Software Testing

Software Testing

To test an application is to run it to make sure it works correctly, trying every possible combination of input data and user actions to be certain it work in every case.

Software Testing Phases

- Check the user interface to make sure that it works correctly.

- Test the application with valid input data to make sure the results are correct.

- Test the application with invalid data or unexpected user actions. Try everything you can think of to make the application fail.

Software Testing Example In Visual Studio!

Follow your Instructor with the Demo!

Logical Errors

Logical errors are errors that will not make your program run as expected.

Examples:

- Initializing variables to the wrong value.

- Doing the wrong operation (doing addition instead of a difference).

Validation And Debugging

Testing And Debugging– Debugging

Debugging an application means actually fixing the errors (or bugs) identified by testing the app. It must then be tested again to make sure the fix hasn't caused more errors.

Debugging Terms

Let's about how debugging works, but first here's some terms:

- Debugging - the process of finding and removing errors from your code, using an IDE's Debugger tool

Fun Fact

The Term bug and debug comes from computers in the 1940's. The units were room sized and actual bugs would crawl into the moving parts. Programmers would have to physically open their machine and track down the rogue insect.

Debugging

- Breakpoint - this a line of code where you tell the debugger to stop.

- Step forward - this tells the debugger to move onto the next line

Debugging

Every debugger/IDE works a little differently, but the main idea is the same: set a break-point and see what the IDE sees at that line. Commonly, Debuggers will show you the current value of all variables as well as any methods currently running
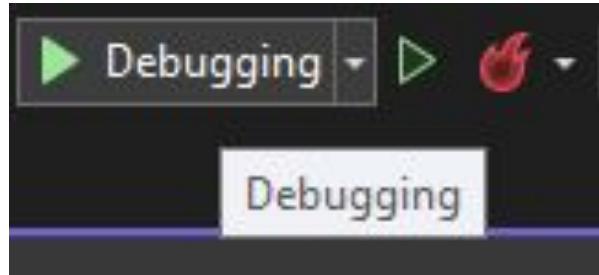
Debugging in Visual Studio

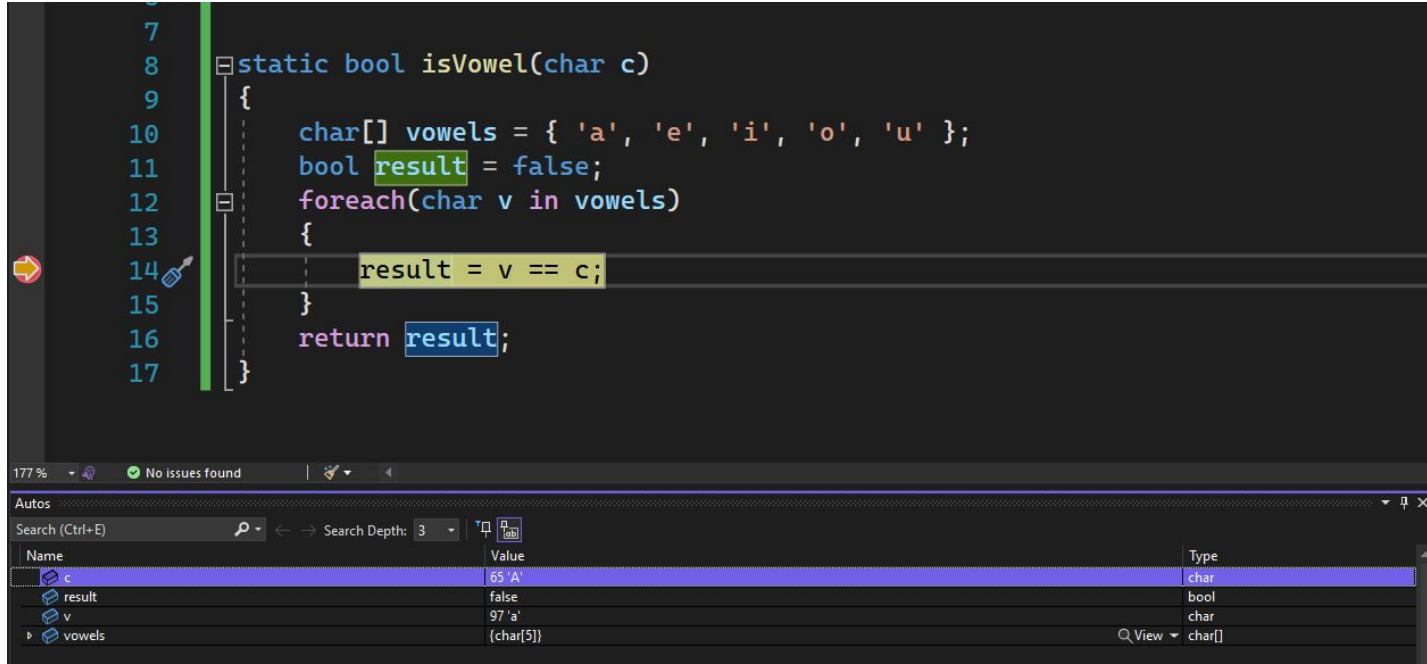First set a break-point, by clicking the far left of the coding panel in Visual Studio

Debugging in Visual Studio

Next to run the debugger click the filled in run button. This will run your code until the first breakpoint is hit.

Debugging in Visual Studio

If the debugger ran it should look like so:

Debugging in Visual Studio

Notice on the bottom, the current values of each variable are shown. As you step through the program line by line these will update.

Debugging in Visual Studio

For stepping through your code, you have 4 different options (and continue). Experiment with each one. What do they do?

Debugging in Visual Studio

Go back to the code screenshot and see if you can figure out the two problems with it. Discuss it with each other.