

CS 150 Lab 2

Introduction Variables, Assignments and Output

The purpose of today's lab session is to allow you to gain experience using primitive data types, constants, assignment statements and output statements. Each activity today will consist of a small number of computations and a set of output to display the results.

Lab 2.1

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. When the program is built, it will calculate the area and circumference of a circle and print these values to the screen. Be sure to read the comments in the source code carefully when implementing this lab.

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 'CS150-01 Public' folder on Turing. You will find the folder '02Circle' in the '02Lab' folder. Copy the folder '02Circle' to the desktop.**
- 2) Rename the folder on your Desktop from '02Circle' to '02CircleXXXXXXXX' 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 '02CircleXXXXXXXX'**

You will see a list of files.

- 5) Select the Microsoft Visual Studio Solution file called '02Circle'. It's the one with this icon.**



Click 'Open'.

This will open the project. Complete the project.

Submitting your finished project:

Once you have completed your lab projects, you will need to submit it for grading. You will submit your projects to the 'CS150-01Lab' 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, '02CircleXXXXXXXX', to the directory Turing\Students\CS150-01 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 2.2

For this lab you will create a new Visual Studio Project that will contain your source code. The goal of this program is to calculate the area and perimeter of a rectangle and then display both of these values on the screen. When displaying each value to the screen, display the formula used to calculate that value as well. You may use the previous program as a guide. The length and width of the rectangle may be given as constants (Length=8 and Width=3).

Continue to work until your program produces the correct output. The area of the rectangle is 24 and the perimeter is 22.

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

Creating a new project:

To create a new project, **select File -> New -> Project from the menus.**

This opens a dialog box with several options. The window on the left lists the project types, while the window on the right lists the templates. All the projects that we will create this semester will be Win32 Console Projects

1) Expand *Visual C++* from the left window and click on the *Win32* option. Select the *Win32 Console Application* from the right window.

You will select these options for all your projects this semester since you will only be developing C++ console projects.

2) In the Name textbox, enter a name for your project. For this project, call it '02RecXXXXXXXX' replacing the X's with your PUNet ID.

6) Click on the drop down box below the Name textbox, select 'Desktop'. This will save your project onto the desktop.

3) Click the OK button.

4) Check that everything is correct in the dialog box and click Finish.

Submitting your finished project:

Submit this assignment by copying the folder 'Turing\XXXXXXXX\02RecXXXXXXXX' to Turing\CS150-01 Lab.

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

Optional Challenge:

Once you have followed all of the above instructions and submitted your lab projects, modify your project so that it displays a message asking for the length of the rectangle. Once the user types in the length of the rectangle your program should ask for the width of the rectangle. After successfully reading in the length and width of the rectangle, the program should calculate and display the area and perimeter as described above.

Instead of removing or changing lines from your source file, comment out each line you wish to change or remove so that your file will contain the source code to solve the assignment from Lab 2.2 as well as the Challenge.

Remember, to turn a line into a comment, place double forward slashes, // at the beginning of the line like this:

```
// return 0;
```

Refer to the book on how to get information from the user. Hint: you will need to use `cin`.