ASSIGNMENT 1

Write a program to find GCD of two numbers.

SOURCE CODE:

```
def FindGCD(a,b):
    if(a==b):
        return a
    elif (a>b):
        return FindGCD(a-b,b)
    else:
        return FindGCD(a,b-a)


num1 = int(input("Enter 1st number:"))
num2 = int(input("Enter 2nd number:"))
sum = FindGCD(num1,num2)
print("GCD: "+str(sum))
```

OUTPUT:

SET 1:

```
Enter 1st number:10
Enter 2nd number:15
GCD: 5
```

SET 2:

```
Enter 2nd number:28
Enter 1st number:24
GCD: 4
```

ASSIGNMENT 2:

Write a program that flips a coin 100 times and then tells you the number of heads and tails.

SOURCE CODE:

```
import random

def flip():
    x = random.randint(1,2)
    return x

head = 0
tail = 0
for i in range(100):
    coin = flip()
    if(coin==1):
        head += 1
    else:
        tail += 1
print("No. of HEADS: "+str(head))
print("No. of TAILS: "+str(tail))
```

OUTPUT:

SET 1:

```
No. of HEADS: 51
No. of TAILS: 49
```

SET 2:

```
No. of HEADS: 57
No. of TAILS: 43
```

ASSIGNMENT 3:

Write a program that will find Krishnamurthy numbers in a certain range.

SOUCRE CODE:

```
def factorial(n):
    mul = 1
    while(n>0):
        mul = mul*n
        n = n-1
    return mul

num1 = int(input("Enter the lower limit: "))
num2 = int(input("Enter the upper limit: "))
print("List of Krishnamurthy No. in this range
are:")
while(num1<=num2):
    a = num1
    sum = 0
    while(a>0):
        n = a%10
        sum = sum+factorial(n)
        a = a//10

    if(sum==num1):
        print(num1)
    num1 = num1+1
```

OUTPUT:

SET 1:

```
Enter the lower limit: 2
Enter the upper limit: 15
List of Krishnamurthy No. in this range are:
2
```

SET 2:

```
Enter the lower limit: 100
Enter the upper limit: 200
List of Krishnamurthy No. in this range are:
145
```

ASSIGNMENT 4:

Write a program that will find all Armstrong numbers in a certain range.

SOURCE CODE:

```
def power(m,n):
    x = m**n
    return x

num1 = int(input("Enter the lower limit: "))
num2 = int(input("Enter the upper limit: "))
print("List of Armstrong No. in this range are: ")
while(num1<=num2):
    a = num1
    sum = 0
    n = 0
    while(a>0):
        a = a//10
        n = n+1
    a = num1
    while(a>0):
        m = a%10
        sum = sum+power(m,n)
        a = a//10
    if(sum==num1):
        print(num1)
    num1 = num1+1
```

OUTPUT:

SET 1:

```
Enter the lower limit: 400
Enter the upper limit: 500
List of Armstrong No. in this range are:
407
```

SET 2:

```
Enter the lower limit: 150
Enter the upper limit: 500
List of Armstrong No. in this range are:
153
370
371
407
```

ASSIGNMENT 5:

Write a program that will take a string and number K from user and extract first K consecutive digits making number.

SOURCE CODE:

```
sen = str(input("Enter your string: "))
k = int(input("Enter a number K: "))
lis = list(sen.split())
count = 0
n = len(lis)
for i in range(n):
    m = len(lis[i])
    if(m==k):
        if(lis[i].isdigit()==True):
            print("K consecutive digits in the
sentence: "+str(lis[i]))
            count += 1
            break
if(count==0):
    print("There is no K consecutive digits in
the sentence.")
```

OUTPUT:

SET 1:

```
Enter your string: 5 pens
Enter a number K: 1
K consecutive digits in the sentence: 5
```

SET 2:

```
Enter your string: there are 10 pens
Enter a number K: 2
K consecutive digits in the sentence: 10
```

ASSIGNMENT 6:

Write a program that will check whether a string is palindrome or not.

SOURCE CODE:

```
word = str(input("Enter a String: "))
n = len(word)
p = 0
r = -1
for i in range(n):
    if(word[i]==word[r]):
        p += 1
    r -= 1
if(p==n):
    print("It is a palindrome string.")
else:
    print("It is not a palindrome string.")
```

OUTPUT:

SET 1:

```
Enter a String: madam
It is a palindrome string.
```

SET 2:

```
Enter a String: happy
It is not a palindrome string.
```

ASSIGNMENT 7:

Write a Python program to get a string from a given string where all occurrences of its first character have been changed to '$' except the character itself. Example:'restart'
Output:'resta$t'

SOURCE CODE:

```
s=input('enter a string:')
def change_char(str1):
    char=str1[0]
    length=len(str1)
    str1=str1.replace(char,'$')
    str1=char+str1[1:]

    return str1
print(change_char(s))
```

OUTPUT:

SET 1:

```
enter a string:restart
resta$t
```

SET 2:

```
enter a string:reverse
reve$se
```

ASSIGNMENT 8:

Write a python function that takes a list of words and returns the length of the longest one.

