1. Write programs in Python to display following sequences for n terms (for loop):	2. Write programs in Python to find and display the sum of the following series for n terms (for loop):
(a) `1, 2, 3, ... N Terms`	(a) `1+ 2+ 3+ ... N Terms`
(b) `2, 4, 6, ... N Terms`	(b) `2+ 4+ 6+ ... N Terms`
(c) `1, 5, 9, ... N Terms`	(c) `1+ 5+ 9+ ... N Terms`
(d) $X, X^2, X^3, ...$ `N Terms`	(d) $X+ X^2+ X^3+ ...$ `N Terms`
(e) $X, X^2/2!, X^3/3!, ...$ `N Terms`	(e) $X+ X^2/2! + X^3/3!+ ...$ `N Terms`
(f) $X, -X^2/2!, X^3/3!, ...$ `N Terms`	(f) $X-X^2/2!+ X^3/3! - ...$ `N Terms`
(g) `1, (1+2), (1+2+3), ... N Terms`	(g) `1+(1+2)+(1+2+3)+ ... N Terms`
(h) `2, (2+4), (2+4+6), ... N Terms`	(h) `2+ (2+4)+ (2+4+6)+ ... N Terms`

3. Write a program in Python to check if a number (integer) entered by the user is PRIME or not.
4. Write a program in Python to check if a number (integer) entered by the user is COMPOSITE or not.
5. Write a program in Python to print first N PRIME numbers, where the value of N to be entered by the user.
6. Write a program in Python to print PRIME numbers between 1 to N, where the value of N to be entered by the user.
7. Write a program in Python to check if an integer N entered by the user is an **ARMSTRONG** number of not.

   Note: The **ARMSTRONG** number is a number, whose sum of individual digits raised to the power of the digit count is equal to the original number itself . Examples: `0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 153, 370, 371, 407, 1634` etc. are armstrong numbers
   As $1^1=1$, $9^1=9$, $1^3+5^3+3^3=153$, $1^4+6^4+3^4+4^4=1634$
   There is no 2 digit ARMSTRONG number

8. Write a program to print all the **ARMSTRONG** numbers between 0 to N, where the value of N to be entered by the user.
9. Write a program in Python to reverse digits of an integer N and display the digits in the reversed order in the same line with each digit ending with # .
   Enter N:345
   5 # 4 # 3 #
10. Write a program in Python to find a new number, which carries reversed digits of an integer N.
    Enter N:345
    M (Reversed content of N): 543
11. Write a program in Python to check if a new number N entered by the user is Palindrome or not. Palindrome is a number, which remains the same when its digits are reversed.
    Enter N:345   **Enter N: 12321**
    345 is not a palindrome   **12321 is a Palindrome**
    More numbers to check (Y/N)? Y   **More numbers to check (Y/N)? N**
12. Write a program in Python to add those digits of an integer N, which are on odd positions.
    Enter N:1834   **Enter N: 24192**
    Sum of odd positions:4   **Sum of odd positions:5**
    More numbers (Y/N):Y   **More numbers (Y/N):N**
13. Write a program in Python to find all the factors of a given number (integer).
    Enter N:18   **Enter N: 24**
    1,2,3,6,9,18   **1,2,3,4,6,8,12,24**
    Factors required for More(Y/N)? Y   **Factors required for More(Y/N)? N**

14. Write a program in Python to find all the HCF of two given numbers (integers).

```
Enter N:12                        Enter N: 24
Enter M:18                        Enter M: 16
HCF    :6                         HCF    : 8
HCF required for More(Y/N)? Y     HCF required for More(Y/N)? N
```

15. Write a program in Python to find the LCM of two given numbers (integers).

```
Enter N:12                        Enter N: 24
Enter M:18                        Enter M: 16
LCM    :36                        HCF    : 48
LCM required for More(Y/N)? Y     LCM required for More(Y/N)? N
```

16. Write a program in Python to perform operations (Addition, Subtraction, Multiplication, Division) on several sets of two integers.

```
Enter A:12                        Enter A:120
Enter B:18                        Enter B:30
Operation +,-,*,/ :+              Operation +,-,*,/ :*
Result: 30                        Result: 3600
More Operations (Y/N)? Y          More Operations (Y/N)? N
```

17. Write a program in Python to find the area of various 2D objects as per the user's choice.

```
Object Shape [S:Square R:Rectangle C:Circle Q:Quit]:S
Enter Side:12
Area of Square:144
Object Shape [S:Square R:Rectangle C:Circle Q:Quit]:R
Enter Length:12
Enter Breadth:8
Area of Rectangle:96
Object Shape [S:Square R:Rectangle C:Circle Q:Quit]:C
Enter Radius:5
Area of Circle:78.54
Object Shape [S:Square R:Rectangle C:Circle Q:Quit]:Q
Thanks
```

IMPORTANT: REFER TO MORE QUESTIONS GIVEN IN ASSIGNMENT BOOKLET

General Instructions:

i. Type the solutions of all the problems using **Python** Language on **Python IDLE** or **colab.research.google.com**

ii. Type in the following on top of each of your program as comment lines

```
# ----------------------------------------------------------------#
# List-Program No    : L2-P1
# Developed By        : Jhilmil Roy
# Date                : 16-Jul-2024
# ----------------------------------------------------------------#
```

iii. On successful execution with meaningful data, **copy** and **paste** the sample output at the bottom of the program as comment lines.

iv. "**Turn in**" the softcopy of the programs as a single document in response to this assignment submission with each program on separate pages. Once verified by the teacher, take out a hardcopy of **each program on separate pages** from the printer and get them signed by the respective computer teacher. Add all the printouts in the practical file and get the Index entry also signed.

v. Recommended Font, "**Courier New**", Style "**Bold**" Size "**10**" for all programs with single line spacing. Default indentation **2 Character** only.