# CS 150 Lab 02
Introduction to Visual Studio

The purpose of today's lab session is to familiarize you with

1. Visual Studio Pro 2010
2. Building and Running a Program
3. Connecting to the Computer Science server 'Turing' which you will use to turn in your solution to a given program assignment / lab assignment

►If you have trouble with any piece of this, please ask the instructor for help.

► Introduction to Visual Studio 2010
1. Log on to the computer if you have not already.
2. **Start Visual Studio 2010 by using the Start button to navigate to Programs and then Microsoft Visual Studio 2010**
3. **We are going to go through creating a solution PUNetIDLabs and your first project 01_1_HelloWorld.** Create a new project by going to File→ New→Project. For **Name:** use 01_1_Hello world and for **Solution name:** use PUNetIDLabs. My PUNet is khoj0332.
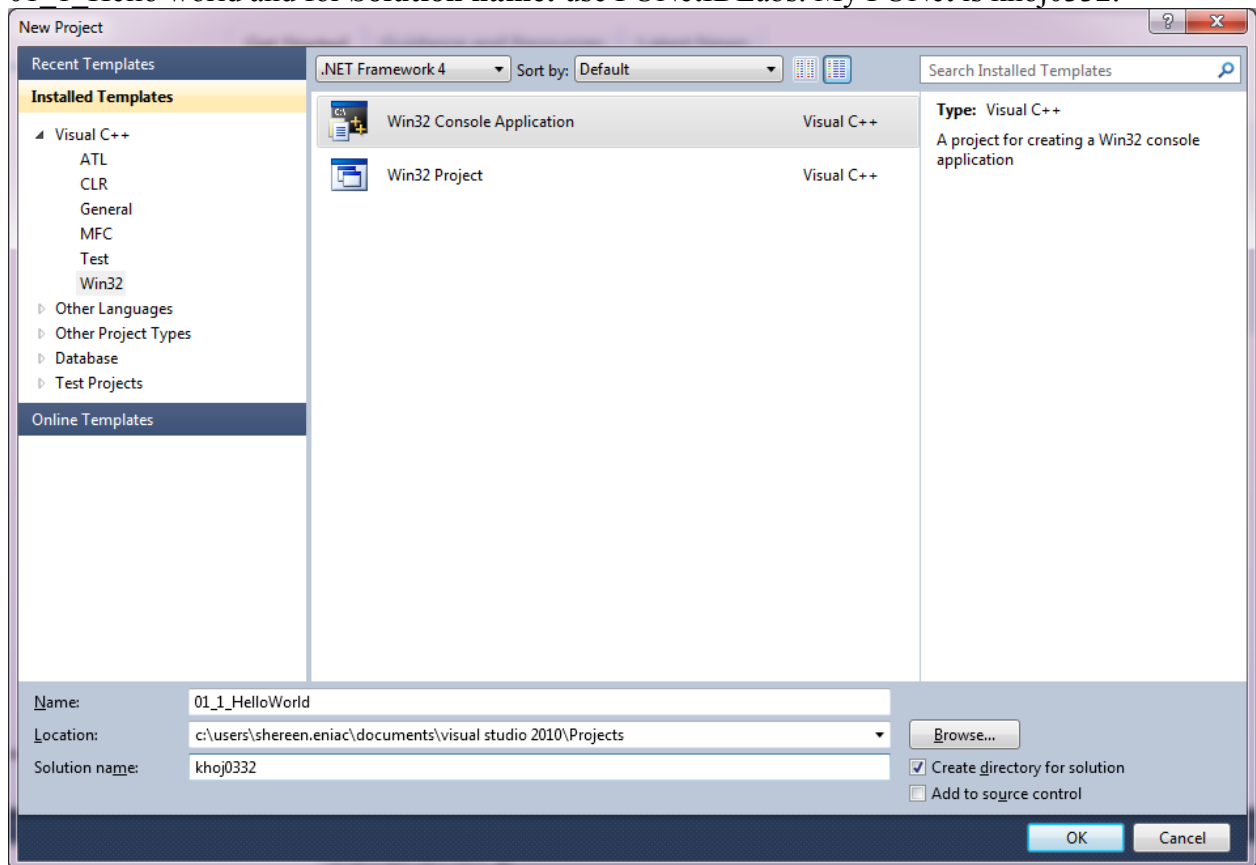
4. Once these are correct, you can click OK, then Next which takes you to the following screen. Make sure the Application type is Console application and that Empty project is selected.
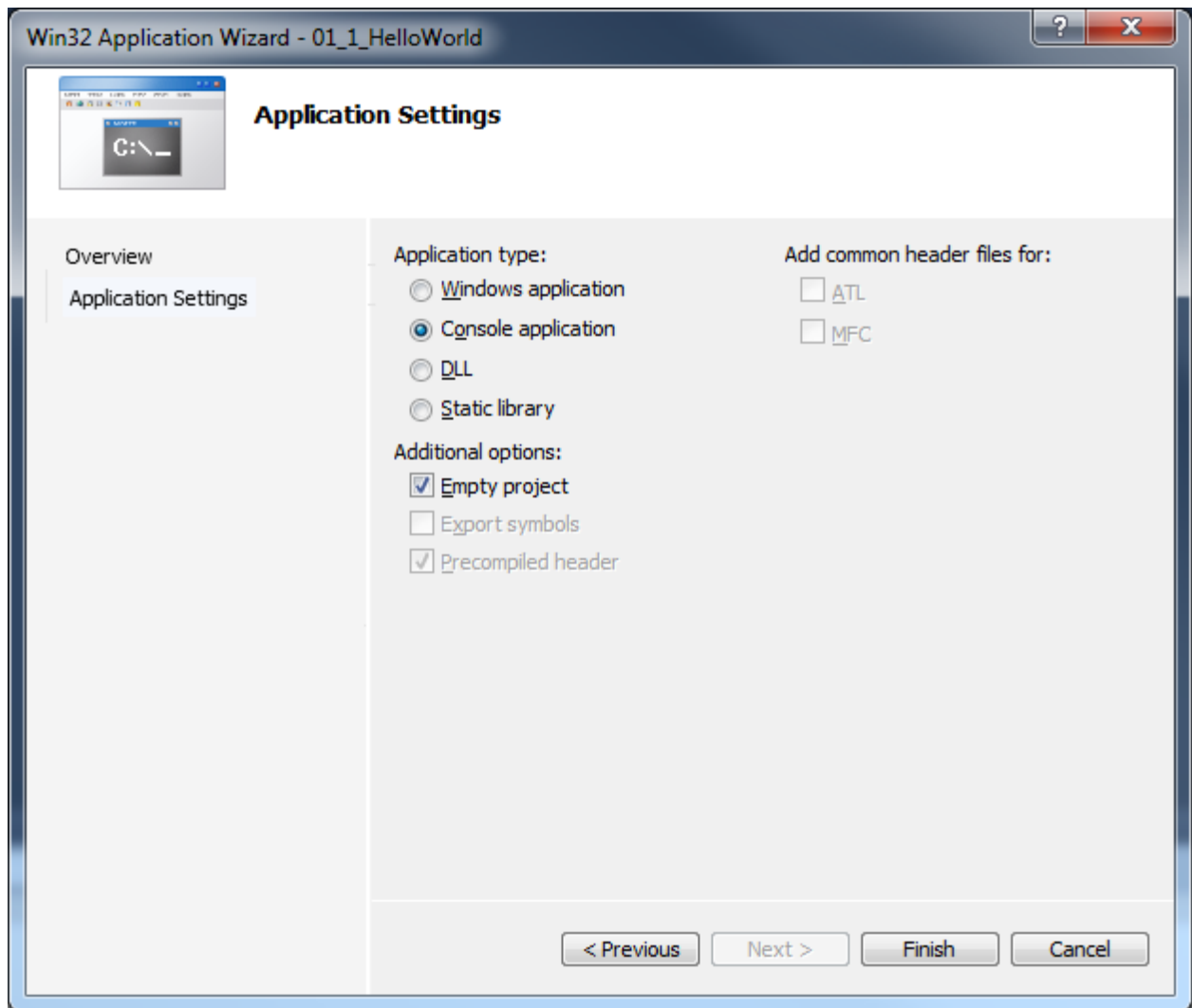
There is a Visual Studio FAQ on the CS 150 website at
http://zeus.cs.pacificu.edu/chadd/VS_FAQ.html

