Slip1

Q1) Create a class circle having members radius. Use operator overloading to add the radius of two circle objects. Also display the area of circle.

class circle:

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

self.radius=radius

def \_\_add\_\_(self,r1):

return self.radius+r1.radius

a=circle(4)

b=circle(5)

print(a+b)

c=a.\_\_add\_\_(b)

print(c)

Q2) **Write a Python program to accept n numbers in list and remove duplicates from a list.**

lis=[]

n=int(input("Enter Limit "))

for i in range(0,n):

i =input("Enter element ")

lis.append(i)

print(lis)

list2 = list(dict.fromkeys(lis))

print(list2)

Slip2

Q1 Write a python program to convert tuple of string values to tuple of integer values. Original tuple values : ((‘333’,’33’),(‘1234’,’55’)) New tuple value (333,33), (1234,55))

a=(('333','33'),('1234','55'))

print(a)

def con(a):

r=tuple((int(x[0]),int(x[1]))for x in a)

return r

print(con(a))

Q2) Define class Rectangle which can be constructed by length and width. The Rectangle class has method which can compute the area and perimeter..

class rectangle:

def area(self,l,b):

return l\*b

def per(self,l,b):

return(2\*(l+b))

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

print(self.area(l,b))

print(self.per(l,b))

c=rectangle(5,2)

Slip3

Q1 Define class circle which has method to can compute the area and perimeter(use parameterized constructor).

class circle:

def area(self,r):

return 3.14\*r\*r

def per(self,r):

return(2\*3.14\*r)

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

print(self.area(r))

print(self.per(r))

c=circle(7)

Q2 Write a Python program to check if a nXn matrix is symmetric.

a=[]

n=int(input("Enter same No of rows and columns i.e. n = "))

for i in range(n):

b=[]

for j in range(n):

b.append(int(input()))

a.append(b)

for i in range(n):

for j in range(n):

print(a[i][j],end=" ")

print()

c=0

for i in range(n):

for j in range(n):

if(a[i][j]!=a[j][i]):

c=c+1

if(c==0):

print("matrix is symmetric")

else:

print("matrix is asymmetric")

**Slip4**

Q1) Program to check the number is Armstrong or not.

n=int(input("Enter Number"))

r=0

sum=0

t=n

while(n>0):

r=n%10

sum=sum+r\*r\*r

n=n//10

print(sum)

if sum==t:

print("Armstrong")

else:

print("not Armstrong")

Q2) Write a Python function to calculate the sum of digits of a number. Use this function in main to accept a number and print sum of its digits.

def sum(n):

s=0

r=0

while (n>0):

r=n%10

s=s+r

n=n//10

return s

n=int(input("Enter Number"))

print(sum(n))

Slip5

Q1) Write a Python program to multiply two matrices. Write separate functions to accept, display and multiply the matrices.

def accept():

m=int(input("Enter no of rows"))

n=int(input("Enter no of columns"))

A=[]

print("Enter Elements of matrix")

for i in range(m):

row=[]

for j in range(n):

row.append(int(input()))

A.append(row)

return A

def display(A):

for i in range(len(A)):

for j in range(len(A[0])):

print(A[i][j],end=" ")

print()

def mult(A,B):

result=[]

for i in range(len(A)):

row=[]

for j in range(len(A[0])):

row.append(0)

result.append(row)

for i in range(len(A)):

for j in range(len(B[0])):

for k in range(len(B)):

result[i][j]+=A[i][k]\*B[k][j]

return result

A=accept()

B=accept()

print("first matrix is :")

display(A)

print("second matrix is :")

display(B)

c=0

p=len(A[0])

q=len(B)

if(p!=q):

c=1

print("Multiplication not possible")

else:

c=mult(A,B)

print("multiplication of matrix is :")

display(c)

Q2) Write a Python program to accept real number x and integer n and calculate the sum of first n terms of the series x+ x/3!+ x/5!+ x/7!+…

def factorial(n: int) -> int:

if n == 0:

return 1

else:

return n \* factorial(n - 1)

def series\_sum(x: float, n: int) -> float:

sum = x

for i in range(1, n + 1):

sum += x / factorial(2 \* i + 1)

return sum

x = float(input("Enter x: "))

n = int(input("Enter n: "))

print(f"Sum of first {n} terms of series: {series\_sum(x, n)}")

