Write a Python program to calculate the area of a rectangle using user input for length and width.

Solution:

length=int (input ("enter the length: "))  
width=int (input ("enter the width: "))  
area\_of\_rectangle = length\*width  
print ("the area of rectangle:", area\_of\_rectangle)

output:

enter the length:20  
enter the width:5  
the area of rectangle: 100

Write a Python program to find the maximum of three numbers using conditional statements.

Solution:

num1=int (input ("enter num1: "))  
num2=int (input ("enter num2: "))  
num3=int (input ("enter num3: "))  
if num1>num2 and num1>num3:  
 print ("num1 is maximum number")  
elif num2>num1 and num2>num3:  
 print ("num2 is maximum number")  
else:  
 print ("num3 is the maximum number")

output:

enter num1: 20

enter num2: 40

enter num3: 10

num2 is maximum number

Write a Python program to swap the values of two variables without using a temporary variable.

Solution:

print("before swapping the numbers")  
num1=int(input("enter num1: "))  
num2=int(input("enter num2: "))  
num1,num2=num2,num1  
print("after swapping the numbers")  
print("num1 is:",num1)  
print("num2 is:",num2)

output:

before swapping the numbers  
enter num1: 10  
enter num2: 20  
after swapping the numbers  
num1 is: 20  
num2 is: 10

Write a Python program to convert temperature from Celsius to Fahrenheit and vice versa using functions.

Solution:

celsius=float (input ("enter temperature in celsius:"))  
fahrenheit=(celsius\*9/5) + 32  
print(f"{celsius} degrees celsius is equal to {fahrenheit} degrees fahrenheit")

output:

32.0 degrees celsius is equal to 89.6 degrees fahrenheit

enter temperature in fahrenheit:44

fahrenheit=float (input ("enter temperature in fahrenheit:"))  
celsius=(fahrenheit\*5/9) +32  
print(f"{fahrenheit} degrees celsius is equal to {celsius} degrees celsius" )

output:

enter temperature in fahrenheit:44

44.0 degrees celsius is equal to 56.44444444444444 degrees celsius

Write a Python program to count the number of vowels in a given string.

Solution:

str1=input ("enter a string: ")  
vowels=["a","e","i","o","u","A","E","I","O","U"]  
count=0  
for i in str1:  
 if i in vowels:  
 count=count+1  
print(count)

output:

enter a string: welcome

3

Write a Python program to check if a given number is prime or not.

Solution:

num = int(input("enter a number: "))#it should be greater than 1 and it should have only 2factors  
count=0  
if num>1:  
 for i in range(1,num+1):  
 if(num%i)== 0:  
 count=count+1  
 if count == 2:  
 print("it is prime number")  
 else:  
 print("it's not a prime number")  
else:  
 print("number less than 1,it should be greater than one")

output:

enter a number:7

7 is a prime number

Write a Python program to find the factorial of a given number using recursion.

Solution:

num=int(input("enter a number: "))  
fact=1  
for i in range(1,num+1):  
 fact=fact\*i  
print(fact)

output:

enter a number: 4

24

Write a Python program to generate the Fibonacci sequence up to a certain number of terms.

Solution:

n1=0

n2=1

print(n1)

print(n2)

for i in range (2,10):

sum=n1+n2

print(sum)

n1=n2

n2=sum

output:

0

1

1

2

3

5

8

13

21

34

Write a Python program to remove duplicates from a list.

Solution:

list1=[10,20,20,30,30,40,20]  
new\_list=[]  
for i in list1:  
 if i not in new\_list:  
 new\_list.append(i)  
print(new\_list)

output:

[10,20,30,40]

Write a Python program to find the intersection of two lists.

Solution:

list1=[1,2,3,4]  
list2=[3,4,5,6]  
new\_list1=set(list1)  
new\_list2=set(list2)  
print(list(new\_list1.intersection(new\_list2)))

output:

[3,4]

Write a Python program to find the longest word in a given list of words.

Solution:

list1=["python","is","programming","language"]  
longest\_word=[]  
for i in list1:  
 if len(i)>len(longest\_word):  
 longest\_word=i  
print("The longest word is:", longest\_word)

output:

The longest word is: programming

Write a Python program to count the occurrences of each word in a given string.

Solution:

text = "apple banana apple strawberry banana apple kiwi"  
words = text.split()  
word\_counts = {i: words.count(i) for i in set(words)}  
print("word occurrences:", word\_counts)

output:

word occurrences: {'apple': 3, 'banana': 2, 'kiwi': 1, 'strawberry': 1}

Write a Python program to reverse a given string.

Solution:

str1="welcome to python world"  
print(str1[::-1])

output:

dlrow nohtyp ot emoclew

Write a Python program to sort a list of tuples based on the second element of each tuple.

Solution:

list\_of\_tuples=[(1,2),(7,9,3,4),(5,6)]  
list\_of\_tuples.sort(key=lambda x:x[1])  
print(list\_of\_tuples)

output:

[(1, 2), (5, 6), (7, 9, 3, 4)]

Write a Python program to find the sum of all elements in a list using a loop.

Solution:

list1=[10,20,30,40]  
sum=0  
for i in list1:  
 sum=sum + i  
print(sum)

output:

100

Write a Python program to remove the last element from a list.

Solution:

list1=[10,20,30,40,50]  
list1.pop(4)  
print(list1)

output: [10,20,30,40]

Write a Python program to check if a given string is a palindrome.

Solution:

str1="madam"  
if str1==str1[::-1]:  
 print("given string is palindrome")  
else:  
 print("given string is not a palindrome")

output:

given string is palindrome

Write a Python program to find the common characters between two strings.

Solution:

str1="hello"  
str2="world"  
common\_chars = set(str1) & set(str2)  
print ("common characters:", "".join(sorted(common\_chars)))'''

output: common characters: lo

Write a Python program to find the length of the longest consecutive sequence of a given list of integers.

Solution:

nums = [100, 4, 200, 1, 3, 2]  
nums = list(set(nums))  
nums.sort()  
  
longest = 1  
current\_streak = 1  
  
for i in range(1, len(nums)):  
 if nums[i] == nums[i - 1] + 1: *# Check if consecutive* current\_streak += 1  
 else:  
 longest = max(longest, current\_streak) *# Update longest streak* current\_streak = 1 *# Reset streak*longest = max(longest, current\_streak)   
  
print("Length of the longest consecutive sequence:", longest)

Write a Python program to find the difference between two sets.

Solution:

set1={10,20,30,40}  
set2={20,40,50,60}  
print(set1.difference(set2))

output:

{10,30}