Course ID: 70
Course Title: C# .NET Web-based Applications
Section: 2 Controls
Lecture: 3 Hello World
Resource Materials

Hi guys and welcome to this our first actual coding exercise.

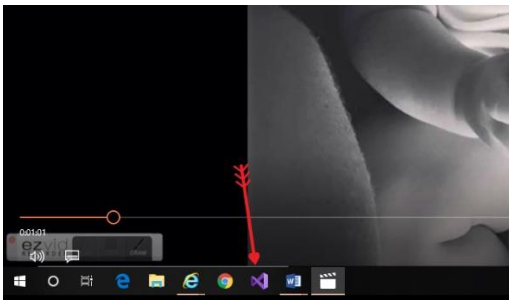
In this section 2 we are going to explore the controls available to us on a form, how to get them arranged properly, and how to write code associated with events on those controls.

In this our first lecture we are going to follow tradition and create a “Hello World” program. Every entry level programming course starts with a Hello World program because it teaches us how to work within the development environment, create and save a program and of course test a piece of code.

In our case that working environment will be Visual Studio 2019, the programming language will be C# and we will be creating a windows form application.

Should be great fun. Let’s jump to the inside and take a look at our first program – “Hello World.”

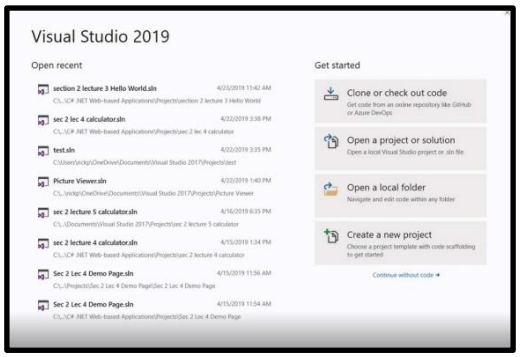
OK guys we are finally ready to fire up Microsoft’s Visual Studio 2019 and check out its various components and how to build a simple C# forms application.

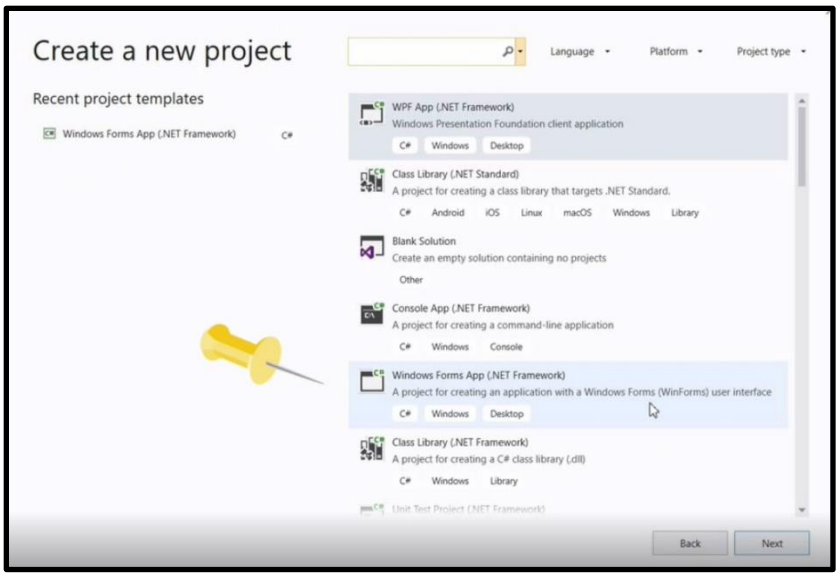


Down here in my tray I have a copy of the Visual Studio launch icon. If you don’t have a copy of Visual Studio 2019 loaded on your box please go back to lecture 2 and get that done before coming here.

All right, we can now assume that you are the proud owner of a copy of Visual Studio 2019 so let’s go ahead and launch that guy.

