Assignment 3
CSIS 111B – Duffie (F2015)

Objective: To create a C++ Console application that utilizes looping control structures to create the *Fun with Multiplication* application.

General Specification: *Fun with Multiplication* should begin by prompting the user for how many multiplication problems to solve.

```
How Many Multiplication Problems: <user enters 5>
```

For each problem the application should generate two random numbers between 1 and 12 and present them in multiplication form: ie. 6 X 4 = ?. The application should continue to present each problem until the correct answer is entered. The application should acknowledge a correct response with an affirmative statement.

```
6 X 4 = <user enters 30>
6 X 4 = <user enters 20>
6 X 4 = <user enters 24>
Correct!

12 X 9 = ?
```

After serving the specified number of multiplication problems the application should congratulate the user on completing the task and display a statistical summary of their session.

```
Congratulations on Completing your Mission!

Problems: 5   Guesses: 8   Accuracy: 62.5%
```

Finally, your application should query the user to 'Go Again?', If the response is 'Y' or 'y' the application should loop to the 'How many problems' prompt. If the response if 'N' or 'n' the application should offer a final thanks and end.

```
Thanks for using Fun with Multiplication!
```

Implementation Strategy: A complete application will require <u>three</u> nested looping structures. The inside loop is a sentinel control loop (*while* or *do…loop until*) that insures that the user answers each problem correctly. Surrounding this loop is a counter control loop (*for*) that iterates once for each problem. The outer loop is a query control (*do…loop until*) that controls 'Go Again?'. The most effective strategy is to get the inner-loop working first (ie. solve for a single problem with potentially multiple guesses). Only after you get this working should you add functionality for multiple problems (create another loop around the first loop). Once you have multiple problems working, then add the 'Go Again' loop around your previous two loops.