Slip6

Q1) Write a Python program to accept a matrix of size m x n and display transpose of a given matrix.

a=[]

n=int(input("Enter No of rows = "))

m=int(input("Enter No of columns = "))

for i in range(n):

b=[]

for j in range(m):

b.append(int(input()))

a.append(b)

print("matrix is")

for i in range(n):

for j in range(m):

print(a[i][j],end=" ")

print()

print("Transpose of matrix is")

for i in range(m):

for j in range(n):

print(a[j][i],end=" ")

print()

Q2) Write Python program to find the maximum number from an array of n integers.

a=[]

n=int(input("Number of elements in array:"))

for i in range(0,n):

l=int(input())

a.append(l)

print(a)

maximum=0

for i in a:

if maximum<i:

maximum = i

print("largest number is",maximum)

Slip7

Q1 Write a Python program to add two matrices of order mXn

def accept():

m=int(input("Enter no of rows"))

n=int(input("Enter no of columns"))

A=[]

print("Enter Elements of matrix")

for i in range(m):

row=[]

for j in range(n):

row.append(int(input()))

A.append(row)

return A

def display(A):

for i in range(len(A)):

for j in range(len(A[0])):

print(A[i][j],end=" ")

print()

def add(A,B):

result=[]

for i in range(len(A)):

row=[]

for j in range(len(A[0])):

row.append(0)

result.append(row)

for i in range(len(A)):

for j in range(len(A[0])):

result[i][j]+=A[i][j]+B[i][j]

return result

A=accept()

B=accept()

print("first matrix is :")

display(A)

print("second matrix is :")

display(B)

c=0

p=len(A[0])

q=len(B)

r=len(B[0])

s=len(A)

if(p!=r or q!=s):

c=1

print("addition not possible")

else:

c=add(A,B)

print("addition of matrix is :")

display(c)

Q2 Write a menu driven program to perform the following operations on an integer. Write separate functions. [15 marks]

1. Check if is even or odd

2. Check if it is prime

3. Exit

n=int(input("Enter no"))

def evodd():

if(n%2==0):

print(n," is even no")

else:

print(n," is odd no")

def prime():

for i in range(1,n+1):

s=0

for j in range(2,i):

if(i%j==0):

s=1

if(s==0):

print(n," is prime")

else:

print(n," is not prime")

ch=0

while(ch!=3):

print("1.check even or odd")

print("2.check prime or not")

print("3.Exit")

ch=int(input("enter choice"))

if(ch==1):

evodd()

if(ch==2):

prime()

if(ch==3):

print("EXIT")

Slip8

Q1) Write a Python program to check if a matrix is upper triangular.

a=[]

n=int(input("Enter same No of rows and columns i.e. n = "))

for i in range(n):

b=[]

for j in range(n):

b.append(int(input()))

a.append(b)

for i in range(n):

for j in range(n):

print(a[i][j],end=" ")

print()

c=0

for i in range(1,n):

for j in range(0,i):

if(a[i][j]==0):

c=1

if(c==1):

print("matrix is ut")

else:

print("matrix is not ut")

Q2) Accept two numbers and perform the following operations till the user selects Exit. [15 marks]

1. Maximum
2. Display all numbers between the two
3. Sum and average

iv EXIT

n1=int(input("first no"))

n2=int(input("second no"))

def max():

if(n1>n2):

print(n1)

else:

print(n2)

def bet():

for i in range(n1,n2+1):

print(i)

def sum():

print("sum = ",n1+n2)

print("avg = ",(n1+n2)/2)

ch=0

while(ch!=4):

print("1.maximum")

print("2.no between ",n1," and ",n2)

print("3.sum and average")

print("1.Exit")

ch=int(input("enter choice"))

if(ch==1):

max()

if(ch==2):

bet()

if(ch==3):

sum()

if(ch==4):

print("EXIT")

Slip10

Q1) Write Python program to subtract two matrices of order mXn

def accept():

m=int(input("Enter no of rows"))

n=int(input("Enter no of columns"))

A=[]

print("Enter Elements of matrix")

for i in range(m):

row=[]

for j in range(n):

row.append(int(input()))