5. Once you have completed step 4, <u>stop and ask the instructor to review your work</u>.
6. Type in the following program to **main.cpp**. Be sure to copy the program exactly as shown below. Use your name as the Author and use today's date.

```cpp
//**********************************************************
// File name:   main.cpp
// Author:      John Smith
// Date:        08/30/2011
// Class:       CS150
// Assignment: Hello World Lab Program
// Purpose:     Displays the message "Hello World" to the
//              screen.
//**********************************************************

#include <iostream>

using namespace std;

int main()
{
   cout << "Hello World!" << endl;
   return EXIT_SUCCESS;
}
```

7. Turn on line numbers and setup the tab size, as explained in the Visual Studio FAQ.
8. Once you have completed step 6, <u>stop and ask the instructor to review your work</u>.

► **Let's examine the program you just wrote.**

1. Lines 1-9 are comments. Notes that comments are used to explain to the human reader what this program does. Visual Studio's compiler ignores comment lines. Note that comments are green.
2. Line 11 includes the **iostream** (input/output stream) library required to display messages to the screen. The iostream library is also required when reading input from the user.
3. Line 13 specifies the **namespace,** which is required for using **cout** to display messages to the screen. More on this later.
4. Line 15 declares the **main** function required by every C++ program. The main function is where every C++ program starts when you begin program execution.
5. Line 16 and 19 contain { and }, respectively. These mark which lines are included in the main function.
6. Line 17 displays a message on the screen.
7. Line 18 ends the program where EXIT_SUCCESS denotes that no errors were encountered.

► **Building the Program**

Before you can run your program, you will need to build the program which checks your program for syntax errors. A program that builds with no syntax errors causes your C++ code to be translated into machine code (zeros and ones) that is understood by the computer.

1. You are ready to build and run your first C++ Program! Make sure you've saved your work using **File** | **Save All** or the blue disk icon on the tool bar.
2. Build your program using the **Build** menu and the **Build Solution** option. Or press the F7 key. Building the program checks for syntax errors.

The program will then compile and link. The output window below the source window will display messages indicating what is going on. You can expand this window or scroll through so that you are able to read all the messages.

If you have typed everything correctly you will have 0 errors and 0 warnings. If you do get errors, then check your code and make sure you've typed everything correctly. Let me know if you can't get things to work.

► **Run the Program**
1. Run your program by using the **Debug** menu and the **Start Without Debugging** option.
2. A black window should appear.
3. Which lines in your program do you think produces each line in the black output window?
A_____

_____

4. What happens after you press enter? A _____

_____

5. Once you have completed step 4, stop and ask the instructor to review your work.

Congratulations! You have run your first C++ program.

