पुना International School
Shree Swaminarayan Gurukul, Zundal

GRADE : XI

COMPUTER SCIENCE

PRACTICAL FILE

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Program-1 : Write a program to accept the radius of a sphere from the user and display its area and volume. Area=πr^2 and Volume=$4\pi r^3$

import math

r=int(input("Enter radius of a sphere"))

area=math.pi*r*r

volume=math.pi*r**3

print("The area of sphere is ",area)

print("the volume of sphere is",volume)

OUTPUT :

Enter radius of a sphere 5

The area of sphere is 78.53981633974483

The volume of sphere is 392.6990816987241

Program-2: Write a program to accept a number from the user and display its factorial.

```
n=int(input("Enter any number"))
fac=1
for i in range(1,n+1):
    fac=fac*i
print("Factorial of ",n,"is",fac)
```

```
Enter any number4
Factorial of  4 is 24
```

Program-3: Write a program to accept a number from the user and display whether it is a palindrome number or not.

```
num1=int(input("enter any number"))
num2=num1
rev=0
while num1!=0:
    rem=num1%10
    rev=rev*10+rem
    num1=num1//10
if num2==rev:
    print(num2,"is a palindrome number")
else:
    print(num2,"is not a palindrome number")
```

OUTPUT:
enter any number12321
12321 is a palindrome number
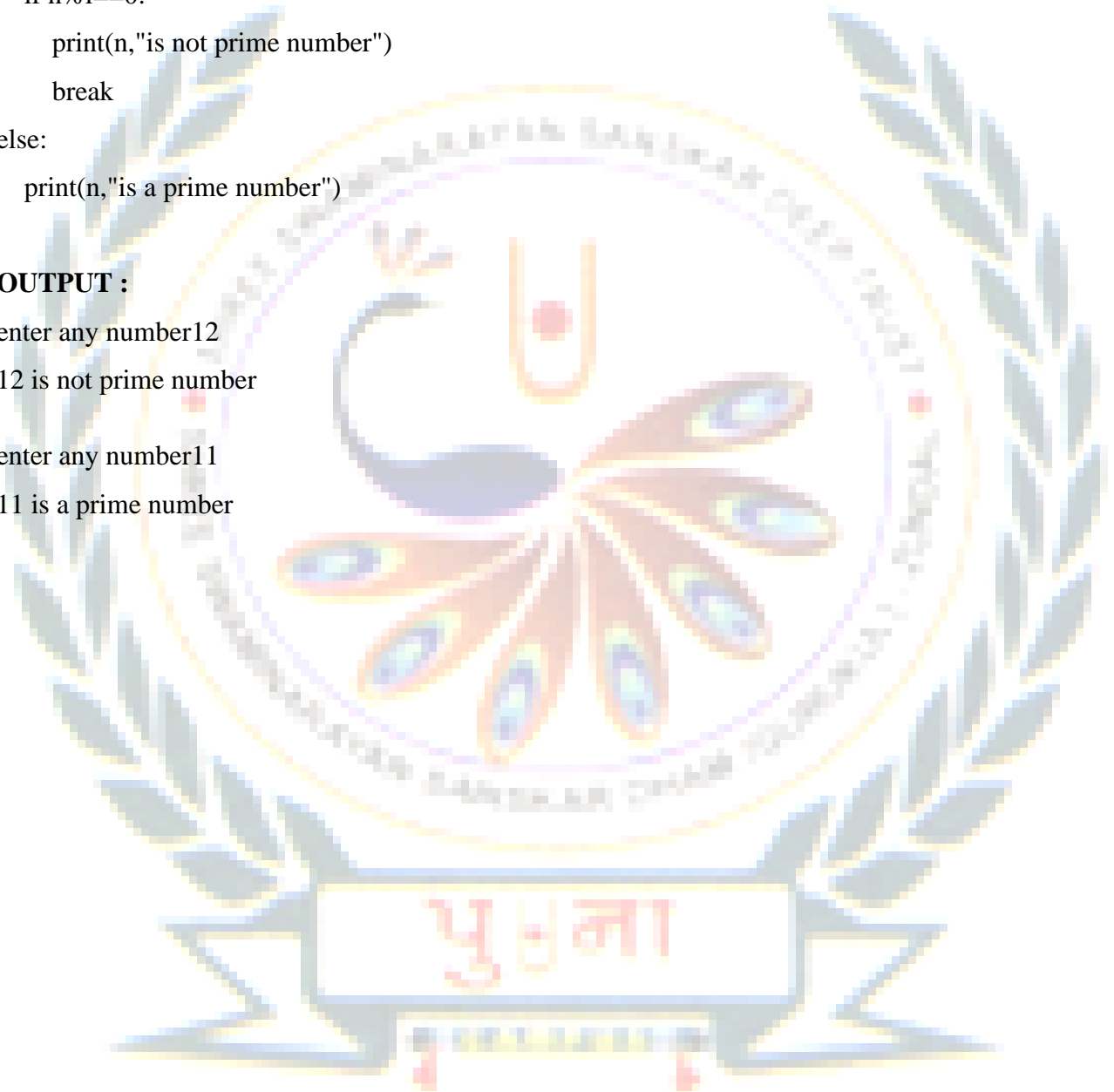enter any number123
123 is not a palindrome number

