ASSIGNMENT-2- PROBLEM ON CONTROL SATEMENT

1. **Write a program to print series 0 2 6 12 20 30 …N**

PROGRAM:

n=int(input("Enterthe 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

1. **write a program to print series 0,2,8,14,24,34,…N**

PROGRAM:

n=int(input("Enterthe 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):8 0 2 8 14 24 34 48 62

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

PROGRAM:

first\_num=int(input("Enter the First Number:")) n=int(input("Enter the range of number(Limit):")) diff=int(input("Enterthe Difference Between two Number:")) 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

1. **Write a Program to Find the sum of series 1³+2³+3³+4³ +N³.**

PROGRAM:

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

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

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

Output:

Enter the range of number:15 The sum of the series = 14400

1. **Write a Program to Find the sum of series 2+4+6+8 ... +N.\**

PROGRAM:

n = int (input (“Enter the range of numbers:”)) sum=0

i=0 while(i<=n):

sum+=i i+=2

print(“The sum of the series is :”,sum)

OUTPUT:

Enter the range of number:100 The sum of the series is :2550

1. **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

j=1

fori in range(1,n+1): sum=sum+j j=(j\*10)+1

print(sum)

OUTPUT:

Enter the range of number:5 12345

1. **Write a program to find the sum of series 1/2!+2/3!+3/5!+4/6!+ N/(N+1)!**

PROGRAM:

num=int(input(“enter yourlimit:”)) res = 0

fact = 1

fori in range(1, num+1): fact \*= i

res = res + (i/ fact)

print(“the sum of the series is :”,res)

OUTPUT:

enter yourlimit:10

the sum of the series is : 2.7182815255731922

1. **Write a Program to print the Fibonacci series.**

PROGRAM:

N=int(input(“enter no, of number to be print:”)) F1=int(input(“enter the first no.”)) F2=int(input(“enter the second no.”))

i=0 print(F1) print(F2)

while(i<N-2): F3=F1+F2

print(F3) F1=F2 F2=F3 i+=1

OUTPUT:

enter no, of number to be print:8 enter the first no.0

enter the second no.1 0

1

1

2

3

5

8

13

1. **Write a program to find the sum of series 1+3+5+7..+N.**

PROGRAM:

n = int (input (“Enter the range of numbers:”)) sum=0

i=1 while(i<=n):

sum+=i i+=2

print(“The sum of the series is :”,sum)

OUTPUT:

Enter the range of numbers:19 The sum of the series is : 100

1. **Write a program to find the sum of series 1+2+3..+N.**

PROGRAM:

n = int (input (“Enter the range of numbers:”)) sum=0

i=1 while(i<=n):

sum+=i i+=1

print(“The sum of the series is :”,sum)

OUTPUT:

Enter the range of numbers:20 The sum of the series is : 210

1. **Write a Program to find the sum of series 1!+2!+3!...+n!**

SOURCECODE :

n=int(input(“Enter the number:”)) sum=0

fact=1

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

print(sum)

OUTPUT:

Enter the number : 5 153

1. **Write a Program to Find the sum of series 9+99+999+9999 +N.**

PROGRAM:

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

p=9

fori 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

Convert decimal to binary number

PROGRAM:

num=int(input("enter number:")) result=""

while(num>0): r=num%2 result=str(r)+result num//=2

print("the binary digit is :",result)

OUTPUT:

enter number:8

the binary digit is : 1000

Convert binary to decimal number

PROGRAM:

bin=int(input("enterbinary number:")) decimal=0

i=0 while(bin>0):

r=bin%10

decimal+=r\*(2\*\*i) bin//=10

i+=1

print("the decimal number is :",decimal)

OUTPUT:

enter binary number:1000 the decimal number is : 8

Check the given number is Armstrong number

PROGRAM:

n=int(input(“Enter a number:”)) num=n

sum=0 while(n&gt;0):

rem=n%10 sum=sum+(rem\*\*3) n=n//10

if(sum==num):

print(num,&quot;is an armsrtong number&quot;)

else:

print(num,&quot;is not an armsrtong number&quot;)

