else:
  #     primeNum.append(j)
def primeNumber(n):
  for i in range(2,int(n**0.5)+1):
    if(n%i==0):
      return False
  else:
    return True
n=int(input("Enter a Number : "))
[i for i in range(2,n+1) if primeNumber(i)]
```

```
Enter a Number : 100
[2,
 3,
 5,
 7,
 11,
 13,
 17,
 19,
 23,
 29,
 31,
 37,
 41,
 43,
 47,
 53,
 59,
 61,
 67,
 71,
 73,
 79,
 83,
 89,
 97]
```

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

```
def fibbo(n):
  list_fibonacci=[i for i in range(n)]
  for i in range(2,n):
    list_fibonacci[i]=list_fibonacci[i-1]+list_fibonacci[i-2]
  return list_fibonacci
number=int(input("Enter a number : "))
fibbo(number)
```

```
Enter a number : 8
[0, 1, 1, 2, 3, 5, 8, 13]
```

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

```
factorial=lambda n:1 if(n in [0,1]) else n*factorial(n-1)
print(factorial(int(input("Enter a number:"))))
```

```
Enter a number:4
24
```

08) WAP to implement simple calculator using lamda function.

```
num1=int(input("Enter a number1 : "))
num2=int(input("Enter a number2 : "))
calc=lambda a,b,op:a+b if op=='+' else a-b if op=='-' else a*b if op=='*' else round(a/b,2
print(f'{num1} + {num2} : {calc(num1,num2,"+")}')
print(f'{num1} - {num2} : {calc(num1,num2,"-")}')
print(f'{num1} * {num2} : {calc(num1,num2,"*")}')
print(f'{num1} / {num2} : {calc(num1,num2,"/")}')
```

```
Enter a number1 : 12
Enter a number2 : 2
12 + 2 : 14
12 - 2 : 10
12 * 2 : 24
12 / 2 : 6.0
```

09)Write a Python program that accepts a hyphen-separated sequence of words as input and prints the words in a hyphen-separated sequence after sorting them alphabetically

Sample Items : green-red-yellow-black-white
Expected Result : black-green-red-white-yellow

```
sampleItems = "green-red-yellow-black-white"
list1=sampleItems.split("-")
list1.sort()
print("-".join(list1))
```

```
black-green-red-white-yellow
```

10) Write a python program to implement all function arguments type

Positional arguments
Default argument

Keyword arguments (named arguments)

Arbitrary arguments (variable-length arguments args and kwargs)

```
a = int(input("Enter Number : "))
b = int(input("Enter Number : "))
positionalArguments = lambda a,b : a+b
print("Positional arguments ",positionalArguments(a,b))

a = int(input("Enter Number : "))
defaultArgument = lambda a,b=10 : a+b
print("Default argument ",defaultArgument(a))
```

```
Enter Number : 12
Enter Number : 12
Positional arguments  24
Enter Number : 10
Default argument  20
```

```
a = int(input("Enter Number : "))
b = int(input("Enter Number : "))
def keywordArguments(a,b):
    return a+b
print("Keyword arguments (named arguments) ",keywordArguments(b=a,a=b))

a = int(input("Enter Number : "))
def arbitraryArguments(a,*b):
    sums = a
    for i in b:
        sums+=i
    return sums
print("Keyword arguments (named arguments) ",arbitraryArguments(a,5,10,12,121))
```

```
Enter Number : 12
Enter Number : 12
Keyword arguments (named arguments)  24
Enter Number : 10
Keyword arguments (named arguments)  158
```

01) WAP to calculate power of a number using recursion.

```
power=lambda x,y:1 if y==0 else x*power(x,y-1)
exponent=int(input("Enter a exponent : "))
pow=int(input("Enter a power : "))
print(f"{exponent}^{pow} : {power(exponent,pow)}")
```

```
Enter a exponent : 13
Enter a power : 2
13^2 : 169
```

02) WAP to count digits of a number using recursion.

```
digitSum=lambda n: 0 if n==0 else (n%10)+digitSum(n//10)
num1=int(input("Enter a number : "))
print(f"sum of digits of {num1} : {digitSum(num1)}")
```

```
Enter a number : 123456789
sum of digits of 123456789 : 45
```

03) WAP to reverse an integer number using recursion.

