CS 150 Lab 3

If statement, bool data type, type casting.

The main objective of today's lab is to use if statements, bool data types and type casting to solve a complex problem.

Lab 4.1

For this lab you will receive a partially written solution and will need to implement the missing parts of the code as described by the comments. This program will ask the user for the length and width of a rectangle and also ask the user to input the area of the rectangle. Your code will check if the value of the area input by the user is correct. Display one of the following messages, depending on if the user supplied value of area is correct.

```
Yes! The area of the rectangle was calculated correctly by
the user!
```

```
Sorry! The correct area of the rectangle is ###.
```

In the second message, display the correct area of the rectangle in place of the ###.

To retrieve the partially written solution, do the following:

1) You will need to copy the projects to your folder before opening them in Visual Studio. Go to the 'CS150-02 Public' folder on Turing. You will find the folder '04UserArea' in the '04Lab' folder. Copy the folder '04UserArea' to the desktop.

2) Rename the folder on your Desktop from '04UserArea' to '04UserAreaXXXXXXXX' where the XXXXXXXX is your PUNet ID.

3) To open your project, start up Visual Studio like you did last week. Click on 'File' from the menu, then 'Open' and 'Project/Solution'.

4) Click on the drop down box and select 'Desktop'. Double click on the folder '04UserAreaXXXXXXXX'

You will see a list of files.

5) Select the Microsoft Visual Studio Solution file called '04UserArea. It's the one with this icon.

Click 'Open'.

<u>Submitting your finished project:</u>

Once you have completed your lab projects, you will need to submit it for grading. You will submit your projects to the 'CS150-02Lab' folder on Turing. You may only submit your projects once, so make sure that they are in their final form. Also, make sure that you submit the correct project. Be sure to close Visual Studio before copying and moving your folder.

To submit the project, copy (do not move) the folder you created on the Desktop, '04UserAreaXXXXXXXX', to the directory Turing\Students\CS150-02 Lab.

To save a copy of your project for yourself, move the folder you created on the Desktop to Turing\Students\XXXXXXXX, where XXXXXXXX is your PUNet ID.

Lab 4.2

For this lab you will create a new Visual Studio Project that will contain your source code. You should save this project as '04SoccerXXXXXXXX', where XXXXXXXX is your PUNet ID. The goal of this program is to solve the following problem:

> We want to calculate the number of goals scored per game by the Pacific University Women's Soccer team. So far they have scored 5, 2, 1, 1, and 0 goals in their first five games. Your program should prompt the user for the five goal totals one at a time. Calculate the average number of goals scored per game (a single number rounded to the nearest hundredth) and whether or not the team averages more than 2.10 goals a game. Display both of these values to this user. In your C++ code, represent whether or not the average number of goals scored per game is greater than 2.10 as a `bool` variable. A sample input and output is shown below.

Your output should look exactly as follows:

```
*********************************************************
*     Pacific University Women's Soccer Goal Tabulator    *
*********************************************************
Please enter the first game goal total: 5
Please enter the second game goal total: 2
Please enter the third game goal total: 1
Please enter the fourth game goal total: 1
Please enter the fifth game goal total: 0

The average number of goals scored per game: 1.80
On average, the team does not score more than 2.1 goals a
game.
```

After you run your program with the given data, use the following two data sets:
Game one: 5
Game two: 2
Game three: 3
Game four: 1
Game five: 2

Game one: 2
Game two: 0
Game three: 1
Game four: 3
Game five: 1

Check the output for each of the above data sets is correct before submitting your assignment.

Be sure to add comments to your code to detail how each variable is used and the purpose of each calculation.

Submitting your finished project:

Submit this assignment by copying the folder '04SoccerXXXXXXXX' to Turing\CS150-02 Lab.

Be sure to close Visual Studio before attempting to copy this folder.

► **If you do not have time to finish these assignments in Lab, continue working on them outside of class and submit them by 5:15pm, Friday, September 22.**