CS101- Algorithms and Programming I
Lab 05

Lab Objectives: `for` loops, nested `for` loops, `do-while` loops.

For all labs in CS 101, your solutions must conform to the CS101 style guidelines (rules!)
For this lab you should only use `for` and `do-while` loops.

1. Write a program, `Lab05_Q1.java` that displays a menu and based on the choice from the user, executes the following tasks. The program should terminate when the user selects quit. Your program should validate inputs where appropriate.

   Choice 1: input a 4-digit number and display whether it is a special number. Special numbers are 4 digit numbers (abcd) where 4 * abcd == dcba.

   Choice 2: input a word from the user and display whether it is a vowel word. An English vowel word is a word that contains all 5 vowels (aeiou).

   Sample Run:

```
Enter choice:5
Choice must be between 1 and 3!

Menu:
        1 - Special Number
        2 - Vowel Word
        3 - Quit
Enter choice:1
Enter number: 2178
2178 is a very special number

Menu:
        1 - Special Number
        2 - Vowel Word
        3 - Quit
Enter choice:1
Enter number: 967
Enter number: 12
Enter number: 5
Enter number: 8675
8675 is not a very special number

Menu:
        1 - Special Number
        2 - Vowel Word
        3 - Quit
Enter choice:2
Enter word: SeqUOia
SeqUOia is a vowel word

Menu:
        1 - Special Number
        2 - Vowel Word
        3 - Quit
Enter choice:2
Enter word: adieu
adieu is not a vowel word
Menu:
        1 - Special Number
        2 - Vowel Word
        3 - Quit
Enter choice:3
Goodbye!
```

2. Create a program, `Lab05_Q2.java`, according to the following requirements. On Planet X, the weights of the mountains are calculated according to their width, where the ***widths may only be odd values***. Write a program that inputs the mountain width from the user, displays the mountain and the calculated weight of the mountain.

   Examine the sample runs below to understand how to calculate the weight of a mountain (sum of the rows).

   Sample Run 1:

```
Enter mountain width: 7
                  7
              5   6   5
          3   4   5   4   3
      1   2   3   4   3   2   1
Weight of mountain with width of 7 is 58
```

   Sample Run 2:

```
Enter mountain width: 2
Enter mountain width: 4
Enter mountain width: 8
Enter mountain width: 9
                      9
                  7   8   7
              5   6   7   6   5
          3   4   5   6   5   4   3
      1   2   3   4   5   4   3   2   1
Weight of mountain with width of 9 is 115
```