Learning Objectives:

•To develop the program using various conditional loops such as while, for, do-while.
•To develop the logic and display various patterns using loops.
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Questions:

1. Write a program to print sum of all even number between 1 to n.

2. Write a program to print Fibonacci series for first 10 numbers.
   Ex: 0, 1, 1, 2, 3, 5, 8

3. Write a program to print sum of the series.

   $1/2 + 2/3 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots n/(n+1)$.

4. Write a program that takes a positive integer from user and checks whether that number   can be expressed as the sum of two prime numbers. If that number can be express sum of two prime numbers in output.

5. Write a program to convert the given decimal number into:
   a. Binary number   b. Octal number

6. Write a program in C to print the Floyd's Triangle.
```
1
01
101
0101
10101
```

7. Write a program to print the following patterns:

```
     *                *              * * * * * *
    ***              *A*               *
   *****            *A*A*           * * * * * *
  *******          *A*A*A*A*                   *
   *****                               * * * * * *
    ***
     *
```

8.   If a five-digit number is input through the keyboard, write a program to print a new number by adding 5 to each of its digits. For example if the number that is input is 78910 then the output should be displayed as 23465.

9. Write a program to print twin primes less than **n**. If two consecutive odd numbers are both prime (e.g. 17, 19 or 29, 31) then they are known as twin primes. For example: **n**= 35 ake as input then output will be: **3 5   11   13   17   19   29   31.**

10. Take an input **n** from user and print **n** number of lines in the following pattern, **n** can be only in between 1 to 26.

```
A B C D E F G F E D C B A
A B C D E F   F E D C B A
A B C D E       E D C B A
A B C D           D C B A
A B C               C B A
A B                   B A
A                       A
```

11. Write a c program to find the perfect numbers within a given number of range.

12. Write a C program to display Pascal's triangle.
```
              1
          1       1
      1       2       1
  1       3       3       1
1       4       6       4       1
```

Learning Outcomes:

•Able to choose appropriate iteration/loop constructs for a given programming task.
•Designed various patterns using loops.