OUTPUT:

Enter a number:371

371 is an armsrtong number

Reversing a Number

PROGRAM:

num = int(input("entera number ")) reversed\_num = 0

while (num != 0): digit = num % 10

reversed\_num = reversed\_num \* 10 + digit

num //= 10

print("Reversed Number:" + str(reversed\_num))

OUTPUT:

enter a number 34567 Reversed Number: 76543

Print all the prime numbers from 1 -50

PROGRAM:

lower\_value = int(input ("Please, Enter the Lowest Range Value: ")) upper\_value = int(input ("Please, Enter the Upper Range Value: ")) print ("The Prime Numbers in the range are: ")

for number in range (lower\_value, upper\_value + 1): if (number > 1):

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

break

else:

print (number,end=' ')

OUTPUT:

Please, Enter the Lowest Range Value: 1 Please, Enter the Upper Range Value: 100 The Prime Numbers in the range are:

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83

89 97

Print all the leap year from 1900 – 2000

SOURCECODE :

n=int(input(“Enter the year:”)) m=int(input(“Enter the year:”)) for i in range(m,n+1):

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

OUTPUT :

Enter the year : 2000 Enter the year : 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 2000

NUMBER PATTERN

Python program to print the following simple numberpattern using a for loop.

PROGRAM:

rows = int(input('Enterthe number of rows :')) for i in range(rows):

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

print('')

OUTPUT:

Enter the number of rows7

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

6 6 6 6 6 6

INVERTED PYRAMID PATTERN OF NUMBERS

An inverted pyramid is a downward pattern where numbers get reduced in each iteration, and on the last row, it shows only one number. Use reverse for loop to print this pattern.

PROGRAM:

n=int(input(“Enter the Value :”)) for i in range(1,n+1):

print()

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

print(i,end=’ ’)

OUTPUT:

Enter the Value : 6

11111

2222

333

44

5

PYRAMID PATTERN OF NUMBERS

Let’s see how to print the following half pyramid pattern of numbers

PROGRAM:

rows = int(input('entera number:')) for i in range(1, rows + 1):

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

print('')

OUTPUT:

enter a number:5 1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Inverted Pyramid pattern with the same digit

PROGRAM:

rows = 5 num = rows

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

Let’s see how to use the while loop to print the numberpattern.

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:

n=int(input(“enter the number: ”)) for i in range(1,n+1):

print()

for j in range(i,0,-1): print(j,end= ‘ ’)

OUTPUT : 1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

SIMPLE HALF PYRAMID PATTERN:

PROGRAM:

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

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

OUTPUT;

Enter number of rows: 5

\*

\* \*

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DOWNWARD HALF-PYRAMID PATTERN OF STAR

PROGRAM:

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

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

OUTPUT;

Enter number of rows: 5

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

Downward full Pyramid Pattern of star Let’s see how to print reversed pyramid pattern in Python.

PROGRAM:

n=int(input(“Enter the numberof rows:”)) space=0

fori in range(n):

for j in range(space): print(“ ”,end= “ ”)

space=space+1

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

print( “\*”,end= “ ”) print(“ “)

OUTPUT:

Enter the number of rows:5

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

RIGHT DOWN MIRROR STAR PATTERN

PROGRAM:

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

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

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

print(' ', end = ' ')

else:

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

OUTPUT:

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

\*

\* \*

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\* \* \* \* \*

EQUILATERAL TRIANGLE PATTERN OF STAR

PROGRAM: n=20

num=int(input("enternumber:")) for i in range(1, num+1):

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

print('\* '\*(i)) n-=1

OUTPUT:

enter number :5

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

RIGHT START PATTERN OF STAR

PROGRAM:

n=int(input(“enter the number: “)) for i in range(1,n+1):

for j in range(1,i+1): print(‘\*’,end=“ ”)

print()

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

print(‘\*’,end=” ”) print()

OUTPUT :

enter the number: 5

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