SOURCE CODE:

```
lis = []
x = 0
while(x!=1):
    word = str(input("Enter a string into the
list: "))
    lis.append(word)
    x = int(input("Enter 0 to enter another
string into the list and 1 to exit: "))
print("list: ",end="")
print(lis)
n = len(lis)
max = 0
for i in range(n):
    size = len(lis[i])
    if(size>max):
        index = i
        max = size
print("The longest word in the list is
'"+lis[index]+"' with length "+str(max)+".")
```

OUTPUT:

SET 1:

```
Enter a string into the list: HAPPY
Enter 0 to enter another string into the list and
1 to exit: 0
Enter a string into the list: EXCITED
Enter 0 to enter another string into the list and
1 to exit: 0
Enter a string into the list: HAPPINESS
Enter 0 to enter another string into the list and
1 to exit: 1
list: ['HAPPY', 'EXCITED', 'HAPPINESS']
```

```
The longest word in the list is 'HAPPINESS' with
length 9.
```

SET 2:

```
Enter a string into the list: cat
Enter 0 to enter another string into the list and
1 to exit: 0
Enter a string into the list: apple
Enter 0 to enter another string into the list and
1 to exit: 0
Enter a string into the list: man
Enter 0 to enter another string into the list and
1 to exit: 1
list: ['cat', 'apple', 'man']
The longest word in the list is 'apple' with
length 5.
```

ASSIGNMENT 9:

Use list comprehension to find all the odd numbers and numbers divisible by 3 from a list of numbers.

SOURCE CODE:

```
num1 = int(input("Enter the lower limit: "))
num2 = int(input("Enter the upper limit: "))
odd_list = [x for x in range(num1,num2+1) if
x%2!=0]
print("List of odd numbers in the above range are:
")
print(odd_list)
div_three = [x for x in range(num1,num2+1) if
x%3==0]
print("List of numbers divisible by 3 in the
above range are: ")
print(div_three)
```

OUTPUT:

SET 1:

```
Enter the lower limit: 5
Enter the upper limit: 15
List of odd numbers in the above range are:
[5, 7, 9, 11, 13, 15]
List of numbers divisible by 3 in the above range
are:
[6, 9, 12, 15]
```

SET 2:

```
Enter the lower limit: 30
Enter the upper limit: 50
List of odd numbers in the above range are:
[31, 33, 35, 37, 39, 41, 43, 45, 47, 49]
List of numbers divisible by 3 in the above range
are:
[30, 33, 36, 39, 42, 45, 48]
```

ASSIGNMENT 10:

Using while loop to do Gaussian addition on a list having even number of numbers. Print each partial sum.
Example: if the list is[1,2,3,4,5,6]output should be “1+6”,”2+5”,”3+4” in separate lines and result of the addition “21”. Extend it to handle lists of odd length.

SOURCE CODE:

```
def gauss_add(num):
    i = 0
    j = -1
    print("Printing the sequence:")
    print(str(num)+"\n")
    print("Displaying Partial Sum:")
    while(i<len(num)//2):

print(str(num[i])+"+"+str(num[j])+"="+str(num[i]+
num[j]))
        i += 1
        j -= 1
    if(len(num)%2!=0):
        print(str(num[len(num)//2])+" (Single
Value Left as the sequence is odd)")
    print("\nSum of Linear Sequence from 1
to"+str(len(num))+":", end=" ")
    s = (len(num)*(num[0]+num[-1]))//2
    print(s)

n = int(input("Enter the value of n: "))
num = list(range(1,n+1))
gauss_add(num)
```

OUTPUT:

SET 1:

```
Enter the value of n: 6
Printing the sequence:
[1, 2, 3, 4, 5, 6]
```

```
Displaying Partial Sum:
1+6=7
2+5=7
3+4=7

Sum of Linear Sequence from 1 to6: 21
```

SET 2:

```
Enter the value of n: 4
Printing the sequence:
[1, 2, 3, 4]

Displaying Partial Sum:
1+4=5
2+3=5

Sum of Linear Sequence from 1 to4: 10
```

ASSIGNMENT 11:

Write a program to generate a list of primes within user-given range.

SOURCE CODE:

```
num1 = int(input("Enter the lower limit: "))
num2 = int(input("Enter the upper limit: "))
prime_list = []
for i in range(num1,num2+1):
    a = 1
    prime = 0
    while(a!=(i+1)):
        if(i%a==0):
            prime += 1
        a += 1
    if(prime==2):
        prime_list.append(i)
print("List of prime numbers: ",end="")
print(prime_list)
```

OUTPUT:

SET 1:

```
Enter the lower limit: 2
Enter the upper limit: 15
List of prime numbers: [2, 3, 5, 7, 11, 13]
```

SET 2:

```
Enter the lower limit: 5
Enter the upper limit: 25
List of prime numbers: [5, 7, 11, 13, 17, 19, 23]
```