A.append(row)

return A

def display(A):

for i in range(len(A)):

for j in range(len(A[0])):

print(A[i][j],end=" ")

print()

def add(A,B):

result=[]

for i in range(len(A)):

row=[]

for j in range(len(A[0])):

row.append(0)

result.append(row)

for i in range(len(A)):

for j in range(len(A[0])):

result[i][j]+=A[i][j]-B[i][j]

return result

A=accept()

B=accept()

print("first matrix is :")

display(A)

print("second matrix is :")

display(B)

c=0

p=len(A[0])

q=len(B)

r=len(B[0])

s=len(A)

if(p!=r or q!=s):

c=1

print("substraction not possible")

else:

c=add(A,B)

print("substraction of matrix is :")

display(c)

Q2) Write a Python program to accept n integers in an array and search for a specific number

a=[]

n=int(input("Number of elements in array:"))

for i in range(0,n):

l=int(input())

a.append(l)

print(a)

s=int(input("Enter the number to be searched: "))

c=0

for j in range(n):

if a[j] == s:

print("FOUND!")

c+= 1

break

if(c!=1):

print("NOT FOUND!")

Slip11

Q1) Write a function in Python to reverse an integer. Use this in main.

def Reverse(n):

rev = 0

r = 0

while(n != 0):

r = n % 10

rev = rev \* 10 + r

n = int(n / 10)

return rev

num=int(input("Enter Number"))

reverse = Reverse(num)

print('The reverse number is =', reverse)

Q2) Write a Python program to accept n integers in an array and count the frequency of each element of an array.

arr=[]

n=int(input("Number of elements in array:"))

for i in range(0,n):

l=int(input())

arr.append(l)

print(arr)

fr = [None] \* len(arr);

visited = -1;

for i in range(0, len(arr)):

count = 1;

for j in range(i+1, len(arr)):

if(arr[i] == arr[j]):

count = count + 1;

fr[j] = visited;

if(fr[i] != visited):

fr[i] = count;

print("---------------------");

print(" Element | Count");

print("---------------------");

for i in range(0, len(fr)):

if(fr[i] != visited):

print(" " + str(arr[i]) + " | " + str(fr[i]));

print("---------------------");

Slip12

Q1) Write a Python function to check if a number is prime. Use this function to display all prime numbers between 100 and 500.

def prime(n):

for i in range(1,n+1):

s=0

for j in range(2,i):

if(i%j==0):

s=1

if(s==0):

print(n," is prime")

for i in range(100,500):

prime(i)

Q2) Write a Python program to copy one matrix to another. Display the copied matrix.

m=int(input("Enter no of rows"))

n=int(input("Enter no of columns"))

A=[]

print("Enter Elements of matrix")

for i in range(m):

row=[]

for j in range(n):

row.append(int(input()))

A.append(row)

print("original matrix is")

for i in range(m):

for j in range(n):

print(A[i][j],end=" ")

print()

B=[]

for i in range(len(A)):

row=[]

for j in range(len(A[0])):

row.append(0)

B.append(row)

print("copied matrix is")

for i in range(len(A)):

for j in range(len(A[0])):

B[i][j]+=A[i][j]

print(B[i][j],end=" ")

print()

Slip14

Q1) Write a Python program to accept two matrices of size m x n and calculate Addition of Matrices

def accept():

m=int(input("Enter no of rows"))

n=int(input("Enter no of columns"))

A=[]

print("Enter Elements of matrix")

for i in range(m):

row=[]

for j in range(n):

row.append(int(input()))

A.append(row)

return A

def display(A):

for i in range(len(A)):

for j in range(len(A[0])):

print(A[i][j],end=" ")

print()

def add(A,B):

result=[]

for i in range(len(A)):

row=[]

for j in range(len(A[0])):

row.append(0)

result.append(row)

for i in range(len(A)):

for j in range(len(A[0])):

result[i][j]+=A[i][j]+B[i][j]

return result

A=accept()

B=accept()

print("first matrix is :")

display(A)

print("second matrix is :")

display(B)

c=0

p=len(A[0])

q=len(B)

r=len(B[0])

s=len(A)

if(p!=r or q!=s):

c=1

print("addition not possible")

else:

c=add(A,B)

print("addition of matrix is :")

display(c)

Q2) Write a Python program to perform the following operations on an integer till user chooses EXIT. 1. Check if it is even or odd. 2. Display its last digit 3. Display all positive numbers below the number 4. EXIT