Program-4 : Write a program to accept a number from the user and display whether it is a prime number or not.

```
n=int(input("enter any number"))
for i in range(2,(n//2)+1):
    if n%i==0:
        print(n,"is not prime number")
        break
else:
    print(n,"is a prime number")
```

OUTPUT :

enter any number12

12 is not prime number

enter any number11

11 is a prime number

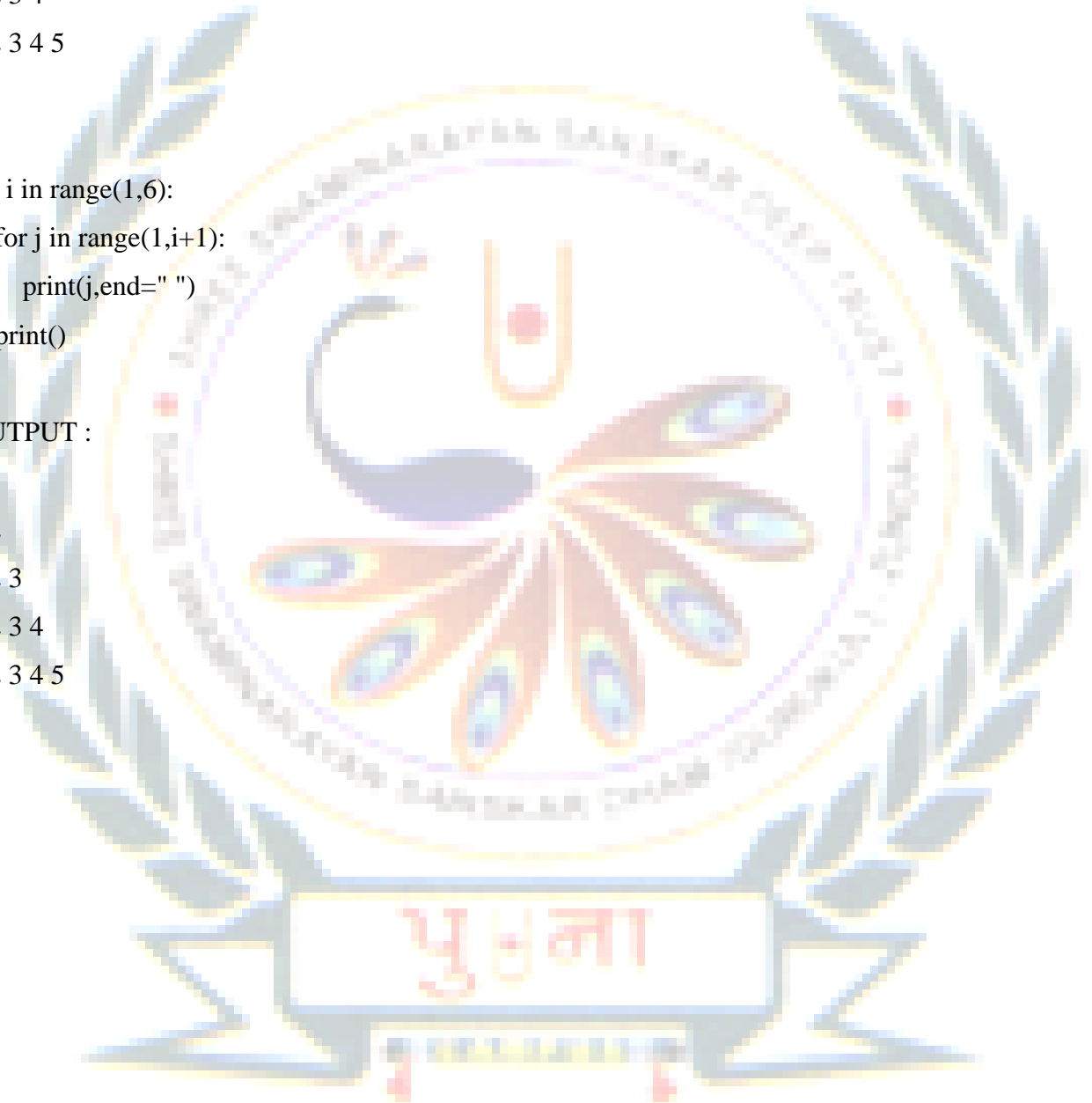**Program-5: Write a program to display the following pattern :**