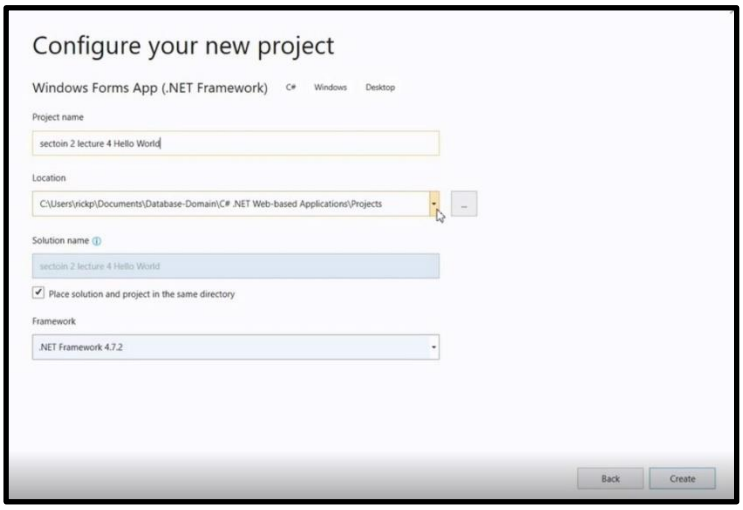
This is the Visual Studio home page. A list of all your old projects on the left and a bunch of option buttons on the right. We are going to choose to create a new project.





On this next page of the wizard we are asked to indicate which type of project we want to create. We are going to create a Windows form project.

Next we give our project a name – in our case Section 2 Lecture 3 Hello World. On this page we can also determine where on the hard drive our project will be stored. The projects folder associated with this course is correct so I will just leave that one unchanged.

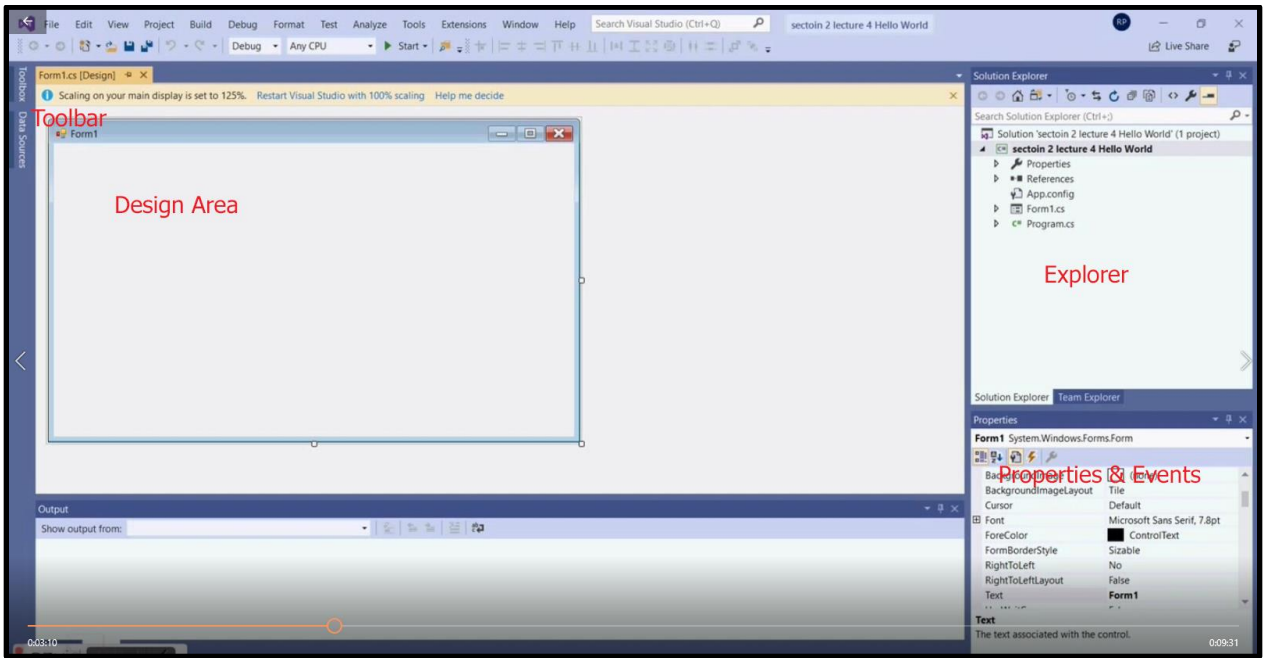


Please also note on this page the option to specify a solution name. A project is that collection of pages necessary to run a program. In contrast, a solution is that collection of projects necessary to resolve a business challenge. Net: project is a 1:M with solution.

OK, now when we hit our next button Visual Studio goes out and actually creates our project. P.S. It is taking a long time on my box here because I am also running my screen capture software which eats a lot of strokes on this I5 box.

Anyway, after a couple of seconds you see this – the Visual Studio IDE, or Integrated Development Environment.

