# PROBLEM SLOVING AND PYTHON PROGRAMMING ASSIGNMENT NO 2

**NUMBER SERIES**

# Write a program to find series 0 2 6 12 30 42...N

n=int(input("Enter the value of N: ")) a=0

d=2

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

print(a,end=" ") a+=d

d+=2

OUTPUT:

Enter the value of N: 5 0 2 6 12 20

# write program for to find series 0,2,8,14,24,34,. N

n=int(input("enter the value of N:")) a=0

d=2

for i in range(1,n+1): print(a,end = " ") a+=d

d+=4

OUTPUT:

enter the value of N:5 0 2 8 18 32

# write the program for arithmetic series 1 4 7 10.....

series = [1, 4, 7] for i in range(3,30):

series.append(series[i-1] + 3) print(series)

OUTPUT:

[1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 49, 52, 55, 58, 61, 64, 67, 70, 73, 76,

79, 82, 85, 88]

# write a program to a sum of the series 1\*\*3+2\*\*3+3\*\*3+4\*\*3+. n

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

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

print("Sum of the series is:", sum) OUTPUT:

Enter the value of n: 5 Sum of the series is: 225

# wriite a program to find the sum oof the series 2+4+6+8+. +n

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

for i in range(2, n + 1,2):

sum = sum + i

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

Enter the value of n: 6

The sum of the series is 12

# write a program of the sum series 1+11+111+1111+. +N

n=int(input("Enter the value of N: ")) sum=0

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

print(sum)

OUTPUT:

Enter the value of N: 7 7654321

# write a program for sum of the series 1/2!+2/3!+3/5!+4/6!+. N/(N+1)!

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

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

print("Sum of the series is:",sum)

OUTPUT:

Enter the value of n:8

Sum of the series is: 6.171031746031746

# write a program for to print the fibonacci series

f1=int(input("enter the 1 value:")) f2=int(input("enter the 2nd value:")) n=int(input("enter the n value:")) print(f1)

print(f2)

i=0

while (i<n-2): f3=f1+f2 print(f3) f1=f2 f2=f3 i=i+1

OUTPUT:

enter the 1 value:9 enter the 2nd value:8 enter the n value:6

9

8

17

25

42

67

# write the python code for the sum of the series 1+3+5+7...+n

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:

5

The sum of the series = 9

# write a program to sum of the series1+2+3+..+N

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

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

sum += i print("Sum:", sum)

OUTPUT:

Enter a number: 5 Sum: 15

# write a program to find the sum of the series 1!+2!+3!+..+n!

n=int(input("Enter n values:")) fact=1

if(n==0): fact=1

sum=0

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

print(sum)

OUTPUT:

Enter n values:6 873

# write a program for to find the sum of the series 9+99+999+9999+...+n

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

num=9

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

print("The sum of series:",sum) OUTPUT:

Enter range:3

The sum of series: 1107

Number Patterns Pyramid

# (2)(i)pyhton program to print the following simple number pattren using for loop

for i in range(0,5): for j in range(i):

print (i, end=" ")

print("\r")

OUTPUT:

1

2 2

3 3 3

4 4 4 4

# (2)(ii)how to print the following half pyramid pattern of numbers

n=5

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

print(j, end=" ")

print("\r")

OUTPUT:

1

2 2

3 3 3

4 4 4 4

# (2)(iii)write a python code for inverted pyramid pattern of numbers

n=6

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

print(j,end="")

print("\r")

OUTPUT: 12345

1234

123

12

1

# (2)(iv)write a python code for inverted pyramid pattern with same digit

n=int(input("Enter a number: ")) for i in range(n,0,-1):

for j in range(1,i+1): print(n,end=" ")

print("")

OUTPUT:

12345

1234

123

12

1

# (2)(v)write a python code for alternate odd numbers pattern using while loop

num = 1

while num <= 9:

for i in range(num): if num%2 != 0:

print(num, end=" ") num += 1

print("\n")

OUTPUT:

