## NUMBER SERIES:-

* 1. **WRITE A PROGRAM TO PRINT SERIES 0 2 6 12 20 30 42 … N.**

## PROGRAM:-

n=int(input("Enter the range of number(Limit):")) i=1

while i<=n:

print((i\*i)-i,end=" ") i+=1

## OUTPUT:-

Enter the range of number(Limit):7 0 2 6 12 20 30 42

## WRITE A PROGRAM TO PRINT SERIES 0 ,2,8,14,24,34 …N.

**PROGRAM:-**

n=int(input("Enter the range of number(Limit):")) i=1

pr=0

while i<=n: if(i%2==0):

pr=pow(i, 2) - 2

print(pr,end=" ") else:

pr = pow(i, 2) - 1

print(pr, end=" ") i+=1

## OUTPUT:-

Enter the range of number(Limit):6 0 2 8 14 24 34

* 1. **WRITE A PROGRAM TO PRINT ARITHMETIC SERIES 1 4 7 10**

**…N.**

**PROGRAM:-**

print("Enter the First Number:") first\_num=int(input())

print("Enter the range of number(Limit):") n=int(input())

print("Enter the Difference Between two Number:") diff=int(input())

while(first\_num<=n): print(first\_num,end=" ") first\_num+=diff

## OUTPUT:-

Enter the First Number:

1

Enter the range of number(Limit): 10

Enter the Difference Between two Number: 3

1 4 7 10

## 13+23+33+43…..+N3 PROGRAM:-

n=int(input("Enter the range of number:")) sum=0

for i in range(1,n+1): sum+=pow(i,3)

print("The sum of the series = ",sum)

## OUTPUT:-

Enter the range of number:5 The sum of the series = 225

## 2+4+6+8…….+N

**PROGRAM:-**

n=int(input("Enter the range of number:")) sum=0

i=0

while i<=n: sum+=i i+=2

print("The sum of the series = ",sum)

## OUTPUT:-

Enter the range of number:12 The sum of the series = 42

**6.WRITE A PROGRAM TO FIND THE SUM OF SERIES**

**1+11+111+1111….+N**

**PROGRAM:-**

n=int(input("Enter the range of number:")) sum=0

p=1

for i in range(1,n+1): sum += p

p = (p \* 10) + 1

print("The sum of the series = ",sum)

## OUTPUT:-

Enter the range of number:3 The sum of the series = 123

## 8.WRITE A PROGRAM TO PRINT THE FIBONACCI SERIES PROGRAM:-

print("Enter the range of number(Limit):") n=int(input())

i=1 a=0 b=1 c=a+b

while(i<=n): print(c,end=" ") c = a + b

a = b

b = c i+=1

## OUTPUT:-

Enter the range of number(Limit):7 1 1 2 3 5 8 13

**9.WRITE A PROGRAM TO FIND THE SUM OF SERIES**

**1+3+5+7…+N**

**PROGRAM:-**

print("Enter the range of number:") n=int(input())

sum=0 i=1

while(i<=n): sum+=i i+=2

print("The sum of the series = ",sum) OUTPUT:-

Enter the range of number: 15

The sum of the series = 64

## 1+2+3+..+N PROGRAM:-

print("Enter the range of number:") n=int(input())

sum=0

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

print("The sum of the series = ",sum)

## OUTPUT:-

Enter the range of number:7 The sum of the series = 28

## 1!+2!+3!+…+N!

**PROGRAM:-**

print("Enter the range of number:") n=int(input())

sum=0 fact=1

for i in range(1,n+1): fact\*=i

sum+=fact

print("The sum of the series = ",sum)

## OUTPUT:-

Enter the range of number: 9

The sum of the series = 409113

**12.WRITEA PROGRAM TO FIND THE SUM OF SERIES**

**9+99+999+9999……+N**

**PROGRAM:-**

n=int(input("Enter the range of number:")) sum=0

p=9

for i in range(1,n+1): sum += p p=(p\*10)+9

print("The sum of the series = ",sum)

## OUTPUT:-

Enter the range of number:8

The sum of the series = 111111102

## NUMBER PATTERN:-

1. **WRITE A PROGRAM TO PRINT FOLLOWING PATTERN USING LOOP**

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

## PROGRAM:-

rows = 6

for i in range(rows): for j in range(i):

print(i, end=' ')

print(' ') OUTPUT:- 1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

## PYRAMID PATTERN OF NUMBERS PROGRAM:-

rows = 5

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

## INVERTED PYRAMID PATTERN OF NUMBERS PROGRAM:-

rows = 5

b = 0

# reverse for loop from 5 to 0 for i in range(rows, 0, -1):

b += 1

for j in range(1, i + 1): print(b, end=' ')

print('\r') OUTPUT:-

1 1 1 1 1

2 2 2 2

3 3 3

4 4

5

## INVERTED PYRAMID PATTERN WITH THE SAME DIGIT PATTERN:-

**PROGRAM:-**

rows = 5 num = rows

# reverse for loop

for i in range(rows, 0, -1): for j in range(0, i):

print(num, end=' ') print("\r")

