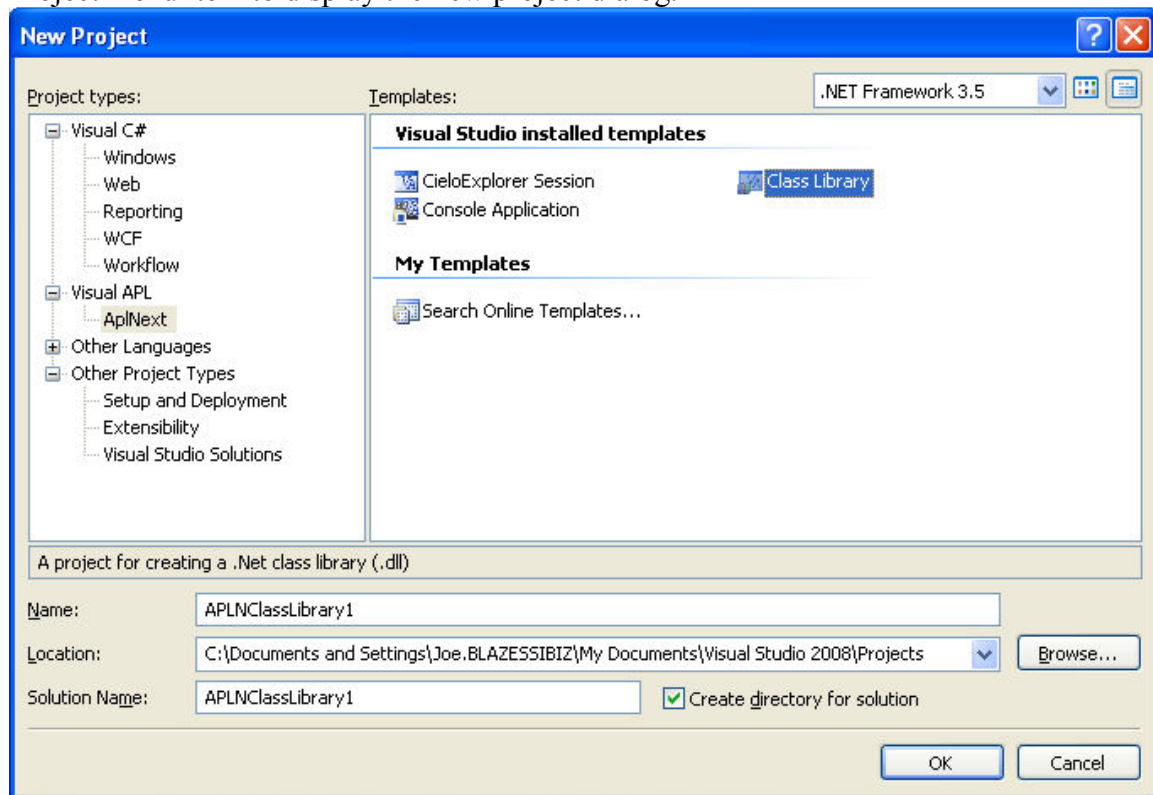


## VisualAPL: Cielo Explorer, The Interactive ‘Session’

In VisualAPL there are two ways to program in APL, using the Visual Studio 2005/2008 solution and project format and using the Cielo Explorer session and script format.

**The Visual Studio 2005/2008 solution and project format** means that the programmer creates a Visual Studio solution containing one or more Visual Studio projects. Each Visual Studio project uses a single programmer specified .Net language, such as C#, VB.Net or VisualAPL. Because all of these are .Net languages which transparently interoperate, the projects and the namespaces, classes, method, properties and events they contain can be referenced and used in any of the other projects in the current solutions or in any other solution.

To create a Visual Studio solution click the Visual Studio 2005/2008 File > New > New Project menu item to display the new project dialog.

