5]

**Perfect number**

Write a python program to get a number from the user and find out whether the given number is a perfect number or not

**Explantion**

A perfect number is a positive integer that is equal to the sum of its positive divisors, excluding the number itself

input - 6

divisors - 1,2,3

sum - 6

If sum of divisors and original number are equal, it is a perfect number

**Ans:**

n=int(input())

if (n>0):

s=0

for i in range (1,n):

if(n%i==0):

s+=i

if(s==n):

print("Perfect number")

else:

print("Not a perfect number")

else:

print("Not valid")

Q3) John's little brother is struggling with Maths. He decided to design a calculator with basic operations such as Addition, Subtraction, Multiplication and Division. The calculator should input two float numbers and an operator from the user. It should perform an operation according to the operator entered and must take input in given format. Input Format First line contains 2 float numbers separated by spaces. Second line contains operator which is going to perform on those inputs. Output Format Print the output Code Constraints Sample 1 Input 20 8 +

Ans:

n,v=map(float,input().split())

s=input()

if(s=="+"):

print(n+v)

elif(s=="-"):

print(n-v)

elif(s=="\*"):

print(n\*v)

elif(s=="/"):

print(n/v)

8]Write a Python function to check whether a number is in a given range. Here n1 and n2 have represented the range. Print inside if the number is between range otherwise print outside.

**Function Name: test\_range()**

**Input format :**

The first line of the input represents the starting range n1

The second line of the input represents the ending range n2.

**Output format :**

Output prints whether a number is in a given range or not.

**Sample test cases :**

**Input 1 :**

100

120

111

**Output 1 :**

Inside

Ans:

def test\_range():

n=int(input())

v=int(input())

r=int(input())

if(n<=r<=v):

print("Inside")

else:

print("Outside")

test\_range()

Q21) Remove "the" occurrence After the weekend holidays, schools open today. The class teacher found many students were absent. So the very next day when students reach class, she announced to submit a leave letter. Shrawanti has the habit of including the word “the” frequently in all her sentences. The teachers found it and asked her to remove the occurrences of the word “the” from the letter. Can you please help her out? Write a program to remove the occurrence of “the” word from entered string. Input Format Get a sentence from the user. Output Format Remove "the" occurrence from the input string. Refer to the Sample input and output. Code Constraints Sample 1 Input remove the occurrence of the word from entered string Sample 1 Output Result string is remove occurrence of word from entered string

Ans:

def remove\_the\_occurrence(input\_string):

result\_string = input\_string.replace(" the ", " ").replace("The ", "").replace(" the", " ").replace("the ", "")

return result\_string

input\_string = input("")

result\_string = remove\_the\_occurrence(input\_string)

print("Result string is")

print(result\_string)

**20]Peter at Challenger Series**

The Table tennis Challenger Series is the springboard to fame for the future stars of professional table tennis. Peter is very passionate about table tennis and made his debut in the first league match of the Series against a prominent player Horejsi.

Peter found some statistics of matches which described who won the points in order. A game shall be won by the player first scoring 11 points except in the case when both players have 10 points each, then the game shall be won by the first player subsequently gaining a lead of 2 points. Could you please help Peter find out who the winner was from the given statistics? (It is guaranteed that statistics represent always a valid, finished match.)

**Input format :**

The first and only line of the input consists of a binary string S, which describes a match. '0' means Peter lose a point, whereas '1' means he won the point.

**Output format :**

Output on a separate line a string describing who won the match. If Peter won then print "Win" (without quotes), otherwise print "Lose" (without quotes).

Refer sample input and output for formatting specifications.

**Sample test cases :**

**Input 1 :**

10111010111

**Output 1 :**

Win

Ans:

**s = input()**

**if(s.count("0")>s.count("1")):**

**print("Lose")**

**else:**

**print("Win")**

Q1) CALCULATING GAIN PERCENTAGE Vikram buys an old scooter for Rs. A and spends Rs. B on its repairs. If he sells the scooter for Rs. C , what is his gain %? Write a program to compute the gain %. Output value should be displayed correct to 2 decimal places. (Use .2f method) Input Format The first input is an integer which corresponds to Cost price. The second input is an integer which corresponds to repair cost. The third input corresponds to the Selling price. Output Format Refer sample input and output for formatting specifications. The float values are displayed correct to 2 decimal places (Use .2f method) Code Constraints Sample 1 Input 4700 800 5800 Sample 1 Output 5.45.