## OUTPUT:- 5 5 5 5 5

5 5 5 5

5 5 5

5 5

5

## ALTERNATE NUMBERS PATTERN USING WHILE LOOP PROGRAM:-

rows = 5

i = 1

while i <= rows: j = 1

while j <= i:

print((i \* 2 - 1), end=" ") j = j + 1

i = i + 1 print(' ')

## OUTPUT:- 1

3 3

5 5 5

7 7 7 7

9 9 9 9 9

## REVERSE PYRAMID OF NUMBERS PROGRAM:-

rows = 6

for i in range(1, rows): for j in range(i, 0, -1):

print(j, end=' ')

print(" ") OUTPUT:- 1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

## PYRAMID PATTERNS:-

1. **SIMPLE HALF PYRAMID:-**

rows = 5

for i in range(0, rows): for j in range(0, i + 1):

print("\*", end=' ') print("\r")

## OUTPUT:-

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

## DOWNWARD HALF – PYRAMID PATTERN OF STAR PROGRAM:-

rows = 5

for i in range(rows + 1, 0, -1): for j in range(0, i - 1):

print("\*", end=' ') print(" ")

## OUTPUT:-

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

## DOWNWARD FULL PYRAMID PROGRAM:-

rows = 5

k = 2 \* rows - 2

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

for j in range(k, 0, -1): print(end=" ")

k = k + 1

for j in range(0, i + 1): print("\*", end=" ")

print(" ") OUTPUT:-

**\* \* \* \* \* \***

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

* 1. **RIGHT DOWN MIRROR STAR PATTERN:- PROGRAM:-**

**rows = 5 i = rows**

**while i >= 1: j = rows while j > i:**

**print(' ', end=' ')**

**j -= 1**

**k = 1**

**while k <= i: print('\*', end=' ') k += 1**

**print() i -= 1**

**OUTPUT:-**

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

## EQUILATERAL TRIANGLE PATTERNOF STAR:- PROGRAM:-

print("Print equilateral triangle") size = 7

m = (2 \* size) - 2

for i in range(0, size): for j in range(0, m):

print(end=" ") m = m - 1

for j in range(0, i + 1): print("\* ", end=' ')

print(" ") OUTPUT:-

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

**\* \* \* \* \* \***

**\* \* \* \* \* \* \***

## RIGHT STAR PATTERN OF STAR:- PROGRAM:-

rows = 5

for i in range(0, rows): for j in range(0, i + 1):

print("\*", end=' ') print("\r")

for i in range(rows, 0, -1): for j in range(0, i - 1): print("\*", end=' ')

print("\r") OUTPUT:-

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

## PROBLEMS:-

1. **CONVERT DECIMAL TO BINARY NUMBER PROGRAM:-**

decimal\_num = int(input("enter the decimal number:")) binary\_num = 0

i = 0 while(decimal\_num!=0):

remainder = decimal\_num%2

binary\_num = binary\_num+remainder\*(10\*\*i) decimal\_num = decimal\_num/2

i = i+1

print("the binary equivalent =",binary\_num) OUTPUT:-

Enter the decimal number : 7 The binary equivalent = 111

## CONVERT BINARY TO DECIMAL NUMBER PROGRAM:-

binary\_num = int(input("enter the binary number:")) decimal\_num = 0

i = 0 while(binary\_num!=0):

remainder = binary\_num%2

decimal\_num = decimal\_num+remainder\*(10\*\*i) binary\_num = binary\_num/2

i = i+1

print("the decimal equivalent =",decimal\_num) OUTPUT:-

Enter the binary number : 1101 The decimal equivalent is 13

# ASSIGNMENT

## CHECK THE GIVEN NUMBER IS ARMSTRONG NUMBER PROGRAM:-

num = int(input("Enter a number: ")) sum = 0

temp = num while temp > 0:

digit = temp % 10 sum += digit \*\* 3 temp //= 10

if num == sum:

print(num,"is an Armstrong number") else:

print(num,"is not an Armstrong number") OUTPUT:-

Enter a number: 333

333 is not an Armstrong number

## REVERSING A NUMBER PROGRAM:-

Num = int(input("enter the number :")) print("the reversed number is :",) while(num! =0):

temp = num%10 print(temp, end=" ") num = num/10

## OUTPUT:-

enter the number : 123

the reversed number is : 3 2 1

1. **PRINT ALL THE PRIME NUMBERS FROM 1 – 50 PROGRAM:-**

**for i in range(1,50): if i>1:**

**for j in range(2,i): if i%j==0:**

**break else:**

**print(i)**

## OUTPUT:- 2

3

5

7

11

13

17

19

23

29

31

37

41

43

47

## PRINT ALL THE LEAP YEAR FROM 1900 – 2000 PROGRAM:-

print("leap years from 1900-2000 are :") for i in range(1900,2000):

if(i%4==0):

print(i,end='') OUTPUT:-

1900 1904 1908 1912 1916 1920 1924 1928 1932 1936 1940

1944 1948 1952 1956 1960 1964 1968 1972 1976 1980 1984

1988 1992 1996