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

for i in range(1,6):

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

      print(j,end=" ")
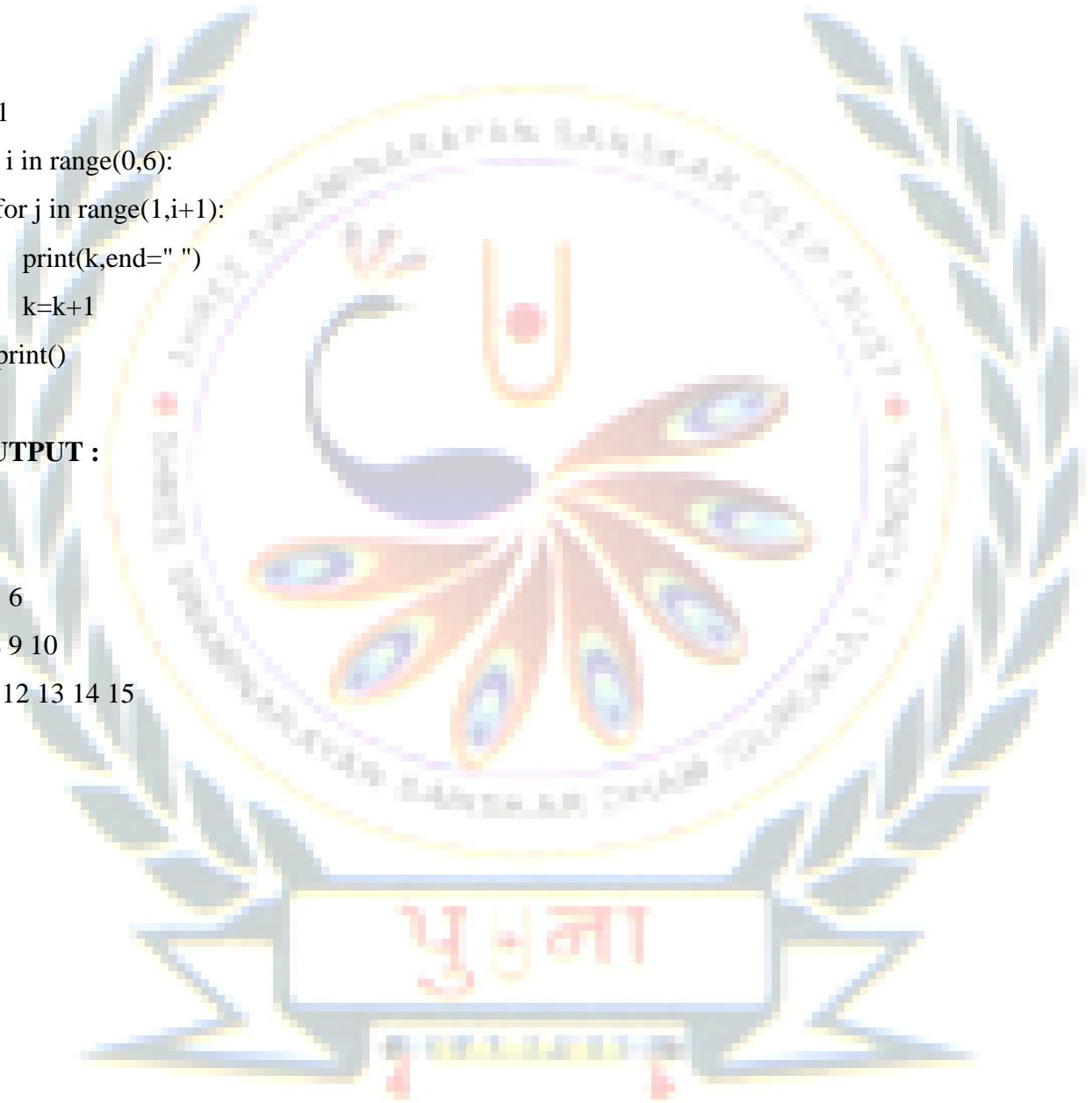
   print()

