• ASSIGNMENT

- **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
```

• ASSIGNMENT

2. 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
```

• ASSIGNMENT

3. 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
```

- **ASSIGNMENT**

4.WRITE A PROGRAM TO FIND THE SUM OF SERIES
$1^3+2^3+3^3+4^3…..+N^3$

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
```

• ASSIGNMENT

5.WRITE A PROGRAM TO FIND THE SUM OF SERIES 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
```

• ASSIGNMENT

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
```

• ASSIGNMENT

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
```

• ASSIGNMENT

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
```

• ASSIGNMENT

10.WRITE A PROGRAM TO FIND THE SUM OF SERIES 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
```

- **ASSIGNMENT**

11.WRITE A PROGRAM TO FIND THE SUM OF SERIES 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

2. PYRAMID PATTERN OFNUMBERS

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
```

- **ASSIGNMENT**

3. 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
```

- **ASSIGNMENT**

4. 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
```

• ASSIGNMENT

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
```

• ASSIGNMENT

6. 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
```

• ASSIGNMENT

- **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:-

```
*
* *
* * *
* * * *
* * * * *
```

- **ASSIGNMENT**

2. 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:-

```
* * * * *
* * * *
* * *
* *
*
```

• ASSIGNMENT

3. 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:-

```
* * * * * *
 * * * * *
  * * * *
   * * *
    * *
     *
```

• ASSIGNMENT

4. 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:-

```
* * * * *
 * * * *
  * * *
   * *
    *
```

• ASSIGNMENT

5. 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:-

```
       *
      * *
     * * *
    * * * *
   * * * * *
  * * * * * *
 * * * * * * *
```

• ASSIGNMENT

6. 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:-

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

• ASSIGNMENT

- **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
```

• ASSIGNMENT

2. 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

3. 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
```

• ASSIGNMENT

4. 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
```

5. 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

6. 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
```