ASSIGNMENT 12:

Write a menu driven program to add or subtract two matrices

SOURCE CODE:

```
size = int(input("Enter the size of the matrix: "))
a = []
b = []
c = []
for i in range(size):
    for j in range(size):
        e = int(input("Enter the value of 1st matrix: "))
        c.append(e)
    a.append(c)
    c = []
for i in range(size):
    for j in range(size):
        e = int(input("Enter the value of 2nd matrix: "))
        c.append(e)
    b.append(c)
    c = []
print(a)
print(b)
choice = int(input("Enter 1 for addition and 2 for substraction: "))
if(choice==1):
    add = []
    for i in range(size):
        for j in range(size):
            c.append(0)
        add.append(c)
        c = []
    for i in range(size):
        for j in range(size):
            add[i][j] = a[i][j]+b[i][j]
    print("Addition of above two matrices: ")
    print(add)
elif(choice==2):
    sub = []
```

```
    for i in range(size):
        for j in range(size):
            c.append(0)
        sub.append(c)
        c = []
    for i in range(size):
        for j in range(size):
            sub[i][j] = a[i][j]-b[i][j]
    print("Substraction of above two matrices: ")
    print(sub)
else:
    print("Wrong choice.")
```

OUTPUT:

SET 1:

```
Enter the size of the matrix: 2
Enter the value of 1st matrix: 5
Enter the value of 1st matrix: 6
Enter the value of 1st matrix: 7
Enter the value of 1st matrix: 8
Enter the value of 2nd matrix: 9
Enter the value of 2nd matrix: 7
Enter the value of 2nd matrix: 6
Enter the value of 2nd matrix: 4
[[5, 6], [7, 8]]
[[9, 7], [6, 4]]
Enter 1 for addition and 2 for substraction: 1
Addition of above two matrices:
[[14, 13], [13, 12]]
```

SET 2:

```
Enter the size of the matrix: 3
Enter the value of 1st matrix: 9
Enter the value of 1st matrix: 8
Enter the value of 1st matrix: 7
Enter the value of 1st matrix: 6
Enter the value of 1st matrix: 5
Enter the value of 1st matrix: 4
Enter the value of 1st matrix: 8
Enter the value of 1st matrix: 9
```

```
Enter the value of 1st matrix: 8
Enter the value of 2nd matrix: 1
Enter the value of 2nd matrix: 5
Enter the value of 2nd matrix: 5
Enter the value of 2nd matrix: 4
Enter the value of 2nd matrix: 6
Enter the value of 2nd matrix: 7
Enter the value of 2nd matrix: 8
Enter the value of 2nd matrix: 9
Enter the value of 2nd matrix: 0
[[9, 8, 7], [6, 5, 4], [8, 9, 8]]
[[1, 5, 5], [4, 6, 7], [8, 9, 0]]
Enter 1 for addition and 2 for substraction: 2
Substraction of above two matrices:
[[8, 3, 2], [2, -1, -3], [0, 0, 8]]
```

ASSIGNMENT 13:

Write a program to multiply two matrices.

SOURCE CODE:

```
size = int(input("Enter the size of the matrix:
"))
a = []
b = []
c = []
for i in range(size):
    for j in range(size):
        e = int(input("Enter the value of 1st
matrix: "))
        c.append(e)
    a.append(c)
    c = []
for i in range(size):
    for j in range(size):
        e = int(input("Enter the value of 2nd
matrix: "))
        c.append(e)
    b.append(c)
    c = []
print(a)
print(b)
mul = []
for i in range(size):
    for j in range(size):
        c.append(0)
    mul.append(c)
    c = []
for i in range(size):
    for j in range(size):
        for k in range(size):
            mul[i][j] += a[i][k]*b[k][j]
print("Multiplication of above two matrices: ")
print(mul)
```

OUTPUT:

SET 1:

```
Enter the size of the matrix: 2
Enter the value of 1st matrix: 5
Enter the value of 1st matrix: 6
Enter the value of 1st matrix: 7
Enter the value of 1st matrix: 8
Enter the value of 2nd matrix: 1
Enter the value of 2nd matrix: 2
Enter the value of 2nd matrix: 4
Enter the value of 2nd matrix: 6
[[5, 6], [7, 8]]
[[1, 2], [4, 6]]
Multiplication of above two matrices:
[[29, 46], [39, 62]]
```

SET 2:

```
Enter the size of the matrix: 2
Enter the value of 1st matrix: 0
Enter the value of 1st matrix: 1
Enter the value of 1st matrix: 4
Enter the value of 1st matrix: 0
Enter the value of 2nd matrix: 5
Enter the value of 2nd matrix: 8
Enter the value of 2nd matrix: 7
Enter the value of 2nd matrix: 5
[[0, 1], [4, 0]]
[[5, 8], [7, 5]]
Multiplication of above two matrices:
[[7, 5], [20, 32]]
```

ASSIGNMENT 14:

Write a program to obtain transpose of a matrix

SOURCE CODE:

```
size = int(input("Enter the size of the matrix:
"))
a = []
c = []
for i in range(size):
    for j in range(size):
        e = int(input("Enter the value of 1st
matrix: "))
        c.append(e)
    a.append(c)
    c = []
print(a)
transpose = []
for i in range(size):
    for j in range(size):
        c.append(0)
    transpose.append(c)
    c = []
for i in range(size):
    for j in range(size):
        transpose[i][j] = a[j][i]
print("Transpose of the above matrix: ")
print(transpose)
```

OUTPUT:

SET 1:

```
Enter the size of the matrix: 3
Enter the value of 1st matrix: 5
Enter the value of 1st matrix: 6
Enter the value of 1st matrix: 7
Enter the value of 1st matrix: 9
Enter the value of 1st matrix: 5
```

```
Enter the value of 1st matrix: 9
Enter the value of 1st matrix: 14
Enter the value of 1st matrix: 0
Enter the value of 1st matrix: 15
[[5, 6, 7], [9, 5, 9], [14, 0, 15]]
Transpose of the above matrix:
[[5, 9, 14], [6, 5, 0], [7, 9, 15]]
```

SET 2:

```
Enter the size of the matrix: 2
Enter the value of 1st matrix: 15
Enter the value of 1st matrix: 6
Enter the value of 1st matrix: 8
Enter the value of 1st matrix: 7
[[15, 6], [8, 7]]
Transpose of the above matrix:
[[15, 8], [6, 7]]
```

ASSIGNMENT 15:

Write a program to remove empty tuple(s) from list of tuples.

SOURCE CODE:

```
lis = []
n = int(input("Enter the size of the list: "))
for i in range(n):
    val =(input("Enter some value separated by
comma: "))
    if not val:
        lis.append(tuple())
    else:
        lis.append(tuple(val.split(",")))
print("The original list: ")
print(lis)
new_lis = [x for x in lis if x]
print("The list after removing empty tuples: ")
print(new_lis)
```

OUTPUT:

SET 1:

```
Enter the size of the list: 4
Enter some value separated by comma: 1
Enter some value separated by comma: 5
Enter some value separated by comma:
Enter some value separated by comma:
The original list:
[('1',), ('5',), (), ()]
The list after removing empty tuples:
[('1',), ('5',)]
```

SET 2:

```
Enter the size of the list: 6
Enter some value separated by comma: 23
Enter some value separated by comma: 45
Enter some value separated by comma: 7
Enter some value separated by comma: 8
Enter some value separated by comma:
Enter some value separated by comma:
```

```
The original list:
[('23',), ('45',), ('7',), ('8',), (), ()]
The list after removing empty tuples:
[('23',), ('45',), ('7',), ('8',)]
```

ASSIGNMENT 16:

Write a program to count the elements in a list until the list is a tuple.

SOURCE CODE:

```
lis = []
n = int(input("""Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: """))
while(n!=0):
    if(n==1):
        val = input("Enter your value: ")
        lis.append(val)
    if(n==2):
        val =input("Enter some value separated by
comma: ")
        if not val:
            lis.append(list())
        else:
            lis.append(list(val.split(",")))
    if(n==3):
        val =input("Enter some value separated by
comma: ")
        if not val:
            lis.append(tuple())
        else:
            lis.append(tuple(val.split(",")))
    n = int(input("""Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: """))
print("The original list: ")
print(lis)
count = 0
size = len(lis)
for i in range(size):
    if(type(lis[i]) is tuple):
        break
    else:
        count += 1
```

```
print("The count of the elements in the list
until the element is a tuple is "+str(count))
```

OUTPUT:

SET 1:

```
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
Enter your value: 4
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 2
Enter some value separated by comma: 4,6
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 3
Enter some value separated by comma: 2,0
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 0
The original list:
['4', ['4', '6'], ('2', '0')]
The count of the elements in the list until the
element is a tuple is 2
```

SET 2:

```
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
Enter your value: 56
Press 1 to enter a value.
press 2 to enter a list.
```

```
press 3 to enter a tuple.
press 0 to exit.
Enter: 3
Enter some value separated by comma: 5,5
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 0
The original list:
['56', ('5', '5')]
The count of the elements in the list until the
element is a tuple is 1
```

ASSIGNMENT 17:

Write a program to remove duplicates from a list.