OUTPUT :
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

Program – 6 Write a program to display the following pattern :

1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

k=1

for i in range(0,6):

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

    print(k,end=" ")

    k=k+1

  print()

OUTPUT :

1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

Program 7: Write a program that reads a string and print its statistics like :

Number of Uppercase letters, Number of lowercase letters, Number of alphabets,

Number of digits, Number of symbols.

```python
st=input("enter any string")
u=l=a=d=s=0
for i in st:
    if i.isalpha():
        a+=1
        if i.isupper():
            u=u+1
        else:
            l=l+1
    elif i.isdigit():
        d+=1
    else:
        s+=1
print("No. of alphabets",a)
print("No. of uppercase letters",u)
print("No. of lowercase letters",l)
print("No. of digits",d)
print("No. of symbols",s)
```

OUTPUT :

enter any string: This is a Sample String 123

No. of alphabets 19

No. of uppercase letters 3

No. of lowercase letters 16

No. of digits 3

No. of symbols 5

Program-8 : Write a program that asks the user for a string s and character c and then it prints the location of the character c in the string s.

```
s=input("Enter any string")
c=input("Enter any character")


flag=0
for i in range(0,len(s)):
    if s[i]==c:
        print("in ",s,"character",c,"occured at location ",i+1)
        flag=1
if flag==0:
        print(c,"does not occur in ",s)
```