```
digit=lambda n,r: r if n==0 else digit(n//10,(r*10)+(n%10))
num=int(input("ENter a number : "))
res=0
print(digit(num,res))
```

```
ENter a number : 123
321
```

04) WAP to convert decimal number into binary using recursion.

```
def decimalToBinary(n):
    if n==0:
        return 0
    else:
        return n%2+10*(decimalToBinary(n//2))

n = int(input("Enter Number : "))
ans = decimalToBinary(n)
print("Binary : ",ans)
```

```
Enter Number : 8
Binary :  1000
```

Python Programming - 2101CS405

Lab - 8

File handling

A

01) WAP to read entire file named abc.txt

```
f=open("abc.txt","r")
abc=f.readline()
# abc=f.readlines()
# abc=f.read()
f.close()
abc
```

```
'Himanshu 15\n'
```

02) WAP to print program it self on console.

```
lab8=open("Python Programming - Lab - 8.ipynb","r")
read=lab8.readlines()
for i in read:
    print(i)
```

03) WAP to read first 5 lines from the file named abc.txt

```
f=open("abc.txt","r")
for i in range(5):
    abc=f.readline()
    print(abc)

f.close()
```

```
Himanshu 15

Devanshu 20

Priyanshu 12
```

04) WAP to find the longest word in a file named abc.txt

```
with open("abc.txt","r") as f:
    print(max(f.read().split(),key=len))
```

```
 Priyanshu
```

05) WAP to find the size of the file named abc.txt

```
# with open("abc.txt","r") as f:
#     length=0
#     r=f.read().split()
#     for i in r:
#         length+=len(i)
#     print(length*4)

import os
os.stat("abc.txt").st_size
```

```
 12
```

06) WAP to implement search function to search specific occurance of word in a given text file.

```
# with open("abc.txt","r") as f:
#     length=0
#     str="Himanshu"
#     r=f.read().split()
#     for i in r:
#         if str==i:
#             length+=1
#     print(length)

str=input("Enter a word : ")
f=open("abc.txt","r")
f.read().split().count(str)
```

```
 4
```

B

01) WAP to write first 100 prime numbers to a file named primenumbers.txt

(Note: each number should be in new line)

```
f=open("prime.txt","w")
for i in range(2,101):
    for j in range(2,int(i**0.5)+1):
        if(i%j==0):
            break
    else:
        print(i)
```

```
 2
 3
 5
 7
 11
 13
 17
 19
 23
 29
 31
 37
 41
 43
 47
 53
 59
```

```
61
67
71
73
79
83
89
97
```

Double-click (or enter) to edit

02) WAP to merge two files and write it in a new file.

```
with open("merge.txt", "w") as merge:
    with open("abc.txt", "r") as abc:
        merge.write(abc.read())
    with open("primenumbers.txt", "r") as prime:
        merge.write(prime.read())
```

03) WAP to encrypt a text file.

```
word = input("Enter Word : ")
key = int(input("Enter Key : "))
encoded = ""
with open("encrypt.txt", "w") as encrypt:
    for i in word:
        asciii = ord(i)+key
        if i.islower():
            encoded = encoded + chr((asciii//123)*97+asciii % (123))
        else:
            encoded = encoded + chr((asciii//91)*65+asciii % (91))
    encrypt.write(encoded)
```

04) WAP to decrypt a previously encrypted file.

```
key = int(input("Enter Key : "))
decoded = ""
with open("decrypt.txt", "w") as decrypt:
    with open("encrypt.txt", "r") as encrypt:
        for i in encrypt.read():
            asc = ord(i)-key
            if (i.islower() and asc < 97) or (i.isupper() and asc < 65):
                asc = 26+asc
            decoded = decoded + chr(asc)
        decrypt.write(decoded)
```

05) WAP to remove a word from text file.

```
words = input("Enter word to remove: ")
list1 = []
with open("abc.txt","r") as abc:
    for line in abc.readlines():
        for word in line.split(" "):
            list1.append(word)
list1.remove(words)
list1 = list(filter((words).__ne__, list1))
print(list1)
```