**1.Write a function convert\_temperature(temp) that converts temperature in Fahrenheit to degree Celsius**

def convert\_temp(temp):

    fahrenheit=(temp\*9/5)+32

    return fahrenheit

temp=int(input("Enter Temperature in celsius"))

print(convert\_temp(temp))

**2. Write a function number\_sum(num)that calculates the sum of the digits of a number**

def number\_sum(num):

    ans=0

    while(num>0):

        ans+=num%10

        num//=10

    return ans

num=int(input("Enter a number"))

ans = number\_sum(num)

print(f'the sum of the digits is {ans}')

**3. Create a function factorial(n) that returns the factorial of a given number.**

def fact(num):

    ans=1

    while(num>0):

        ans\*=num

        num-=1

    return ans

num=int(input("Enter a number"))

ans=fact(num)

print(f"The factorial of {num} is {ans}")

**4.Write a function prime\_number(n) that displays whether a number entered by the user is prime or not.**

def isPrime(num):

    if num<=1:

        return False

    for i in range(2,int(num\*\*0.5)+1):

        if num%i==0:

            return False

    return True

num=int(input("Enter a number"))

if isPrime(num):

    print("Its a prime number")

else:

    print("Its not a prime number")

**5.Use a lambda function to: • Square a number • Add two numbers**

num=int(input("Enter a number"))

square=lambda num: num\*\*2

print(f'The square of {num} is {square(num)}')

num1=int(input("Enter first number"))

num2=int(input("Enter second number"))

add=lambda x,y:num1+num2

print(f'The sum of {num1}+{num2} is {add(num1,num2)}')

#x and y are parameters and num1+num2 is the operation

#add is the function variable which will store the anonymous function defined using lambda

**6.Create a list of integers. Perform the following: • Append elements • Remove an element • Sort the list in descending order • Find the sum and average of the list**

numbers=[1,2,3,4,5,6,7]#this is a list of numbers

print(numbers)#[1, 2, 3, 4, 5, 6, 7]

numbers.append(8)

print(numbers)#[1, 2, 3, 4, 5, 6, 7, 8] append means adding an item in the last index

numbers.remove(4)

print(numbers)#[1, 2, 3, 5, 6, 7, 8] 4 is removed from the list

numbers.sort(reverse=True)

print(numbers)#it will first sort in ascending order then it will reverse the list to make it in descending order

#[8, 7, 6, 5, 3, 2, 1]

numbers.extend([4,9,10])#extend takes only one argument but i have to send multiple numbers so i made it a list then sending now python will consider it one argument as it is a single list

numbers.sort()#[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

print(numbers)

#creating a list from 1 to 10 numbers

ans=0

for i in numbers:

    ans+=i #the sum from 1 to 10 will be stored in ans

    avg=ans/len(numbers)#then avg will be calculated

print(f'the average is {avg}')

**7.Create a tuple of 5 items. Demonstrate slicing, indexing, and unpacking of the tuple.**

myTuple=(1,2,3,4,5)

print(myTuple[2])#3, we can access tuples with index numbers it starts with index0 and we can also do negative indexing it starts with the last index say -1

print(myTuple[-2])#4

print(myTuple[2:4])#(3, 4)#it returns a portion of the tuple from which the slicing starts and to which slicing should be done here slicing starts with index 2 and till index 4

myInfo=("raj",25,"hacker")

name,age,profession=myInfo

print(name)#raj

print(age)#25

print(profession)#hacker

#i unpacked the tuple myInfo and assigned it to 3 different corresponding variables

**8.Create a set of fruits. Add a new fruit, remove one fruit, and demonstrate that duplicates are automatically removed.**

fruitsSet={"apple","banana","mango","litchi","apple"}

print(fruitsSet)

#{'litchi', 'mango', 'apple', 'banana'}

#here we can see that only unique values are printed and also it is unordered.

fruitsSet.add("chiku")

print(fruitsSet)

#{'chiku', 'litchi', 'apple', 'banana', 'mango'}

#using add function we can add only a single item at a time

#to add multiple items we use update method

fruitsSet.update(["orange","strawberry","etc"])

print(fruitsSet)

#{'banana', 'etc', 'chiku', 'mango', 'orange', 'apple', 'strawberry', 'litchi'}

fruitsSet.remove("apple")

print(fruitsSet)#{'banana', 'orange', 'etc', 'chiku', 'strawberry', 'litchi', 'mango'} apple is removed from the fruitsSet

**9.Create a dictionary of student names and their marks. Add a new entry, update an existing one, delete an entry, and find the student with the highest marks.**

students={

    "raj":98,

    "ramesh":89,

    "himesh":23,

    "roshni":54,

    "saran":89

}

print(students)

#{'raj': 98, 'ramesh': 89, 'himesh': 23, 'roshni': 54, 'saran': 89}

#created a dictionary of students where names are the keys and marks are their corresponding values

#adding a student in the dictionary

students["neha"]=80

print(students)

#{'raj': 98, 'ramesh': 89, 'himesh': 23, 'roshni': 54, 'saran': 89, 'neha': 80}

students["raj"]=100

print(students)

#{'raj': 100, 'ramesh': 89, 'himesh': 23, 'roshni': 54, 'saran': 89, 'neha': 80}

#updated the marks of raj

del students["ramesh"]

print(students)

#{'raj': 100, 'himesh': 23, 'roshni': 54, 'saran': 89, 'neha': 80} ramesh has deleted from the dictionary

highest\_student=max(students,key=students.get)

highestMarks=students[highest\_student]

print(f"Topper is {highest\_student} with {highestMarks} marks")

#Topper is raj with 100 marks

**10.Write a function that prints the reverse of a number(like if a user enter 4587 it gives 7854) .**

num=int(input("Enter a number")) #1234

rev=0

while(num>0):#1234 is greater than 0 true   ,123>0      ,12>0       2>0     ,0>0->false ,out from loop

    digit=num%10        #1234%10=4  ,123%10=3       ,12%10=2        1%10=1

    rev=rev\*10+digit    #0\*10+4=4   ,4\*10+3=43      ,43\*10+2=432    432\*10+1=4321

    num=num//10         #1234//10=123   ,123//10=12     ,12//10=1       ,2//10=0

print(rev)#printing rev value