OUTPUT :
Enter any string: pisgurukul
Enter any character u
in pisgurukul character u occured at location 5
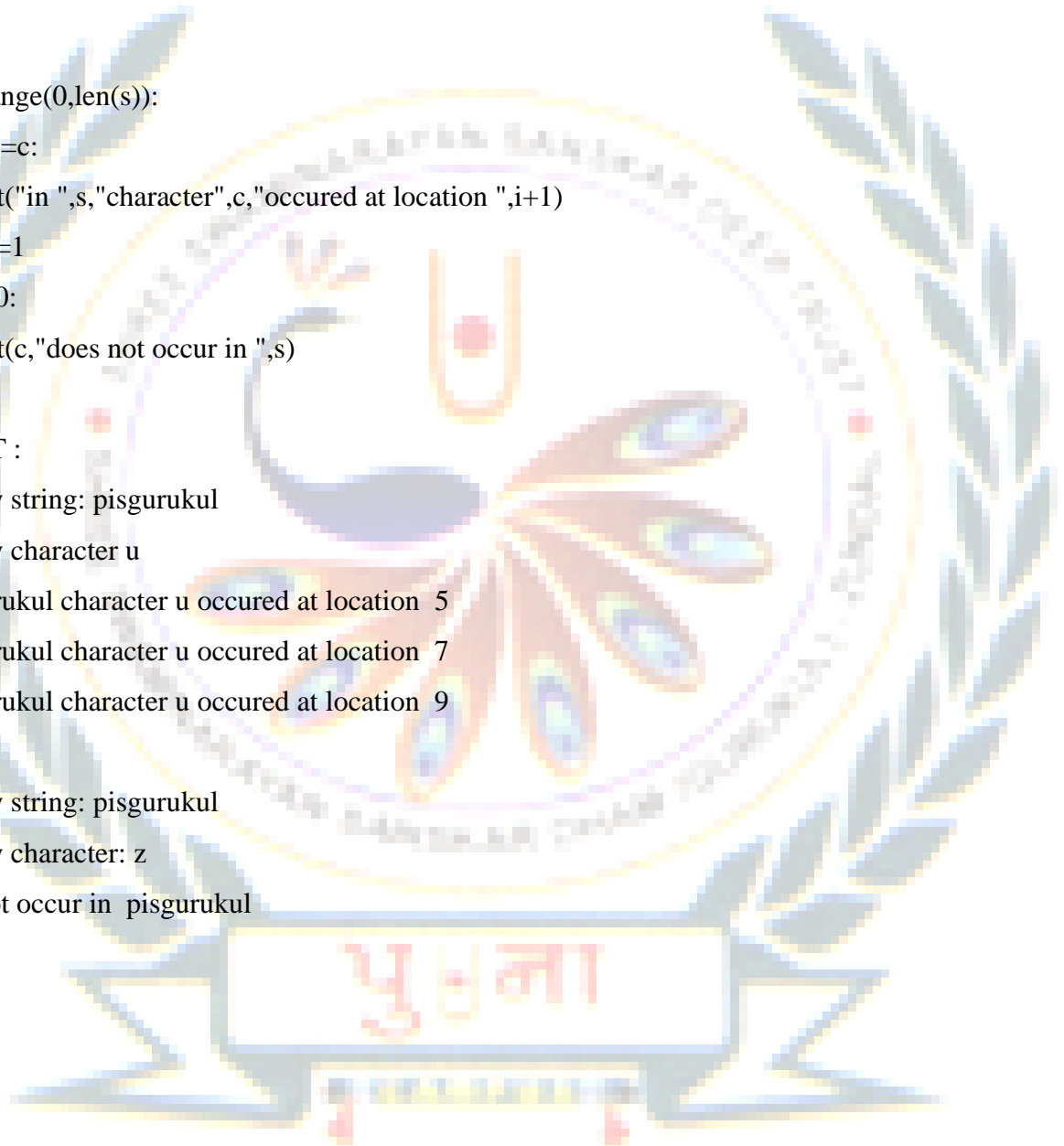in pisgurukul character u occured at location 7
in pisgurukul character u occured at location 9

Enter any string: pisgurukul
Enter any character: z
z does not occur in pisgurukul

Program-9: Write a program to input a list and an element, and remove all occurrences of the given element from the list.

```
L=eval(input("Enter list"))
ele=eval(input("Enter element to be deleted"))
for i in range(0,len(L)-1):
    if ele==L[i]:
        L.remove(L[i])
print("List after removing",ele,"is",L)
```

OUTPUT:
Enter list [1,2,3,4,5,3]
Enter element to be deleted 3
List after removing 3 is [1, 2, 4, 5]

Program – 10 : Extract two list slices out of the given list of numbers. Display and print the
sum of elements of list slice which contains every other element of the list
between indexes 5 to 15. Program should display the average of elements in
second list slice that contains every fourth element of the given list. The list
contains numbers 1 to 20.