Smack dap in the middle is your default form aptly named form1. Up here in the top right is your explorer window wherein you get a listing of all the files associated with your project. Down here in the bottom right you get a listing of all the properties and/or events associated with a specific object – in our case the only object we have is this form so this is currently a listing of all the properties and/or methods associated with this form.



Let's start by navigating down here to the text property and changing the value of this to Hello World. A form's text property determines the name written across the top left hand corner of the form at runtime. Did you notice the realtime behavior of the IDE? As soon as I hit enter the form in the design area changed its text value.

Let's go ahead and test this very complicated program by hitting this start button up here at the top. This guy starts the debugger and executes our current program within the debugger.

Our program of course doesn't really do anything yet but you get the idea. If it accepted events at this time we could track them in the debugger.

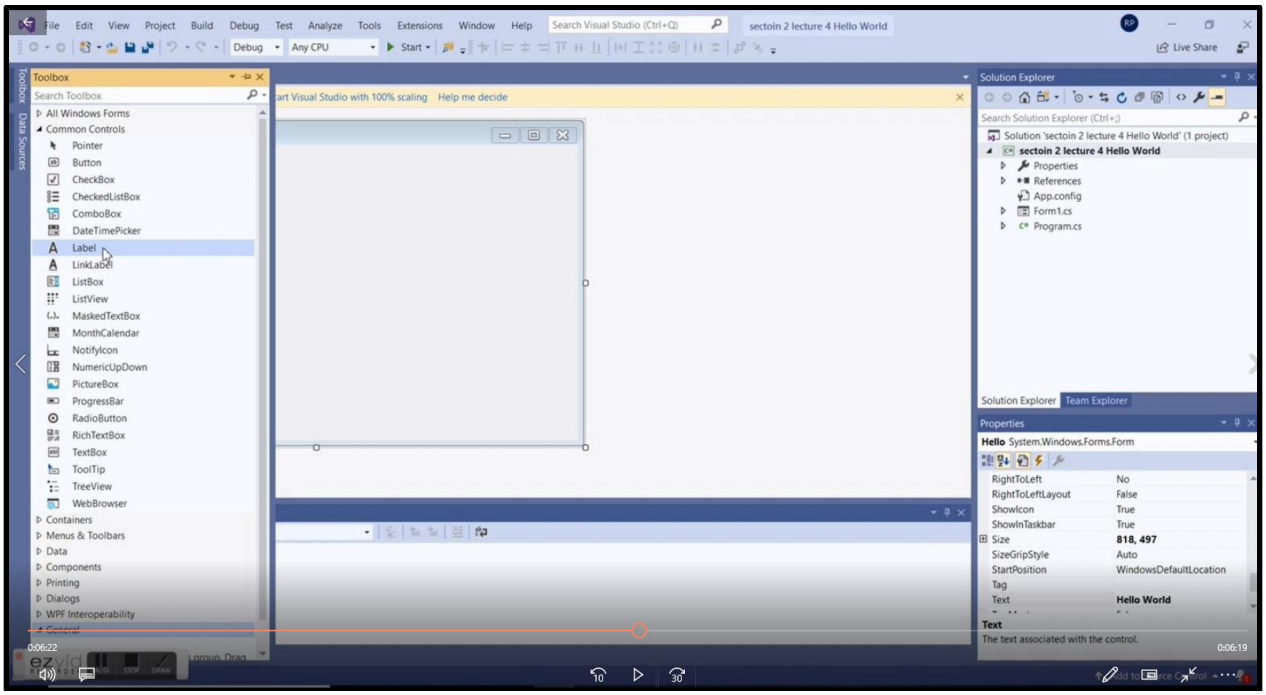
To close the debugger just x-out of the form up here in the upper right hand corner. P.S. The Visual Studio C# debugger is a bit of a resource hog. I do not recommend having too many other programs running at the same time. For me, my screen capture tool, Word and the debugger is about all this little I5 can handle without getting very squirrely.

OK, before we proceed let's save all our work by hitting this double disk icon up here at the top. The double disk infers save all open files while the single saves just the current file.

We now want to demonstrate closing a project and reopening it. Really tough stuff here. First, make certain the project is properly saved and then simply x-out. Tah Dah really tough.

To restart that same project just fire up Visual Studio and select the appropriate solution name from the list on the left. Yes, a project is stored in a solution file because remember – a solution may contain many projects but a project exists in only one solution. The meta data – data about our project – is stored in a solution file.