1

3 3 3

5 5 5 5 5

7 7 7 7 7 7 7

9 9 9 9 9 9 9 9 9

# (2)(vi)write a python code for reverse pyramid of numbers.

n=int(input("enter no of rows:")) for i in range(1,n+1):

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

print(a,end=" ") a=j+1

print()

OUTPUT:

enter no of rows:5 1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

# #(3)pyramid patterns for using stars

**#(3)(i)write a python code for simple half pyramid pattern for using star**. for i in range(5):

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

print('')

OUTPUT:

\*

\* \*

\* \* \*

\* \* \* \*

# #(3)(ii)write a python code for downward half-pyramid pattern for using star.

n=int(input("Enter the number of rows: ")) for i in range(n,0,-1):

print((n-i) \* ' ' + i \* '\* ')

OUTPUT:

Enter the number of rows: 5

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

**#(3)(iii)write a python code for downward full pyramid pattern of star**. num=int(input("Enter the number of rows: "))

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

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

OUTPUT:

Enter the number of rows: 6

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

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

# #(3)(iv)write a python code for right down mirron star pattern.

rows = int(input("Please Enter the Total Number of Rows : "))

print("Reverse Mirrored Right Triangle Star Pattern") for i in range(1, rows + 1):

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

print(' ', end = ' ') else:

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

OUTPUT:

Please Enter the Total Number of Rows : 5 Reverse Mirrored Right Triangle Star Pattern

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

# #(3)(v)write a python code for equilateral triangle pattern of star.

num\_rows = int(input("Enter the number of rows")) for i in range(0, num\_rows):

for j in range(0, num\_rows-i-1): print(end=" ")

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

print()

OUTPUT:

Enter the number of rows3

\*

\* \*

\* \* \*

# #(3)(vi)write a python code for right start pyramid pattern of star.

n=int(input("Enter range value:")) for i in range(n):

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

print()

for i in range(n):

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

print()

OUTPUT:

Enter range value:5

\*

\* \*

\* \* \*

\* \* \* \*

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\* \* \* \*

\* \* \*

\* \*

\*

# #PROBLEMS

**#(4)(i)write a python code for decimal to binary number.**

dec = int(input('Enter a decimal number: ')) binary = ''

while dec != 0:

binary = str(dec % 2) + binary dec = dec // 2

print('The binary value is:', binary)

OUTPUT:

Enter a decimal number: 50 The binary value is: 110010

**#(4)(ii)write a python code for binary to decimal number**. binary\_num = list(input("Input a binary number: "))

value = 0

power = len(binary\_num) - 1 while power >= 0:

digit = binary\_num.pop() if digit == '1':

value += pow(2, power) power -= 1

print("Decimal value is", value)

OUTPUT:

Enter a decimal number: 50 The binary value is: 110010

# #(4)(iii)write python code for check the given no is amstrong no.

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

temp=n

while temp>0:

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

if n==sum:

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

print(n,"is not an Armstrong number")

OUTPUT:

Enter a decimal number: 50 The binary value is: 110010

**#(4)(iv)write a python code for reversing a number**. num = int(input("Enter a number: "))

rev = 0

while num > 0: rem = num % 10

rev = (rev \*10) + rem num = num // 10

print("Reversed Number:", rev) OUTPUT:

Enter a number: 45 Reversed Number: 54

# #(4)(v)write a python code for print the all prime numbers 1-50.

a = 0

b = 50

print("Prime numbers between", a, "and", b, "are:") for num in range(a, b + 1):

if num > 1:

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

break

else:

print(num)

OUTPUT:

Prime numbers between 0 and 50 are: 2

3

5

7

11

13

17

19

23

29

31

37

41

43

47

# #(4)(vi )write a python code for print all the leap year from 1900-2000

year = 1900

while year <= 2000:

if (year % 4 == 0 and year % 100 != 0) or year % 400 == 0: print(year, end = ' ')

year = year + 1

OUTPUT:

1904 1908 1912 1916 1920 1924 1928 1932 1936 1940 1944 1948 1952 1956 1960 1964 1968

1972 1976 1980 1984 1988 1992 1996 2000.