L=[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20]
L1=L[5:15:2]
L2=L[::4]

S=0
for i in L1:
    S=S+i

Avg=0
for i in L2:
    Avg=Avg+i

Avg=Avg/len(L2)

print("the sum of elements of first slice",L1,"is",S)
print("The Average of elements of second slice",L2,"is",Avg)

OUTPUT:
the sum of elements of first slice [6, 8, 10, 12, 14] is 50
The Average of elements of second slice [1, 5, 9, 13, 17] is 9.0

Program-11 : Write a program to input two lists and display the maximum element from the elements of both the list combined, along with the index in its list.

L1=eval(input("enter List1"))
L2=eval(input("enter List2"))

mx1=max(L1)
mx2=max(L2)

if mx1>=mx2:
    print(mx1,"The maximum value is in list1 at index",L1.index(mx1))
else:
    print(mx2,"The maximum value is in list2 at index",L2.index(mx2))

OUTPUT:
enter List1 [1,2,44,5,6]
enter List2 [45,6,7,8]
45 The maximum value is in list2 at index 0

Program-12 : Write a program to input names of n students and store them in a tuple. Also input a name from the user and find if this student is present in the tuple or not.

```
n=int(input("Enter how many names"))

L=[ ]
for i in range(0,n):
    ele=input("Enter name")
    L.append(ele)

T=tuple(L)
name=input("enter name to be searched")

for i in range(0,n):
    if T[i]==name:
        print(name, "is present in the tuple",T)
        break
else:
        print(name, "is not present in the tuple",T)
```

OUTPUT:

Enter how many names : 5
Enter name abc
Enter name def
Enter name ghi
Enter name jkl
Enter name lmn
enter name to be searched def
def is present in the tuple ('abc', 'def', 'ghi', 'jkl', 'lmn')

Program-13 : Write a program to check if a tuple contains any duplicate elements.

```
T=eval(input("enter a tuple"))
for el in T:
   if T.count(el) > 1:
      print("Tuple contains duplicate elements")
      break
else:
   print("Tuple do not contain any duplicate elements")
```
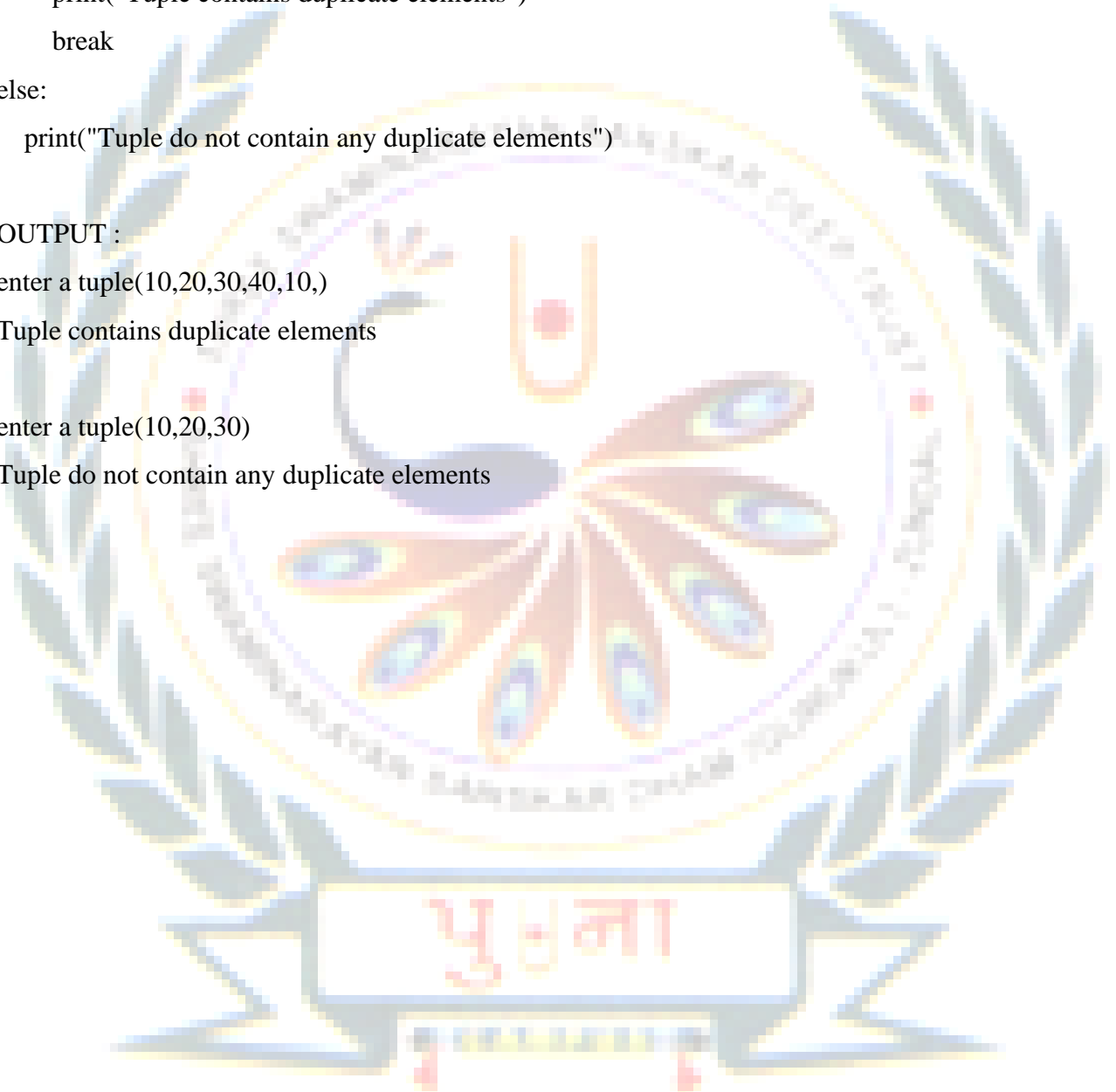
OUTPUT :
enter a tuple(10,20,30,40,10,)
Tuple contains duplicate elements