SOURCE CODE:

```
lis = []
dup = []
n = int(input("""Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: """))
while(n!=0):
    if(n==1):
        val = input("Enter your value: ")
        lis.append(val)
    if(n==2):
        val =input("Enter some value separated by
comma: ")
        if not val:
            lis.append(list())
        else:
            lis.append(list(val.split(",")))
    if(n==3):
        val =input("Enter some value separated by
comma: ")
        if not val:
            lis.append(tuple())
        else:
            lis.append(tuple(val.split(",")))
    n = int(input("""Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: """))
print("The original list: ")
print(lis)
[dup.append(x) for x in lis if x not in dup]
print("The list after removing duplicates
elements: ")
print(dup)
```

OUTPUT:

SET 1:

```
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
Enter your value: 4
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
Enter your value: 56
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
Enter your value: 56
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
Enter your value: 7
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 0
The original list:
['4', '56', '56', '7']
The list after removing duplicates elements:
['4', '56', '7']
```

SET 2:

```
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
```

```
Enter your value: 50
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 3
Enter some value separated by comma: 5,8
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 1
Enter your value: 50
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 3
Enter some value separated by comma: 5,20
Press 1 to enter a value.
press 2 to enter a list.
press 3 to enter a tuple.
press 0 to exit.
Enter: 0
The original list:
['50', ('5', '8'), '50', ('5', '20')]
The list after removing duplicates elements:
['50', ('5', '8'), ('5', '20')]
```

ASSIGNMENT 18:

Write a Python program to find a string and replace it with another string taken from user as input.

SOURCE CODE:

```
string = str(input("Enter a sentence: "))
find = str(input("Enter the word to be replaced:
"))
rep = str(input("Enter the new word: "))
lis = []
lis = string.split()
print("Sentence after replacing the words: ")
size = len(lis)
for i in range(size):
    if(find==lis[i]):
        lis[i] = rep
        break
print(*lis)
```

OUTPUT:

SET 1:

```
Enter a sentence: This are my pens
Enter the word to be replaced: This
Enter the new word: These
Sentence after replacing the words:
These are my pens
```

SET 2:

```
Enter a sentence: how are you going
Enter the word to be replaced: going
Enter the new word: doing
Sentence after replacing the words:
how are you doing
```

ASSIGNMENT 19:

Write a Python program to add two given lists and find the difference between lists. Use map() function.

SOURCE CODE:

```
def add(n1,n2):
    return n1+n2
def sub(n1,n2):
    return n1-n2

size = int(input("Enter the size of both the list:
"))
a = []
b = []
print("Enter the values for 1st list:")
for i in range(size):
    val = int(input("Enter the value: "))
    a.append(val)
print("Enter the values for 2nd list:")
for i in range(size):
    val = int(input("Enter the value: "))
    b.append(val)
print("1st list:")
print(a)
print("2nd list:")
print(b)
c = list(map(add,a,b))
print("After adding both list:")
print(c)
d = list(map(sub,a,b))
print("After substracting both list:")
print(d)
```

OUTPUT:

SET 1:

```
Enter the size of both the list: 3
Enter the values for 1st list:
Enter the value: 5
Enter the value: 88
Enter the value: 10
```

```
Enter the values for 2nd list:
Enter the value: 10
Enter the value: 11
Enter the value: 12
1st list:
[5, 88, 10]
2nd list:
[10, 11, 12]
After adding both list:
[15, 99, 22]
After substracting both list:
[-5, 77, -2]
```

SET 2:

```
Enter the size of both the list: 4
Enter the values for 1st list:
Enter the value: 0
Enter the value: 20
Enter the value: 12
Enter the value: 45
Enter the values for 2nd list:
Enter the value: 12
Enter the value: 15
Enter the value: 0
Enter the value: 8
1st list:
[0, 20, 12, 45]
2nd list:
[12, 15, 0, 8]
After adding both list:
[12, 35, 12, 53]
After substracting both list:
[-12, 5, 12, 37]
```

ASSIGNMENT 20:

Write a Python program to compute the sum of integers, use map() function.

SOURCE CODE:

```
n1 = int(input("Enter the lower limit: "))
n2 = int(input("Enter the upper limit: "))
lis = []
for i in range(n1,n2+1):
    c = []
    c.append(i)
    lis.append(c)
s = sum(map(sum,lis))
print("\nThe sum of integers between the limits:
")
print(s)
```

OUTPUT:

SET 1:

```
Enter the lower limit: 2
Enter the upper limit: 15

The sum of integers between the limits:
119
```

SET 2:

```
Enter the lower limit: 20
Enter the upper limit: 30

The sum of integers between the limits:
275
```

ASSIGNMENT 21:

Write a Python program to find intersection of two given array using Lambda.

SOURCE CODE:

```
lis1 = []
lis2 = []
print("Enter the values of 1st list:")
n = int(input("""Press 1 to enter a value.
press 0 to exit.
Enter: """))
while(n!=0):
    if(n==1):
        val = input("Enter your value: ")
        lis1.append(val)
    n = int(input("""Press 1 to enter a value.
press 0 to exit.
Enter: """))
print("Enter the values of 2nd list:")
n = int(input("""Press 1 to enter a value.
press 0 to exit.
Enter: """))
while(n!=0):
    if(n==1):
        val = input("Enter your value: ")
        lis2.append(val)
    n = int(input("""Press 1 to enter a value.
press 0 to exit.
Enter: """))
print("The 1st list: ")
print(lis1)
print("The 2nd list: ")
print(lis2)
print("Intersection of both lists:")
inter = list(filter(lambda x: x in lis1,lis2))
print(inter)
```

OUTPUT:

SET 1:

```
Enter the values of 1st list:
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 12
```

```
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 40
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 20
Press 1 to enter a value.
press 0 to exit.
Enter: 0
Enter the values of 2nd list:
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 44
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 50
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 40
Press 1 to enter a value.
press 0 to exit.
Enter: 0
The 1st list:
['12', '40', '20']
The 2nd list:
['44', '50', '40']
Intersection of both lists:
['40']
```

SET 2:

```
Enter the values of 1st list:
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 2
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 4
```

```
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 5
Press 1 to enter a value.
press 0 to exit.
Enter: 0
Enter the values of 2nd list:
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 5
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 12
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter your value: 0
Press 1 to enter a value.
press 0 to exit.
Enter: 0
The 1st list:
['2', '4', '5']
The 2nd list:
['5', '12', '0']
Intersection of both lists:
['5']
```

ASSIGNMENT 22:

Write a Python program to find palindromes in a given list of strings using Lambda

SOURCE CODE:

```
lis = []
size = int(input("Enter the size of the list: "))
for i in range(size):
    val = str(input("Enter the value: "))
    lis.append(val)
print("The original list:")
print(lis)
palin = list(filter(lambda x:
x==""".join(reversed(x)),lis))
print("List of palindromes from above list:")
print(palin)
```

OUTPUT:

SET 1:

```
Enter the size of the list: 4
Enter the value: cat
Enter the value: madam
Enter the value: do
Enter the value: hello
The original list:
['cat', 'madam', 'do', 'hello']
List of palindromes from above list:
['madam']
```

SET 2:

```
Enter the size of the list: 4
Enter the value: mam
Enter the value: dog
Enter the value: pop
Enter the value: hi
The original list:
['mam', 'dog', 'pop', 'hi']
List of palindromes from above list:
['mam', 'pop']
```

ASSIGNMENT 23:

Write a Python program to print dictionary where the keys are numbers between 1 and 15(both included)and the values are square of keys

SOURCE CODE:

```
dic = {}
for i in range(1,16):
    dic[i] = i**2
print("Dictionary of numbers and it's squares are:
\n")
for i,j in dic.items():
    print(str(i)+" = "+str(j))
```

OUTPUT:

```
Dictionary of numbers and it's squares are:

1 = 1
2 = 4
3 = 9
4 = 16
5 = 25
6 = 36
7 = 49
8 = 64
9 = 81
10 = 100
11 = 121
12 = 144
13 = 169
14 = 196
15 = 225
```

ASSIGNMENT 24:

Write a Python program to remove duplicates from Dictionary.

SOURCE CODE:

```
size = int(input("Enter the size of the
dictionary: "))
dic1 = {}
dic2 = {}
for i in range(size):
    key = input("Enter the key: ")
    val = input("Enter the value: ")
    dic1[key] = val
print("\nOriginal Dictionary: ")
print(dic1)
temp = []
for key,val in dic1.items():
    if val not in temp:
        temp.append(val)
        dic2[key] = val
print("\nDictionary after removing duplicates: ")
print(dic2)
```

OUTPUT:

SET 1:

```
Enter the size of the dictionary: 5
Enter the key: 1
Enter the value: one
Enter the key: 2
Enter the value: one
Enter the key: 3
Enter the value: three
Enter the key: 4
Enter the value: four
Enter the key: 5
Enter the value: four

Original Dictionary:
{'1': 'one', '2': 'one', '3': 'three', '4':
'four', '5': 'four'}
```

```
Dictionary after removing duplicates:
{'1': 'one', '3': 'three', '4': 'four'}
```

SET 2:

```
Enter the size of the dictionary: 4
Enter the key: 1
Enter the value: go
Enter the key: 2
Enter the value: go
Enter the key: 3
Enter the value: car
Enter the key: 4
Enter the value: home

Original Dictionary:
{'1': 'go', '2': 'go', '3': 'car', '4': 'home'}

Dictionary after removing duplicates:
{'1': 'go', '3': 'car', '4': 'home'}
```

ASSIGNMENT 25:

Write a Python program to combine two dictionary adding values for common keys.

SOURCE CODE:

```
n1 = int(input("Enter the size of the first
dictionary: "))
dic1 = {}
for i in range(n1):
    key = input("Enter the key: ")
    val = int(input("Enter the value: "))
    dic1[key] = val

n2 = int(input("Enter the size of the second
dictionary: "))
dic2 = {}
for i in range(n2):
    key = input("Enter the key: ")
    val = int(input("Enter the value: "))
    dic2[key] = val
print("\n1st Dictionary: ")
print(dic1)
print("\n2nd Dictionary: ")
print(dic2)
for key1,val1 in dic1.items():
    for key2,val2 in dic2.items():
        if(key1==key2):
            dic1[key1] = val1+val2
temp = []
for key,val in dic1.items():
    temp.append(key)
print(temp)
for key,val in dic2.items():
    if key not in temp:
        dic1[key] = val
print("\nCombination of two dictionary adding
values for common keys: ")
print(dic1)
```

