**ASSIGNMENT-2- PROBLEM ON CONTROL SATEMENT**

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

**SOURCE CODE:**

**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**

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

**SOURCE CODE:**

**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):8**

**0 2 8 14 24 34 48 62**

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

**SOURCE CODE:**

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

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

**diff=int(input("Enter the 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**

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

**SOURCE CODE:**

**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:15**

**The sum of the series = 14400**

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

**SOURCE CODE:**

**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**

**6. Write a Program to Find the sum of series 1+11+111+1111.....+N.**

**SOURCE CODE:**

**n=int(input(“Enter the range of number:”))**

**sum=0**

**j=1**

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

**sum=sum+j**

**j=(j\*10)+1**

**print(sum)**

**OUTPUT:**

**Enter the range of number:5**

**12345**

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

**SOURCE CODE:**

**num=int(input(“enter your limit:”))**

**res = 0**

**fact = 1**

**for i in range(1, num+1):**

**fact \*= i**

**res = res + (i/ fact)**

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

**OUTPUT:**

**enter your limit:10**

**the sum of the series is : 2.7182815255731922**

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

**SOURCE CODE:**

**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**

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

**SOURCE CODE:**

**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**

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

**SOURCE CODE:**

**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**

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

**SOURCE CODE :**

**n=int(input(“Enter the number:”))**

**sum=0**

**fact=1**

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

**fact=fact\*i**

**sum=sum+fact**

**print(sum)**

**OUTPUT :**

**Enter the number : 5**

**153**

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

**SOURCE CODE:**

**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**

**Convert decimal to binary number**

**SOURCE CODE:**

**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**

**SOURCE CODE:**

**bin=int(input("enter binary 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**

**SOURCE CODE:**

**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**

**SOURCE CODE:**

**num = int(input("enter a 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**

**SOURCE CODE:**

**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**

**SOURCE CODE :**

**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 number pattern using a for loop.**

**SOURCE CODE:**

**rows = int(input('Enter the 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.**

**SOURCE CODE:**

**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**

**SOURCE CODE:**

**rows = int(input('enter a 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**

**SOURCE CODE:**

**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 number pattern.**

**SOURCE CODE:**

**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**

**SOURCE CODE :**

**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:**

**SOURCE CODE:**

**rows = int(input("Enter number of rows: "))**

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

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

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

**print("\n")**

**OUTPUT;**

**Enter number of rows: 5**

**\***

**\* \***

**\* \* \***

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

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

**DOWNWARD HALF-PYRAMID PATTERN OF STAR**

**SOURCE CODE:**

**rows = int(input("Enter number of rows: "))**

**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.**

**SOURCE CODE:**

**n=int(input(“Enter the number of rows:”))**

**space=0**

**for i 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**

**SOURCE CODE;**

**rows = int(input("Please Enter the 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**

**\***

**\* \***

**\* \* \***

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

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

**EQUILATERAL TRIANGLE PATTERN OF STAR**

**SOURCE CODE:**

**n=20**

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

**for i in range(1, num+1):**

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

**print('\* '\*(i))**

**n-=1**

**OUTPUT:**

**enter number :5**

**\***

**\* \***

**\* \* \***

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

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

**RIGHT START PATTERN OF STAR**

**SOURCE CODE :**

**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):**

**for j in range(n-i):**

**print(‘\*’,end=” ”)**

**print()**

**OUTPUT :**

**enter the number : 5**

**\***

**\* \***

**\* \* \***

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

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

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

**\* \* \***

**\* \***

**\***