Ans:

n=float(input())

m=float(input())

v=float(input())

b=float((n+m))

a=float((v-b))

r=float(a/b)

w=float(r\*100)

print (f"{w:.2f}")

Q2) Wisconsin State Fair Wisconsin State Fair is one of the largest midsummer celebrations in the Midwest Allis, showcasing the agriculture skills and prowess of the state. The Event organizers hired few part-time employees to work at the fair and the agreed salary paid to them are as given below: Weekdays --- 80 / hour Weekends --- 50 / hour Justin is a part-time employee working at the fair. Number of hours Justin has worked in the weekdays is 10 more than the number of hours he had worked during weekends. If the total salary paid to him in this month is known, write a program to estimate the number of hours he had worked during weekdays and the number of hours he had worked during weekends. Input Format First line of the input is a float value that corresponds to the total salary paid to Justin. Output Format First line of the output should display the number of hours Justin has worked during the weekdays. Second line of the output should display the number of hours Justin has worked during the weekends. Refer sample input and output for formatting specifications. Code Constraints Sample 1 Input 2750 Sample 1 Output 25.0 15.0

Ans:

n=int(input())

v=(n-800)/130

print(v+10)

print(v)

Q17) Write a program to create the following: Class Name: Pow parameters: a, b (integers) Method: display (to print the value of a to the power of b) Class Name: Pow1 (child class of Pow) parameters: inherited from Pow Method: display1 (to print the value of a\*b) Create an object for Pow1. Using that object, call display and display1. Refer sample input and output for formatting specifications. Input Format The first line of the input contains an integer representing a The second line of the input contains an integer representing b Output Format The first line of the output contains the value of a to the power of b. The second line of the output contains the value of a \* b. Code Constraints Sample 1 Input 2 5 Sample 1 Output 32 10

Ans:

class Pow:

def \_\_init\_\_(self,a,b):

self.a = a

self.b = b

def display(self):

print(self.a\*\*self.b)

class Pow1(Pow):

def display1(self):

print(self.a\*self.b)

a = int(input())

b =int(input())

obj=Pow1(a,b)

obj.display()

obj.display1()

Q18) MULTILEVEL INHERITANCE Create 3 classes Person, Staff, TemporaryStaff. Here Person class will be inherited by the Staff class and the Staff class will be again inherited by the TemporaryStaff class. In class Person, create the following attributes and methods Attributes: name Methods: display1 - method to display name In class Staff, create the following attributes and methods Attributes: staffid Methods: display2 - method to display staffid In class TemporaryStaff, create the following data members and methods Attributes: days, hours\_worked Methods: display3 - method to display days, hours\_worked, and salary. (Salary is calculated by days \* hours\_worked \* 50) Write a code to test the above class. Refer to sample input and output for exact requirements. Create an object for the class TemporaryStaff and call the methods display1, display2, display3

Ans:

# You are using Python

class Person:

def \_\_init\_\_(self,name):

self.name = name

def display1(self):

print('Person Name:{}'.format(self.name))

class Staff(Person):

def \_\_init\_\_(self,name,staffid):

super().\_\_init\_\_(name)

self.staffid=staffid

def display2(self):

print('Staff id:{}'.format(self.staffid))

class Temporarystaff(Staff):

def \_\_init\_\_(self,name,staffid,days,hours\_worked):

super().\_\_init\_\_(name,staffid)

self.days=days

self.hours\_worked=hours\_worked

def display3(self):

salary=self.days\*self.hours\_worked \* 50

print("Number of days:{}".format(self.days))

print("Number of hours worked:{}".format(self.hours\_worked))

print("Total Salary:{}".format(salary))

name=input()

staffid=input()

days=int(input())

hours\_worked=int(input())

obj=Temporarystaff(name, staffid, days,hours\_worked)

obj.display1()

obj.display2()

obj.display3()

Q16) Write a program to reverse a sentence word by word. Use Python class to achieve the result. Class name: python\_string method name: reverse\_words Input Format The input contains a sentence. Output Format The output displays reversing a given sentence word by word. Code Constraints Sample 1 Input Hello Python Sample 1 Output Python Hello Sample 2 Input Trees are beautiful gift to nature Sample 2 Output nature to gift beautiful are Trees

Ans:

class python\_string:

def reverse\_words(self, sentence):

return ' '.join(sentence.split()[::-1])

sentence = input()

string\_obj = python\_string()

print(string\_obj.reverse\_words(sentence))

Q15) Write a program with class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle. Class Name: Circle Method1: area Method2: perimeter Create an object for the class Circle and display the area and perimeter of a circle. Note: Use pi = 3.14 Input Format The input contains positive integer representing radius of a circle Output Format The output displays the area and perimeter of a circle. Code Constraints Sample 1 Input 8 Sample 1 Output 200.96 50.24

Ans:

class Circle():

def \_\_init\_\_(self, r):

self.radius = r

def area(self):

return self.radius\*\*2\*3.14

def perimeter(self):

return 2\*self.radius\*3.14

radius = int(input())

NewCircle = Circle(radius)

print(NewCircle.area())

print(NewCircle.perimeter())

Q19) To understand the concept of IOError in Exception handling, Write a program to open the random file in read mode. If the file is not present, raise an IO Error. Refer Sample input and output for better understanding. Input Format Input consists of filename with proper extension. Output Format Output displays IO Error exception. Code Constraints Sample 1 Input sample.txt Sample 1 Output [Errno 2] No such file or directory: 'sample.txt'

Ans:

filename = input()

try:

fileptr = open(filename,"r")

except IOError as ie:

print(ie)