enter a tuple(10,20,30)
Tuple do not contain any duplicate elements

Program-14 : Write a program to create a dictionary with the roll number, name and marks
of n students in a class and displays the names of students who have marks
above 75.

```python
n=int(input("How many students?"))
stu={}
for i in range (1,n+1):
    print("Enter details of student",i)
    rollno=int(input("Enter roll number"))
    name=input("Enter name")
    marks=float(input("Enter marks"))
    D={"Roll_No":rollno, "Name":name, "Marks":marks}
    key="Stu"+str(i)
    stu[key]=D
print("Student with marks > 75 are :")
for i in range(1,n+1):
    key="Stu"+str(i)
    if stu[key]["Marks"]>=75:
        print(stu[key])
```

OUTPUT :

```
How many students? 3
Enter details of student 1
Enter roll number 11
Enter name aa
Enter marks 88
Enter details of student 2
Enter roll number 12
Enter name bb
Enter marks 66
Enter details of student 3
Enter roll number 13
Enter name cc
Enter marks 99
Student with marks > 75 are :
{'Roll_No': 11, 'Name': 'aa', 'Marks': 88.0}
{'Roll_No': 13, 'Name': 'cc', 'Marks': 99.0}
```

Program-15 : Write a Python program that takes a value and checks whether the given value is part of given dictionary or not. If it is, it should print the corresponding key otherwise print an error message.

```
D={0:"Zero",1:"One",2:"Two",3:"Three",4:"Four",5:"Five"}
ans='y'
while ans=='y' or ans=='Y':
   val=input("Enter value")
   print("value",val,end=" ")
   for k in D:
      if D[k]==val:
         print("Exists at ",k)
         break
   else:
      print("Not found")
   ans=input("Do you want to check more values")
```

OUTPUT :

```
Enter value One
value One Exists at  1
Do you want to check more values y
Enter value nine
value nine Not found
Do you want to check more values y
Enter value Five
value Five Exists at  5
Do you want to check more values n
```