1.Write a program to find the factorial of a number.

def factorial(n):

ans = 1

while n>0:

ans = ans\*n

n=n-1

return ans

n = int(input("enter any number : "))

if n < 0:

print("not a valid number")

elif n == 0:

print('1')

else:

print(factorial(n))

2.Write a function to determine if a string is a palindrome.

str = input("enter string : ")

str = str.replace(" ","")

if str == str[::-1]:

print("it is palindrome")

else:

print("string is not palindrome")

3.Write a program to find the largest and smallest numbers in a list.

list1=[]

n = int(input("how many number in the list : "))

for i in range(n):

l = int(input("enter "))

list1.append(l)

print("smallest no is ",min(list1))

print("largest no is ",max(list1))

4.Write a function to reverse a string.

str = input("enter a string :")

print(str.replace(" ","")[::-1])

5.Write a program to count the number of occurrences of a character in a string.

str = input("enter string : ")

str = str.replace(" ","")

str\_set = set()

for i in str:

str\_set.add(i)

for n in str\_set:

print(n,"count is ",str.count(n))

6.Write a function to check if a number is prime.

def primeNo(n):

flag = False

for i in range(2,n):

if n%i==0:

flag=True

break

if flag==False:

print("Prime no")

else:

print("it is not prime no")

n = int(input("enter no : "))

if n<0:

print("negative number cant be prime")

elif n==1:

print("1 is not prime no")

else:

primeNo(n)

7.Write a program to find the sum of all the elements in a list

suml = []

n = int(input("enter how many no isn the list : "))

if n < 0:

print("not a valid no")

elif n == 0:

print("not a valid no")

else:

for i in range(n):

b = int(input("enter no : "))

suml.append(b)

print("sum of all elements is : ",sum(suml))

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8.Write a function to sort a list of integers in ascending or descending order.

nums = []

n = int(input("enter how many no isn the list : "))

if n < 0:

print("not a valid no")

elif n == 0:

print("not a valid no")

else:

for i in range(n):

b = int(input("enter no : "))

nums.append(b)

nums.sort()

print("ascending order = ",nums)

nums.sort(reverse=True)

print("descending order = ",nums)

9.Write a program to find the length of the longest common prefix in a list of strings.

def longestCommonPrefix( a):

size = len(a)

if (size == 0):

return ""

if (size == 1):

return a[0]

a.sort()

end = min(len(a[0]), len(a[size - 1]))

i = 0

while (i < end and

a[0][i] == a[size - 1][i]):

i += 1

pre = a[0][0: i]

return pre

inl=[]

n = int(input("how many elemetns in the list"))

for i in range(n):

b = input("enter string : ")

b=b.replace(" ","")

inl.append(b)

print("The longest Common Prefix is :" ,longestCommonPrefix(inl))

10.Write a function to calculate the nth Fibonacci number.

def fibonacci(n):

if n < 0:

print("Incorrect input")

elif n == 0:

return 0

elif n == 1 or n == 2:

return 1

else:

return fibonacci(n-1) + fibonacci(n-2)

n = int(input("enter any number : "))

print(fibonacci(n))

11.Write a program to remove duplicates from a list.

str = input("enter : ")

str = str.replace(" ","")

str\_list = []

for i in str:

str\_list.append(i)

str\_set = set(str\_list)

str\_list = list(str\_set)

print(str\_list)

12.Write a function to calculate the factorial of a number using recursion.

def facty(n):

return 1 if (n==1 or n==0) else n\*facty(n-1)

n = int(input("enter any number : "))

if n < 0:

print("not a valid number")

elif n == 0:

print('1')

else:

print(facty(n))

13.Write a program to check if a number is an Armstrong number.

def armstrong(n):

sum=0

temp=n

while temp != 0:

digit = temp % 10

sum += digit \*\* 3

temp //= 10

if sum==n:

print("It is armstrong no")

else:

print("It is not armstrong no")

n = int(input("enter any number : "))

if n < 0:

print("not a valid number")

elif n == 0:

print("not valid")

else:

armstrong(n)

14.Write a function to check if a string is a valid palindrome ignoring white space and punctuation.

import re

str = input("enter string : ")

str = str.replace(" ","")

# str = str.replace(re.findall("[^a-zA-Z0-9]",str),"")

for i in re.findall("[^a-zA-Z0-9]",str):

str=str.replace(i,"")

if str == str[::-1]:

print("it is palindrome")

else:

print("string is not palindrome")

15.Write a program to calculate the average of a list of numbers.

suml = []

n = int(input("enter how many no isn the list : "))

if n < 0:

print("not a valid no")

elif n == 0:

print("not a valid no")

else:

for i in range(n):

b = int(input("enter no : "))

suml.append(b)

print("sum of all elements is : ",sum(suml))

print("average is : ",sum(suml)/len(suml))