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

def evodd():

if(n%2==0):

print(n," is even no")

else:

print(n," is odd no")

def last():

r=n%10

print("last Digit is ",r)

def sum():

for i in range(0,n):

print(i)

ch=0

while(ch!=4):

print("1.check no is even or odd")

print("2.last digit of number")

print("3.all positive no bolow it")

print("4.Exit")

ch=int(input("enter choice"))

if(ch==1):

evodd()

if(ch==2):

last()

if(ch==3):

sum()

if(ch==4):

print("EXIT")

Slip16

Q1) Write a Python program to calculate occurrences of a number in an array of n integers.

arr=[]

n=int(input("Number of elements in array:"))

for i in range(0,n):

l=int(input())

arr.append(l)

print(arr)

fr = [None] \* len(arr);

visited = -1;

for i in range(0, len(arr)):

count = 1;

for j in range(i+1, len(arr)):

if(arr[i] == arr[j]):

count = count + 1;

fr[j] = visited;

if(fr[i] != visited):

fr[i] = count;

print("---------------------");

print(" Element | Count");

print("---------------------");

for i in range(0, len(fr)):

if(fr[i] != visited):

print(" " + str(arr[i]) + " | " + str(fr[i]));

print("---------------------");

Q2) Write a function in Python to calculate factorial of a number. Use this function in main

def fact(n):

f=1

for i in range(1,n+1):

f=f\*i

return f

n= int(input("Enter no"))

print("factorial of ",n," is ",fact(n))

Slip17

Q1) Write a Python program to accept n integers in an array and display the array in reverse order.

arr=[]

n=int(input("Number of elements in array:"))

for i in range(0,n):

l=int(input())

arr.append(l)

print(arr)

b=[]

for i in range(n-1,-1,-1):

b.append(arr[i])

print(b)

Q2) Define class Rectangle which can be constructed by length and width. The Rectangle class has method which can compute the area and perimeter..

class rectangle:

def area(self,l,b):

return l\*b

def per(self,l,b):

return(2\*(l+b))

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

print(self.area(l,b))

print(self.per(l,b))

c=rectangle(5,2)

Slip19

Q1) Write a Python program to accept an array of n integers and find the maximum and minimum

arr=[]

n=int(input("Number of elements in array:"))

for i in range(0,n):

l=int(input())

arr.append(l)

print(arr)

for i in range(0,n):

for j in range(i+1,n):

if(arr[i]>arr[j]):

temp = arr[j]

arr[j] = arr[i]

arr[i] = temp

#for i in range(0,n):

print("maximum element from array is ",arr[n-1])

print("minimum element from array is ",arr[0])

Q2) Write a Python program to accept real number x and integer n and calculate the sum of first n terms of the series x+ x/3!+ x/5!+ x/7!+…

def factorial(n: int) -> int:

if n == 0:

return 1

else:

return n \* factorial(n - 1)

def series\_sum(x: float, n: int) -> float:

sum = x

for i in range(1, n + 1):

sum += x / factorial(2 \* i + 1)

return sum

x = float(input("Enter x: "))

n = int(input("Enter n: "))

print(f"Sum of first {n} terms of series: {series\_sum(x, n)}")

Slip20

Q1) Write a function in Python to check if a number is prime. Use this function to display the first 20 prime numbers.

def prime(num):

if num<2:

return False

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

if num%i==0:

return False

return True

c=0

num=1

while c<20:

if prime(num):

print(num,end=" ")

c=c+1

num=num+1

print()

Q2) Write a Python program to accept two matrices of size m x n and calculate Addition of Matrices

def accept():

m=int(input("Enter no of rows"))

n=int(input("Enter no of columns"))

A=[]

print("Enter Elements of matrix")

for i in range(m):

row=[]

for j in range(n):

row.append(int(input()))

A.append(row)

return A

def display(A):

for i in range(len(A)):

for j in range(len(A[0])):

print(A[i][j],end=" ")

print()

def add(A,B):

result=[]

for i in range(len(A)):

row=[]

for j in range(len(A[0])):

row.append(0)

result.append(row)

for i in range(len(A)):

for j in range(len(A[0])):

result[i][j]+=A[i][j]+B[i][j]

return result

A=accept()

B=accept()

print("first matrix is :")

display(A)

print("second matrix is :")

display(B)

c=0

p=len(A[0])

q=len(B)

r=len(B[0])

s=len(A)

if(p!=r or q!=s):

c=1

print("addition not possible")

else:

c=add(A,B)

print("addition of matrix is :")

display(c)

Slip22

Q1) Write a Python program to display n lines of the following pattern.

