

# Assignment -5

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Q1: WAP to print following : count from first no to end no using step.  
Program:

```
start = int(input("from :"))
end = int(input("to :"))
step = int(input("step by :"))
for i in range(start, end, step):
    print(i, end=" ")
print()
```

Output:

```
from: 1
to: 10
step by: 1
1 2 3 4 5 6 7 8 9
```

Q2: WAP to find the outputs:

Program:

(a) number = 72958476  
a, b = 0, 0  
while (number > 0):  
 digit = number % 10  
 if (digit % 2 == 0):  
 a += digit  
 else:  
 b += digit  
 number //= 10

Output:  
print(a, b)

28 20

(b) Program:

```
total = 0
N = 5
for i in range(1, N+1):
    for j in range(1, N+1):
        total += i
print(total)
```

Output:  
75

(c) for i in range(1, 6, 1):  
print(i)

output:

1

(d) for i in range(1, 6):  
print(i)

output:

1  
2  
3  
4  
5

(e) for i in range(6):  
print(i)

output:

0  
1  
2  
3  
4  
5

(f) for i in range(2, 6):  
print(i)

output:

2  
3  
4  
5

(g) for i in range(7, 6):  
print(i)

output:

No output

(h) for i in range(5, 0, -1):  
print(i)

output:

5  
4  
3  
2  
1

(i) result = 1  
for i in range(1, 9):  
result \* = i  
print(result)

output:

6

(j) for i in range(20, 1):  
print(i)

output:

No output

(k) for i in range(20, 10, -1):  
print(i)

output:

20  
19  
18  
17  
16  
15  
14  
13  
12  
11

(l) for i in range(20, -1, -1):  
print(i)

output:

20 12 04  
19 11 03  
18 10 02  
17 09 01  
16 08 0  
15 07 0  
14 06 0  
13 05 0

(m) `for i in range(1, 6):  
 if i%2 == 0:  
 continue  
 print(i, end = "")`

output:

1 3 5

(n) `for i in range(1, 6):  
 if i%2 == 0:  
 break  
 print(i, end = "")`

output:

1

(o) `for i in range(1, 6):  
 if i%2 == 0:  
 pass  
 print(i, end = "")`

output:

1  
2  
3  
4  
5

Q3: NAP to prints the integers from 1990 to 2001 with 5 integers per line.  
Program:

```
count = 0
for i in range(1990, 2001):
    print(i, end = " ")
    count += 1
    if count % 5 == 0:
        print()
```

Output:

1990	1991	1992	1993	1994
1995	1996	1997	1998	1999
2000				

Q4: Write a program to find the sum of all the multiples of 3 or 5 below a user entered number N.

Program:

```
N = int(input("Enter N: "))
total = 0
for i in range(N):
    if i%3 == 0 or i%5 == 0:
        total += i
print(total)
```

Output:

Enter N: 5

sum: 3

Q5: Write a program to print the following pattern using nested loops.

(i) program:

```
for i in range(1, 6):
    for j in range(1, i+1):
        print("*", end=" ")
    print()
```

Output:

```

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

(ii) Program:

```
row = 7
for i in range(1, row+1):
    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
6 6 6 6 6 6
7 7 7 7 7 7 7
```

(iii) program:

```

n = 1
sp = 4
for i in range(1, 6):
    print(sp * " ", n * "*")
    sp -= 1
    n += 2

```

Output:

```

* *
** **
*** ***
**** ****
***** *****

```

Q6: WAP to print the following pattern using nested loops.

```

for i in range(1, 11):
    for j in range(1, 11):
        if i % j == 0 or j % i == 0:
            print("*", end=" ")
        else:
            print(" ", end=" ")

```

print()

Output:

```

*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *
*   *   *   *   *   *   *   *   *   *

```

Q7: WAP to compute harmonic mean.

Program:

```

n = int(input("How many numbers?"))
total = 0
for i in range(n):
    n = float(input("Enter number:"))
    total += 1 / n
hm = n / total
print("Harmonic Mean:", hm)

```

Output:

How many numbers?

Enter number:

Enter number:

Harmonic Mean:

1.3333333333333333

Q8: WAP to compute the series:  $S = 1 - 3 + 5 - 7 + 9 - \dots$

Program: `n = int(input("Enter n: "))  
s = 0  
sign = 1  
for i in range(1, 2*n, 2):  
 s += sign * i  
 sign *= -1  
print("Sum S:", s)`

Output:

Enter n: 6

sum S: -6

Q9: WAP to find factorial.

Program: `n = int(input("Enter n: "))  
fact = 1  
for i in range(1, n+1):  
 fact *= i  
print(f"n! = {fact}", fact)`

Output:

Enter n: 7

$7! = 5040$

Q10: WAP to compute  $x^n/n!$

Program: `x = int(input("Enter x: "))  
n = int(input("Enter n: "))  
fact = 1  
for i in range(1, n+1):  
 fact *= i  
result = x**n / fact  
print("Result", result)`

Output:

Enter x: 7

Enter n: 5

Result: 140.05633333333334

Q11: WAP to print fibonacci series.