What happens if we type **cot** instead of **cout**? Try it now, and build and run your program again.
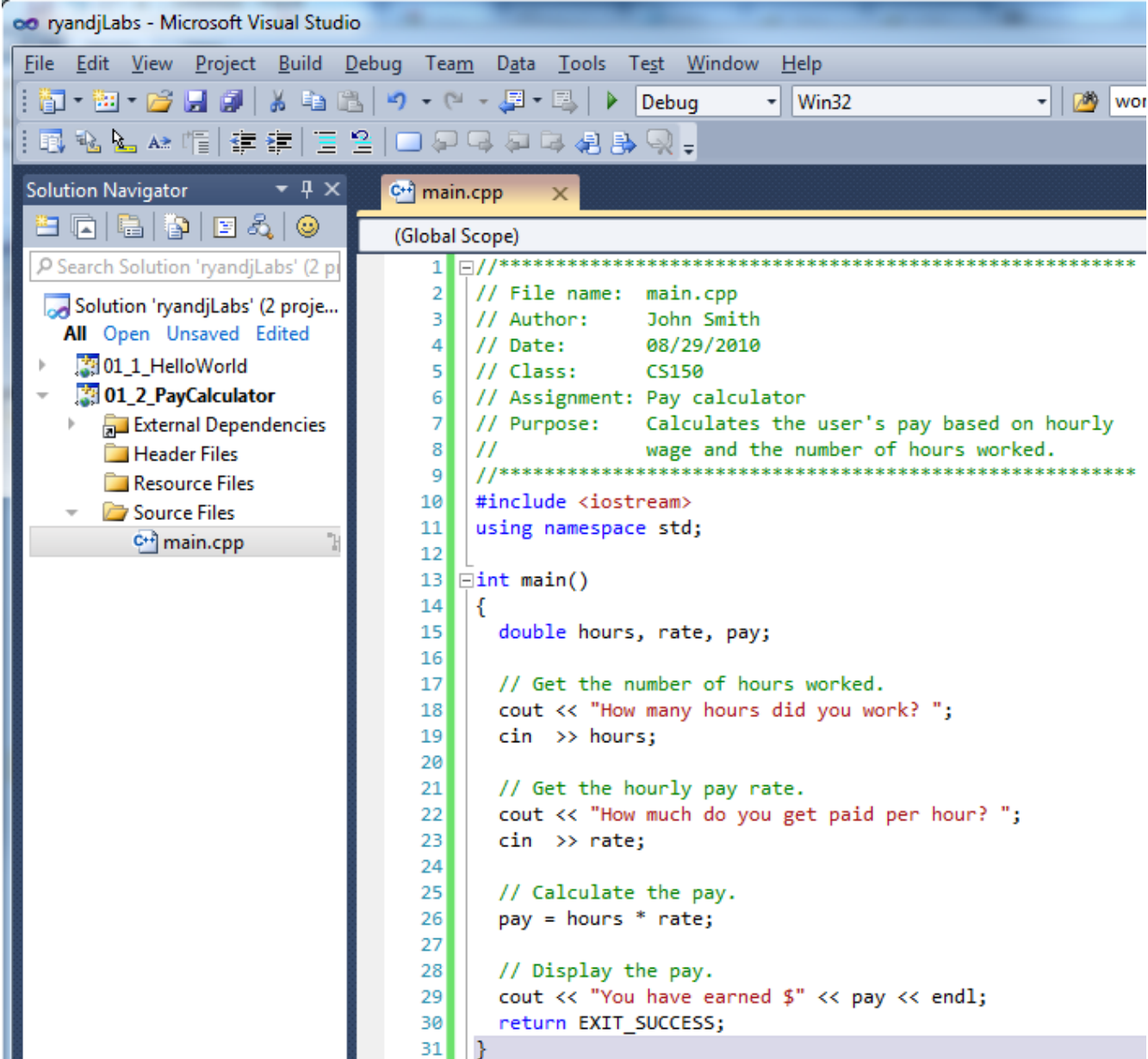A. _____

_____

What happens if we delete **<< endl** from line 17? Try it now, and build and run your program again.
A. _____

► Once you have completed all of the above, then create a new project in the solution **PUNetIDLabs**. Name this project **01_2_PayCalculator**.

Add a file named main.cpp and type in the following code.

Build and run your program.

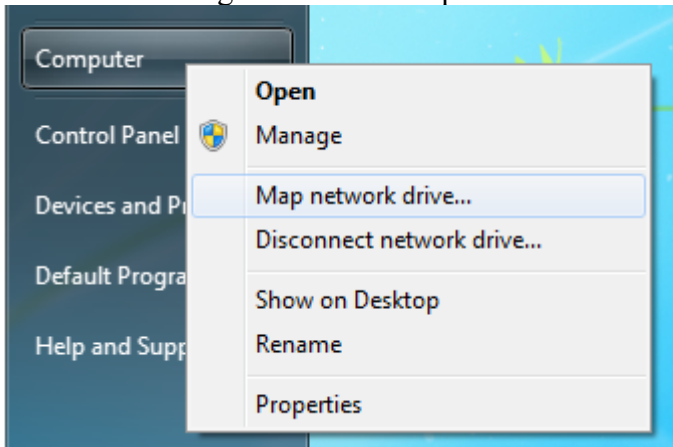Write a brief description of what the program does.

