

Practice 4

1. **Greatest common divisor** Write a program that prompts the user to enter two positive integers and displays their greatest common divisor (GCD).
2. **Counting vowels and consonants** Write a program that prompts the user to enter a string, and displays the number of vowels and consonants in the string. Here is a sample run:

```
Enter a string: Programming is fun
The number of vowels is 5
The number of consonants is 11
```

3. Binary numbers

- a. Write a program that prompts the user to enter a binary number and displays its corresponding decimal value.
 - b. Write a program that prompts the user to enter a (non-negative) decimal value and displays its corresponding binary value.
4. **ISBN-10** An ISBN-10 (International Standard Book Number) consists of 10 digits: $d_1d_2d_3d_4d_5d_6d_7d_8d_9d_{10}$. The last digit, d_{10} , is a checksum, which is calculated from the other 9 digits using the following formula:

$$(d_1 \times 1 + d_2 \times 2 + d_3 \times 3 + d_4 \times 4 + d_5 \times 5 + d_6 \times 6 + d_7 \times 7 + d_8 \times 8 + d_9 \times 9) \% 11$$

If the checksum is 10, the last digit is denoted as X according to the ISBN-10 convention. Write a program that prompts the user to enter the first 9 digits and displays the 10-digit ISBN (including leading zeros). Here are sample runs:

```
Enter the first 9 digits of an ISBN as integer: 013601267
The ISBN-10 number is 0136012671
```

```
Enter the first 9 digits of an ISBN as integer: 013031997
The ISBN-10 number is 013031997X
```

Bonus

1. **Factors** Write a program that prompts the user to enter a positive integer and displays all of its smallest factors in an increasing order. For example, if the input integer is 120, the output should be as follows: 2, 2, 2, 3, 5.