OK, let's add some controls to our form. Controls are stored over here on the left hand side in a docked toolbar. Click that guy to open it up and then navigate down to the common controls, label menu option. Double click the labels option and you have just added a label to our form. Alternatively you could have drug that guy onto the form – your choice, I'm a double click kind of guy.



Let's start by dragging our label over here to the center of our form for dramatic effect. Oh yeah, that looks really great now – Tah Dah!

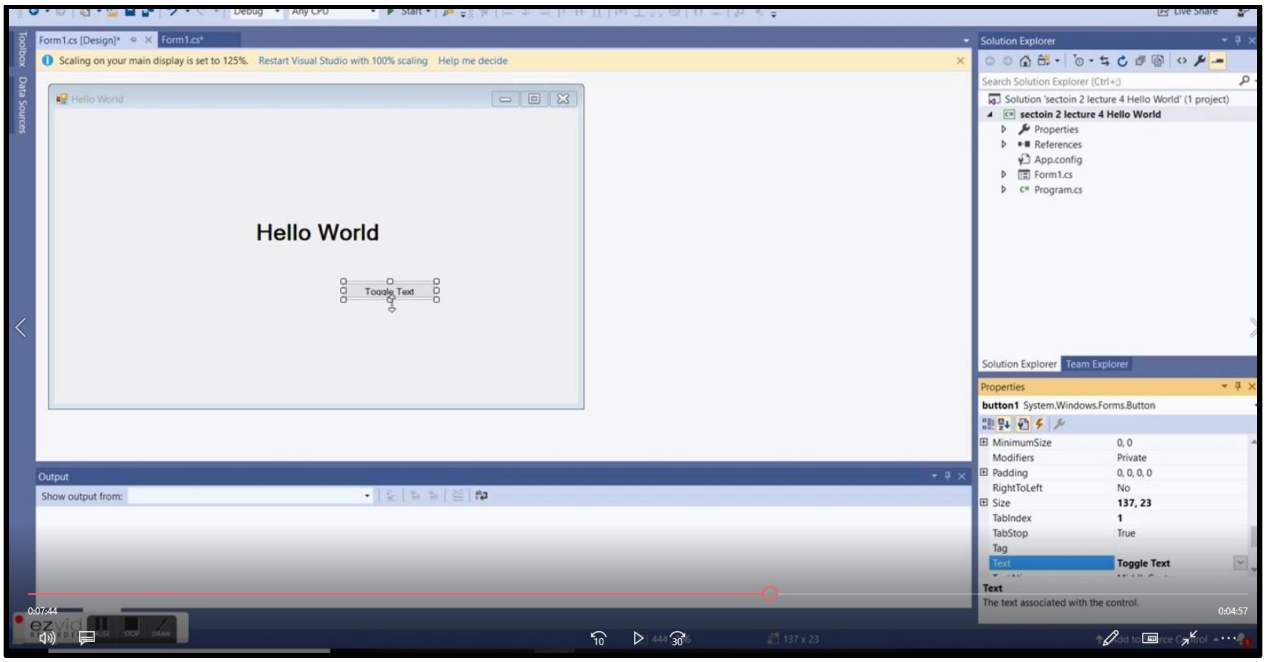
Next we change the label's text property to read our now infamous "Hello World". I wonder if anybody has actually had a first coding example which wasn't Hello World? Hey if you did shoot me an email with the context – I'd love to meet that instructor. What part of mars did they come from?

OK back to business. Next we change the font of our label text to bold and 20 point. Easy enough right just find the appropriate label property down here in the bottom right hand menu.

Next we add a button to our form. Drag that guy down toward the bottom right of our form and we are moving along with the example beautifully.

Better change the text property of that button to read "Toggle Text" – you'll see in a minute why…

Resize our button with the Microsoft standard drag corners and we are looking pretty good. But let's make it even nicer by changing the background color of our button. Oh yeah, now we are looking really nice. One more change to the font size and we should have it for this button right?



Let's do a save and then test our form. What do you suppose will happen when we click on the "Toggle Text" button?

Well our form loads and displays properly. We can even resize the form but it doesn't appear to resize the controls properly and nothing happens when I click the "Toggle Text" button. Perhaps we have more work to do…

Now some of you may have noticed a second tab up here near the top labeled form1.cs. If we open that guy up we see some C# code.