A. _____

_____

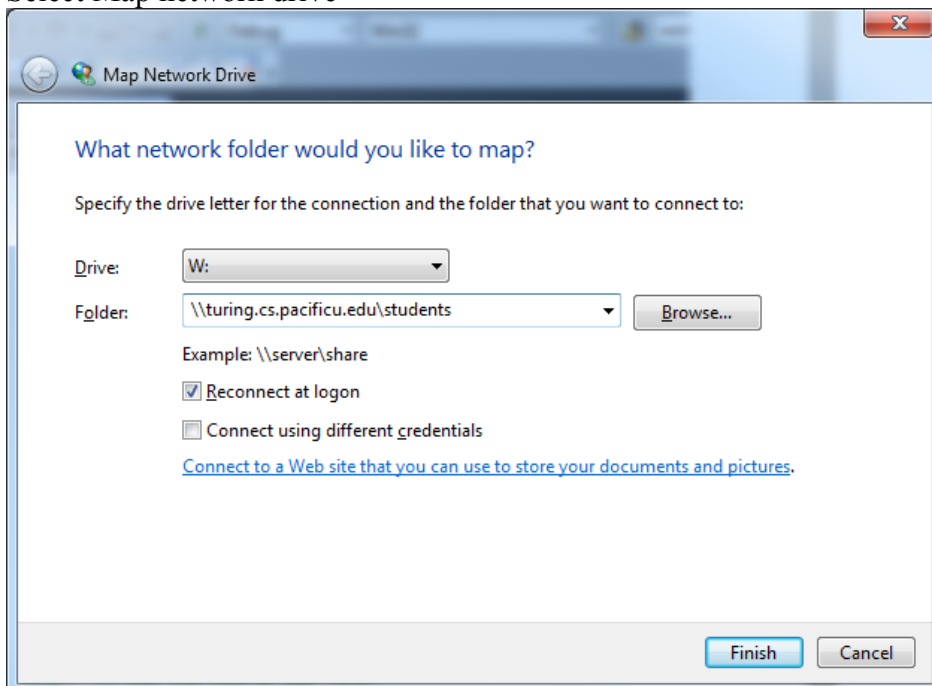**Show your completed work to the TA or the professor.**

Save the project to your folder on turing and then place a copy of your project in the CS150-02 Drop folder!

► Connect to the Computer Science server turing.cs.pacificu.edu
    1.   Go to Start and right-click on Computer

    2.   Select Map network drive

3. When you are prompted for a name and password, type in **eniac\yourloginname** where yourloginname is your PUNetID and the password is your Turing password.
4. If all goes well, you will see folders CS150-02 Drop, CS150-02 Fall2011Accts, and CS150-02 Public. Inside of CS150-02 Fall2011Accts will be your individual folder to be used for saving your projects. No other student has access to this folder, but faculty members do. Do not store any illegal material on Turing.
5. Copy your solution PUNetIDLabs from the desktop to your individual folder on Turing.
6. Copy your solution PUNetIDLabs from the desktop CS150-02 Drop folder. **This is how you will submit your programming assignments in this course.**
7. Once you have copied both projects to the proper location, <u>stop and show your instructor</u>.

► After each lab session, be sure to copy your work to your folder on Turing.

► As you work on your programming assignments, be sure to copy your work to your folder on Turing.

Why is it so important to copy your work to Turing? _____

_____

_____

►Optional Challenge (you do not need to submit this to CS150-02 Drop)

Once you have followed all of the above instructions and submitted your lab project, modify your pay calculator so that it displays a message asking for a name. Once the user types in the name, the program should display "Hello" followed by the name typed in by the user and then continue on with its previous work. **HINT**: Look at the program at the end of the handout for Monday's Lecture.

The updated input and output of the pay calculator should be as follows:

```
What is your name? Bob
Hello Bob!

How many hours did you work? 10
…..
```