```

n = int(input("Enter number of terms: "))
a, b = 0, 1
for i in range(n):
    print(a, end=" ")
    a, b = b, a+b
print()

```

Output:

Enter number of terms: 9

0 1 1 2 3 5 8 13 21

Q12: WAP to find and print the first n terms of sequence: 1, 2, 3, 6, 11, 20, 37..

Program:

```

n = int(input("Enter number of terms: "))
a, b, c = 1, 2, 3
print(a, b, c, end=" ")
for i in range(3, n):
    d = a + b + c
    print(d, end=" ")
    a, b, c = b, c, d

```

Output:

Enter number of terms: 9

1 2 3 6 11 20 37 68 125

Q13: WAP to find reverse order of digit (positive integer).

Program:

```

n = int(input("Enter a positive integer: "))
rev = 0
while n > 0:

```

 $rev = rev * 10 + n \% 10$  $n // 10$ 

print("Reversed:", rev).

Output:

Enter a positive integer: 2478

Reversed: 8742

Q14: WAP to find binary representation of a positive integer n  
 Program:  $n = \text{int}(\text{input}("Enter a positive integer: "))$   
 $\text{binary} = ""$   
 while  $n > 0$ :  
 $\quad \text{binary} = \text{str}(n \% 2) + \text{binary}$   
 $\quad n //= 2$   
 $\text{print}("Binary: ", \text{binary})$

Output:

Enter a positive integer: 2

Binary: 10

Q15: WAP to find GCD of two integers using Euclid's algorithm.

Program:

 $x = \text{int}(\text{input}("Enter } x: "))$   
 $y = \text{int}(\text{input}("Enter } y: "))$   
 while  $y != 0$ :  
 $\quad n, y = y, x \% y$   
 $\text{print}("GCD: ", n)$ 

Output:

Enter x: 4

Enter y: 7

GCD: 1

Q16: WAP to find the sum of first n terms of series  $ts = 0! + 1! + 2! + 3! + \dots + n!$  ( $n \geq 0$ ).
 Program:  $n = \text{int}(\text{input}("Enter } n: "))$   
 $\text{sum\_ts} = 0$   
 for  $i$  in range( $n+1$ ):  
 $\quad \text{fact} = 1$   
 $\quad \text{for } j \text{ in range}(1, i+1):$   
 $\quad \quad \text{fact} *= j$   
 $\quad \text{sum\_ts} += \text{fact}$   
 $\text{print}("Sum: ", \text{sum\_ts})$ 

Output:

Enter n: 5

Sum: 154

Q17: WAP to find the sum of first n terms of the series  $S = x^4/1! + x^2/2! + \dots + x^6/6! + \dots$

```
Program: x = float(input("Enter x: "))
n = int(input("Enter n: "))

s = 0
for i in range(1, n+1):
    fact = 1
    for j in range(1, i+1):
        fact *= j
    s += x**i / fact
print("Sum:", s)
```

Output:

Enter x: 3

Enter n: 4

Sum: 15.375

Q18: WAP to find the sum of nth terms of the series  $S = x^3/3! + x^5/5! - x^7/7! + \dots$

```
Program: x = float(input("Enter x: "))
n = int(input("Enter n: "))

s = 0
sign = 1
for i in range(1, 2*n, 2):
    fact = 1
    for j in range(1, i+1):
        fact *= j
    s += sign * x**i / fact
    sign *= -1
print("Sum:", s)
```

Output:

Enter x: 6

Enter n: 3

Sum: 34.8

Q19: WAP to find sum of digits: Pn: an integer.

Program: int input ("Enter an integer")

sum-digits = 0

while  $n > 0$ :

    sum-digits += n % 10

$n /= 10$

print ("Sum of digits:", sum-digits)

Output:

Enter an integer: 2314

Sum of digits: 10

Q20: WAP to find a perfect number whose divisors add up to the number

Program:

for num in range(1, 501):

    sum-div = 0

    for i in range(1, num):

        if num % i == 0:

            sum-div += i

    if sum-div == num:  
        print (num, "is a perfect number").

Output:

6 is a perfect number

28 is a perfect number

496 is a perfect number