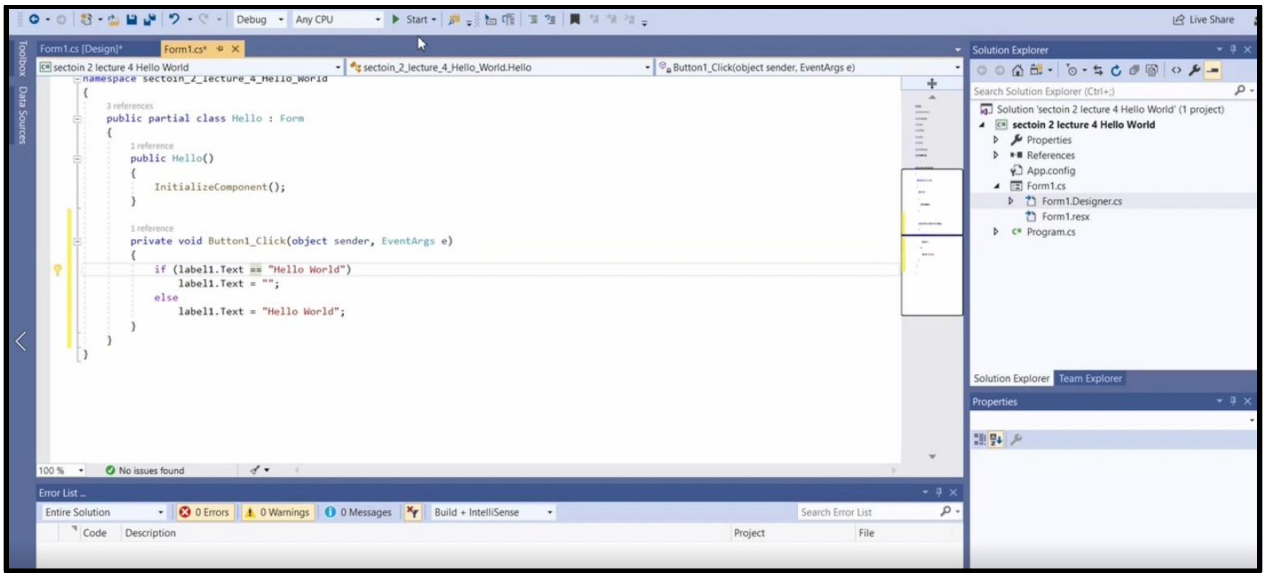
Cool let's add some more code here to make our button actually toggle the text associated with that Hello World label.

I begin by coming down here to our properties menu and selecting the methods option up here at the top. Now instead of a list of button properties we have a list of all the methods this button supports. We are interested in writing some code for the onClick event of this button so I go over to that method and double click.

Tah Dah, Visual Studio builds me the framework for a Button1 onClick event handler. Now all I need to do is add the associated code.

Net: when I click Button1 I want to toggle the text property of label1 between "Hello World" and a zero length string. Very straight forward code which I will intentionally leave incorrect so we can see how Visual Studio's intellisense helps me find my bugs.

Check it out. Intellisense is telling me I have some bad syntax by underlining the problem area in read. In my case that equality operator is wrong and needs to be changed to the double equal sign to operator properly. I go ahead and fix the problem and we are then ready to test.



Oh our first program is working perfectly. How cool is that?

All right that puts a wrap on our Hello World program let's jump to the outside and review what we learned.

Hey guys and welcome back to the outside. I hope you enjoyed our little "Hello World" example and I hope you found this lecture beneficial.

So what did we learn?

1) Well we started out by learning how to create a new Visual Studio C# project. The wizard in the 2019 version is really pretty straight forward so just follow through the prompts.
2) Next we learned about the principle window and menus making up the IDE – Integrated Development Environment. Four primary areas to know about: the design area, the explorer, the properties area and of course the toolbar.
3) We next learned how to add a control to our form and then manage the properties of that control.
4) Next we learned how to close and reopen a project – very straight forward stuff.
5) We also learned how to test our application using the debugger.
6) Finally, we learned how to write a simple event handler – in our case it changed the value of a label's text property as associated with a button click.

Fun stuff and all-in-all a very good first example. Remember, my code is available as a resource to this lecture along with my script. Be sure however to fully unzip that solution directory before trying to open the project. In addition, it's always best to write this code yourself from scratch rather than just reviewing mine – better learning experience.

Anyway, that is it for this lecture. In our next lecture we are going to start to put together a calculator application. Should be great fun and a very good learning experience.

In the interim, you go out there and have yourself some fun today. But learn something new today as well, it is what is really important.