Problem Set 2 Exercise #17: Who are the Winners?

Reference: Lecture 5 notes

Learning objective: Nested loops

Estimated completion time: 45 minutes

Problem statement:

[CS1010 AY2011/12 Semester 1 Practical Exam 1 Exercise 2]

Citizens of Zakadaha hold an annual Gagalafa festival to celebrate the harvest of their prized produce, the well-sought after cocoa beans Kokomoko. A lucky draw is held during the festival. Every participant is given a lucky draw number. Each year, the organizer decides on two non-zero digits, the factor-digit and the must-have-digit. These two digits need not be distinct.

A winning lucky draw number is a number that is a multiple of *factor-digit* as well as contains the *must-have-digit*.

In this exercise, you are to write a program **winners.c** to read in the following three inputs:

- The factor-digit, which is a non-zero digit (1 – 9).
- The must-have-digit, which is also a non-zero digit (1 – 9).
- The number of participants, *n*. Lucky draw numbers will be numbered from 1 to *n* inclusively.

You may assume that all inputs are valid.

For example, if factor-digit is 3, must-have-digit is 5, and the number of participants is 100, then the number of winners is 6 (the winning numbers are 15, 45, 51, 54, 57 and 75).

Your program is to count the number of winners whose lucky draw number is a multiple of factor-digit as well as contains the must-have-digit.

Sample run #1:

```
Enter factor-digit: 3
Enter must-have-digit: 5
Enter the number of participants: 100
Number of winners: 6
```

Sample run #2:

```
Enter factor-digit: 9
Enter must-have-digit: 1
Enter the number of participants: 15
Number of winners: 0
```

Sample run #3:

```
Enter factor-digit: 7
Enter must-have-digit: 7
Enter the number of participants: 200
Number of winners: 5
```