OUTPUT:

SET 1:

```
Enter the size of the first dictionary: 3
Enter the key: a
Enter the value: 1
Enter the key: b
Enter the value: 2
Enter the key: c
Enter the value: 3
Enter the size of the second dictionary: 3
Enter the key: d
Enter the value: 4
Enter the key: e
Enter the value: 5
Enter the key: f
Enter the value: 6

1st Dictionary:
{'a': 1, 'b': 2, 'c': 3}

2nd Dictionary:
{'d': 4, 'e': 5, 'f': 6}
['a', 'b', 'c']

Combination of two dictionary adding values for
common keys:
{'a': 1, 'b': 2, 'c': 3, 'd': 4, 'e': 5, 'f': 6}
```

SET 2:

```
Enter the size of the first dictionary: 3
Enter the key: 1
Enter the value: 10
Enter the key: 2
Enter the value: 20
Enter the key: 3
Enter the value: 30
Enter the size of the second dictionary: 2
Enter the key: 4
Enter the value: 40
Enter the key: 5
Enter the value: 50
```

```
1st Dictionary:
{'1': 10, '2': 20, '3': 30}

2nd Dictionary:
{'4': 40, '5': 50}
['1', '2', '3']

Combination of two dictionary adding values for
common keys:
{'1': 10, '2': 20, '3': 30, '4': 40, '5': 50}
```

ASSIGNMENT 26:

Write a Python program to create and display all combinations of letters, selecting each letter from different key in dictionary.

SOURCE CODE:

```
import itertools
dic = {}
print("Enter the keys and values of the
dictionary:")
n = int(input("""Press 1 to enter a value.
press 0 to exit.
Enter: """))
while(n!=0):
    if(n==1):
        key = input("Enter the key: ")
        val = list(input("Enter some values
separated by comma: ").split(","))
        dic[key] = val
    n = int(input("""Press 1 to enter a value.
press 0 to exit.
Enter: """))
print("\nOutput:")
for combo in itertools.product(*[dic[key] for key
in sorted(dic.keys())]):
    print(''.join(combo))
```

OUTPUT:

SET 1:

```
Enter the keys and values of the dictionary:
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter the key: 1
Enter some values separated by comma: a,b
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter the key: 2
Enter some values separated by comma: c,d
Press 1 to enter a value.
press 0 to exit.
Enter: 0
```

```
Output:
ac
ad
bc
bd
```

SET 2:

```
Enter the keys and values of the dictionary:
Press 1 to enter a value.
press 0 to exit.
Enter: 1
Enter the key: 1
Enter some values separated by comma: one,two
Press 1 to enter a value.
press 0 to exit.
Enter: 2
Enter some values separated by comma: two,three
Press 1 to enter a value.
press 0 to exit.
Enter: 0

Output:
onetwo
onethree
twotwo
twothree
```

ASSIGNMENT 27:

Write a Python program to invert a dictionary such that previous keys become values and velues keys.

Eg: If d1={1:’a’,2:’b’,3:120} then d2={‘a’:1,2:’b’:120:3}

SOURCE CODE:

```
size = int(input("Enter the size of the
dictionary: "))
dic1 = {}
dic2 = {}
for i in range(size):
    key = input("Enter the key: ")
    if(key.isdigit()==True):
        key = int(key)
    val = input("Enter the value: ")
    if(val.isdigit()==True):
        val = int(val)
    dic1[key] = val
print("\nOriginal Dictionary: ")
print(dic1)
for key,val in dic1.items():
    dic2[val] = key
print("\nInverted Dictionary: ")
print(dic2)
```

OUTPUT:

SET 1:

```
Enter the size of the dictionary: 3
Enter the key: 1
Enter the value: a
Enter the key: 2
Enter the value: b
Enter the key: 3
Enter the value: 120

Original Dictionary:
{1: 'a', 2: 'b', 3: 120}

Inverted Dictionary:
{'a': 1, 'b': 2, 120: 3}
```

SET 2:

```
Enter the size of the dictionary: 3
Enter the key: a
Enter the value: 10
Enter the key: b
Enter the value: 20
Enter the key: c
Enter the value: 30

Original Dictionary:
{'a': 10, 'b': 20, 'c': 30}

Inverted Dictionary:
{10: 'a', 20: 'b', 30: 'c'}
```

ASSIGNMENT 28:

Emulate the unix ‘cp’,’grep’,’cat’ programs in Python. In each case the user should pass the arguments to the program as command line arguments.