[15 marks]

1

2 3

4 5 6

n=int(input("Enter no of lines"))

c=1

for i in range(1,n+1):

for j in range(i):

print(c,end=" ")

c=c+1

print()

Q2) Create a class circle having members radius. Use operator overloading to add the radius of two circle objects. Also display the area of circle.

class circle:

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

self.radius=radius

def \_\_add\_\_(self,r1):

return self.radius+r1.radius

a=circle(4)

b=circle(5)

print(a+b)

c=a.\_\_add\_\_(b)

print(c)

Slip23

Q1) Write a function in Python to calculate sum of digits of an integer. Use this function in main

def sum(n):

s=0

r=0

while (n>0):

r=n%10

s=s+r

n=n//10

return s

n=int(input("Enter Number"))

print(sum(n))

Q2) Write a Python program to accept n integers in an array and count the frequency of each element of an array.

arr=[]

n=int(input("Number of elements in array:"))

for i in range(0,n):

l=int(input())

arr.append(l)

print(arr)

fr = [None] \* len(arr);

visited = -1;

for i in range(0, len(arr)):

count = 1;

for j in range(i+1, len(arr)):

if(arr[i] == arr[j]):

count = count + 1;

fr[j] = visited;

if(fr[i] != visited):

fr[i] = count;

print("---------------------");

print(" Element | Count");

print("---------------------");

for i in range(0, len(fr)):

if(fr[i] != visited):

print(" " + str(arr[i]) + " | " + str(fr[i]));

print("---------------------");

Slip24

Q1 Define class Rectangle which can be constructed by length and width. The Rectangle class has method which can compute the area and perimeter.

class rectangle:

def area(self,l,b):

return l\*b

def per(self,l,b):

return(2\*(l+b))

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

print(self.area(l,b))

print(self.per(l,b))

c=rectangle(5,2)

Q2) Write a function in Python to reverse an integer. Use this in main

def Reverse(n):

rev = 0

r = 0

while(n != 0):

r = n % 10

rev = rev \* 10 + r

n = int(n / 10)

return rev

num=int(input("Enter Number"))

reverse = Reverse(num)

print('The reverse number is =', reverse)

Slip25

Q1) Write a Python program to accept two matrices of size m x n and calculate Addition of Matrices.

def accept():

m=int(input("Enter no of rows"))

n=int(input("Enter no of columns"))

A=[]

print("Enter Elements of matrix")

for i in range(m):

row=[]

for j in range(n):

row.append(int(input()))

A.append(row)

return A

def display(A):

for i in range(len(A)):

for j in range(len(A[0])):

print(A[i][j],end=" ")

print()

def add(A,B):

result=[]

for i in range(len(A)):

row=[]

for j in range(len(A[0])):

row.append(0)

result.append(row)

for i in range(len(A)):

for j in range(len(A[0])):

result[i][j]+=A[i][j]+B[i][j]

return result

A=accept()

B=accept()

print("first matrix is :")

display(A)

print("second matrix is :")

display(B)

c=0

p=len(A[0])

q=len(B)

r=len(B[0])

s=len(A)

if(p!=r or q!=s):

c=1

print("addition not possible")

else:

c=add(A,B)

print("addition of matrix is :")

display(c)

Q2) Write a menu driven program to perform the following operations on an integer. Write separate functions. [15 marks]

1. Check if is even or odd

2. Check if it is prime

3. Exit

n=int(input("Enter no"))

def evodd():

if(n%2==0):

print(n," is even no")

else:

print(n," is odd no")

def prime():

for i in range(1,n+1):

s=0

for j in range(2,i):

if(i%j==0):

s=1

if(s==0):

print(n," is prime")

else:

print(n," is not prime")

ch=0

while(ch!=3):

print("1.check even or odd")

print("2.check prime or not")

print("3.Exit")

ch=int(input("enter choice"))

if(ch==1):

evodd()

if(ch==2):

prime()

if(ch==3):

print("EXIT")