Basics:

1- Write a program that converts Celsius to Fahrenheit. The formula is

$$F = {}^{9}/_{5}C + 32.$$

loops

1- Write a program to generate and display a table of n and n^2, for integer values of n ranging from 1 to 10.
2- Write a program to calculate HCF (Highest Common Factor) of two given number.
3- Write a program that takes a series of numbers and counts the number of positive and negative values
4- Write a program with a loop that lets the user enter a series of integers. The user should enter -99 to signal the end of the series. After all the numbers have been entered, the program should display the largest and smallest numbers entered.

Splitting number digits (the following have the same idea):

1- Write a program that calculates the sum of the digits of an integer. For example, the sum of the digits of the number 2155 is 2 + 1 + 5 + 5 or 13.The program should accept any arbitrary integer typed in by the user.
2- Write a program to reveres any given integer number.(i.e., consider an input value 123, then , the output should be 321).
3- Write an application that inputs an integer containing only 0s and 1s (i.e., a binary integer) and prints its decimal equivalent.
    a. (Hint: Use the remainder and division operators to pick off the binary number's digits one at a time, from right to left. In the decimal number system, the rightmost digit has a positional value of 1 and the next digit to the left has a positional value of 10, then 100, then 1000, and so on. The decimal number 234 can be interpreted as 4 * 1 + 3 * 10 + 2 * 100. In the binary number system, the rightmost digit has a positional value of 1, the next digit to the left has a positional value of 2, then 4, then 8, and so on. The decimal equivalent of binary 1101 is 1 * 1 + 0 * 2 + 1 * 4 + 1 * 8, or 1 + 0 + 4 + 8 or, 13.)

Evaluating expressions:

1. Write a program to calculate the sum of following series where n is input by user.

   1 + 1/2 + 1/3 + 1/4 + 1/5 +……1/n

2. Evaluate the following arithmetic expression.

$$\frac{x^2}{2!} - \frac{x^4}{4!} + \frac{x^6}{6!} - \ldots + \frac{x^{100}}{100!}$$

Advanced:

1- Write a program to print Fibonacci series of n terms where n is input by user : 0, 1, 1, 2, 3, 5, 8, 13, 24.

2- Write a program to check given number is prime or not.

3- Write a function which prints a positive integer in binary representation.

Patterns:

1- Write a program that prints the following pattern.

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

2- Write a program that prints the following pattern.

```
1
222
33333
4444444
555555555
```