SOURCE CODE:

```
s = str(input(">>$"))
lis = list(s.split(" "))
while(lis[0]!="clear"):
    n = len(lis)
    if(lis[0]=="cp"):
        try:
            s1 = lis[1]
            s2 = lis[2]
            file1 = open(s1+".txt","r")
            st = file1.read()
            file1.close()
            file2 = open(s2+".txt","w")
            file2.write(st)
            file2.close()
        except:
            print("No such file exists.")
    elif(lis[0]=="grep"):
        try:
            s1 = lis[1]
            s2 = lis[2]
            num = 0
            file1 = open(s2+".txt","r")
            st = file1.read()
            file1.close()
            ser = list(st.split(" "))
            size = len(ser)
            for i in range(size):
                if(s1==ser[i]):
                    num += 1
            print(s1+" : "+str(num))
        except:
            print("No such file exists.")
    elif(lis[0]=="cat"):
        try:
            s1 = lis[1]
            file1 = open(s1+".txt","r")
            print(file1.read())
```

```
            file1.close()
        except:
            print("No such file exists.")
    s = str(input(">>$"))
    lis = list(s.split(" "))
```

OUTPUT:

SET 1:

```
>>$grep a
No such file exists.
>>$cat a
It is cloudy.
>>$
```

SET 2:

```
>>$cat b
It will rain.
>>$grep b
No such file exists.
>>$
```

ASSIGNMENT 29:

Write a python program to combine each line from the first file with the corresponding line in second file. Use exception to handle errors.

SOURCE CODE:

```
s1 = str(input("Enter the name of the first file: "))
s2 = str(input("Enter the name of the second file: "))
try:
    file1 = open(s1+".txt","r")
    print("The context of "+s1+".txt are: \n")
    print(file1.read())
    file2 = open(s2+".txt","r")
    print("The context of "+s2+".txt are: \n")
    print(file2.read()+"\n")
    file1.close()
    file2.close()
    file1 = open(s1+".txt","r")
    file2 = open(s2+".txt","r")
    print("After combine each line from first file with the corresponding line in second file the output is: ")
    for each1,each2 in zip(file1,file2):
        print(each1+each2)
    file1.close()
    file2.close()
except:
print("Either of the files don't exists.")
```

OUTPUT:

SET 1:

```
Enter the name of the first file: a
Enter the name of the second file: b
The context of a.txt are:

This is my school.
The context of b.txt are:

It is a beautiful day.
```

After combine each line from first file with the corresponding line in second file the output is:
This is my school.It is a beautiful day.

SET 2:

Enter the name of the first file: a
Enter the name of the second file: b
The context of a.txt are:

It is cloudy.
The context of b.txt are:

It will rain.

After combine each line from first file with the corresponding line in second file the output is:
It is cloudy.It will rain.

ASSIGNMENT 30:

Write a python program to count the frequency of words in a file. Use exception to handle errors.

SOURCE CODE:

```
s1 = str(input("Enter the name of the  file: "))
count=0
file1 = open(s1+".txt","r")

for line in file1:
  word=line.split(" ")
  count +=len(word)

print('No. of words:'+str(count))
file1.close()
```

OUTPUT:

SET 1:

```
Enter the name of the  file: a
No. of words:3
```

SET 2:

```
Enter the name of the  file: a
No. of words:3
```

ASSIGNMENT 31:

Write a python program that takes a text file as input and returns the number of words of a given text file.Use exception to handle errors.

SOURCE CODE:

```
s = str(input("Enter the name of the file: "))
try:
    f = open(s+".txt","rt")
    st = str(f.read())
    f.close()
    print("The context of "+s+".txt are: \n")
    print(st+"\n")
    lis = list(st.split())
    print("No. of words in "+s+": "+str(len(lis)))
except:
    print(s+" doesn't exist.")
```

OUTPUT:

SET 1:

```
Enter the name of the file: a
The context of a.txt are:

It is cloudy.

No. of words in a: 3
```

SET 2:

```
Enter the name of the file: b
The context of b.txt are:

It will rain.

No. of words in b: 3
```

ASSIGNMENT 32:

Write a python program to create fibonacci series upto n using lambda.

SOURCE CODE:

```
def fibo(n):
    lis = [0,1]
    any(map(lambda x: lis.append(sum(lis[-
2:])),range(2,n)))
    return lis

n = int(input("Enter a number n: "))
print("\nFibonacci series upto n:")
print(fibo(n))
```

OUTPUT:

SET 1:

```
Enter a number n: 5

Fibonacci series upto n:
[0, 1, 1, 2, 3]
```

SET 2:

```
Enter a number n: 15

Fibonacci series upto n:
[0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144,
233, 377]
```

ASSIGNMENT 33:

Write a python program to print the Pascal's triangle. The character or string that will be printed should be taken from the user. You cannot use triple quoted string.

SOURCE CODE:

```
def factorial(n):
    mul = 1
    while(n>0):
        mul = mul*n
        n = n-1
    return mul

n = int(input("Enter no. of levels: "))
for i in range(n):
    for j in range(n-i+1):
        print(end=" ")
    for j in range(i+1):

print(factorial(i)//(factorial(j)*factorial(i-j)),
end=" ")
    print()
```

OUTPUT:

SET 1:

```
Enter no. of levels: 4
     1
    1 1
   1 2 1
  1 3 3 1
```

SET 2:

```
Enter no. of levels: 6
       1
      1 1
     1 2 1
    1 3 3 1
   1 4 6 4 1
  1 5 10 10 5 1
```