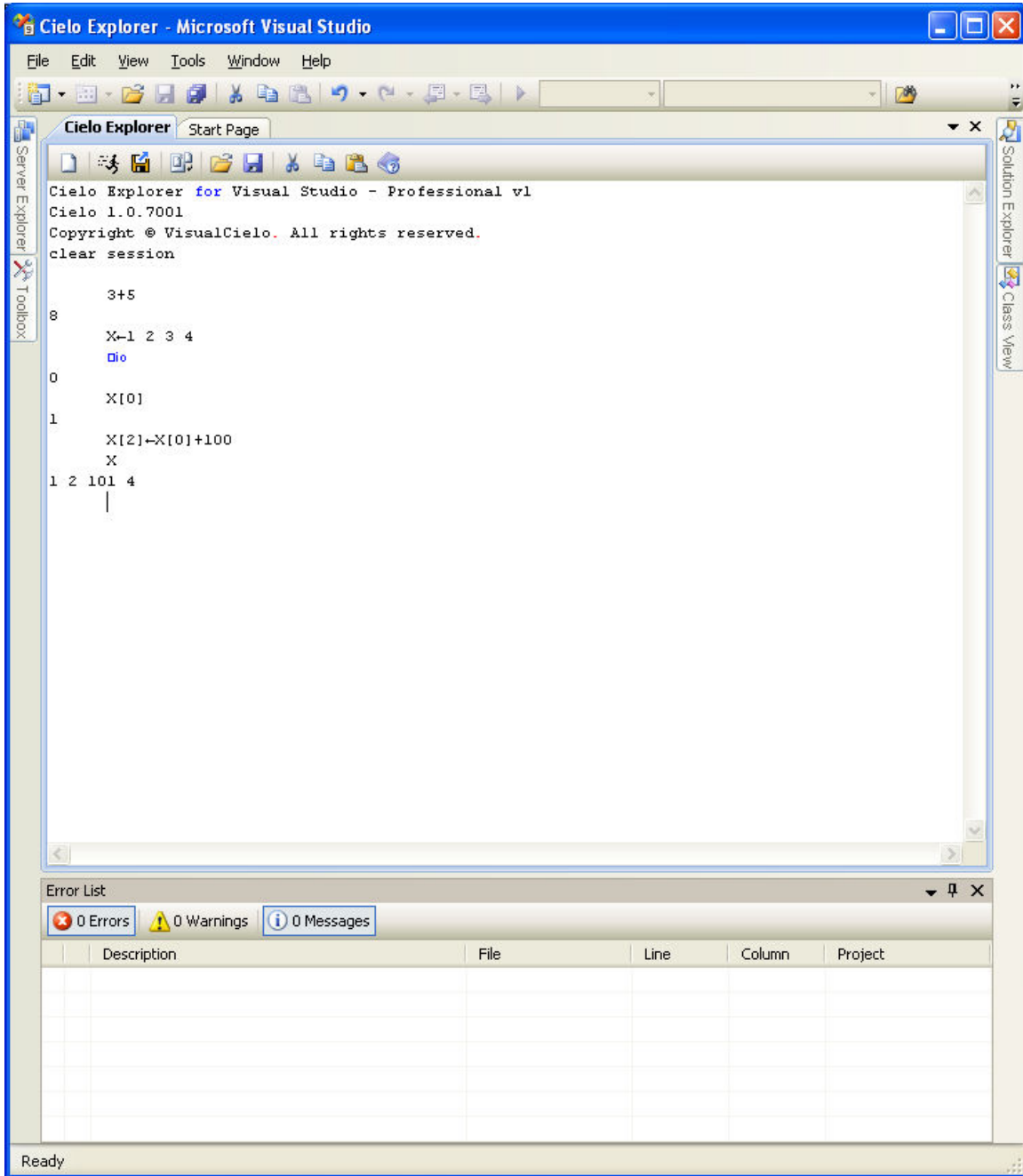


The purpose of this document is not to elaborate on the Visual Studio solution and project format in any greater detail. There are many Visual Studio programming guides available which provide the details of this methodology.

**The Cielo Explorer session and script format** means that the programmer creates a script within a Cielo Explorer session containing VisualAPL functions, variable assignments, etc. which is analogous to the legacy APL workspace. The script may be edited, saved and executed at any subsequent time and it may even be compiled into a .Net assembly which can interoperate with a Visual Studio 2005/2008 solution.

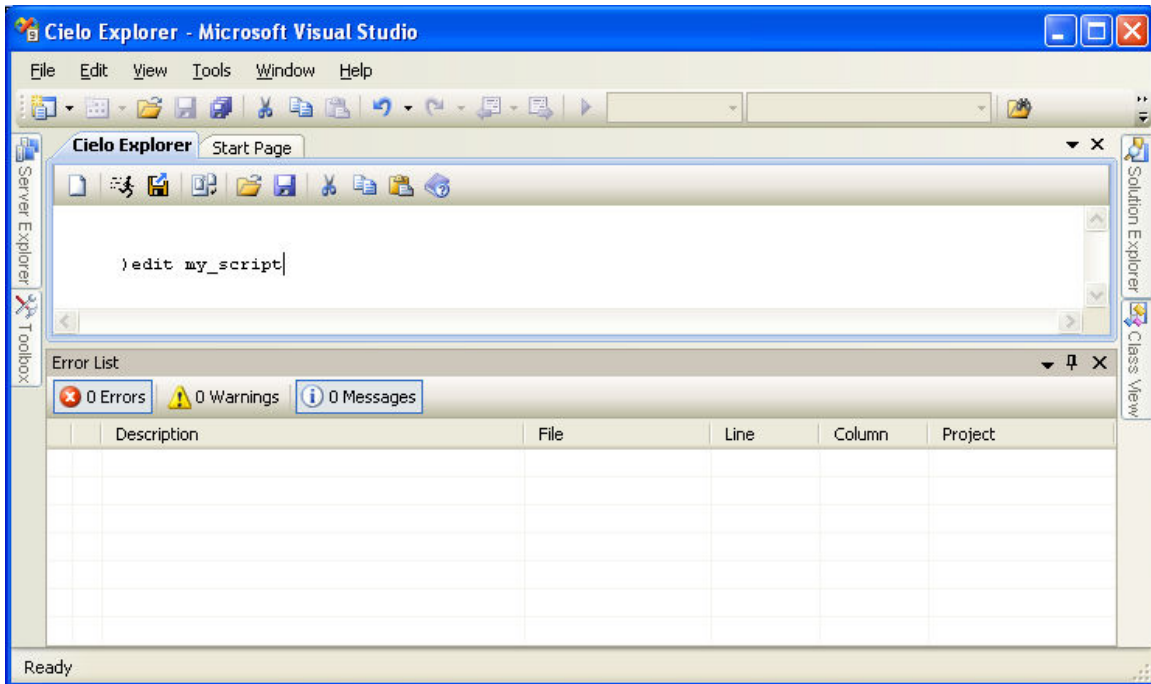
To display the Cielo Explorer in Visual Studio, click the Visual Studio 2005/2008 View > Other Windows > Cielo Explorer menu item. By default the Cielo Explorer will be displayed in 'floating' format. If you prefer a different display format, right click on the Cielo Explorer window title bar and select one of the other options, e.g. 'Tabbed Document' so that the Cielo Explorer tab will always appear on the main window when Visual Studio is started.

Using the Cielo Explorer in 'desk calculator' mode is quite easy. Just enter the APL expression you wish to execute and press Enter.

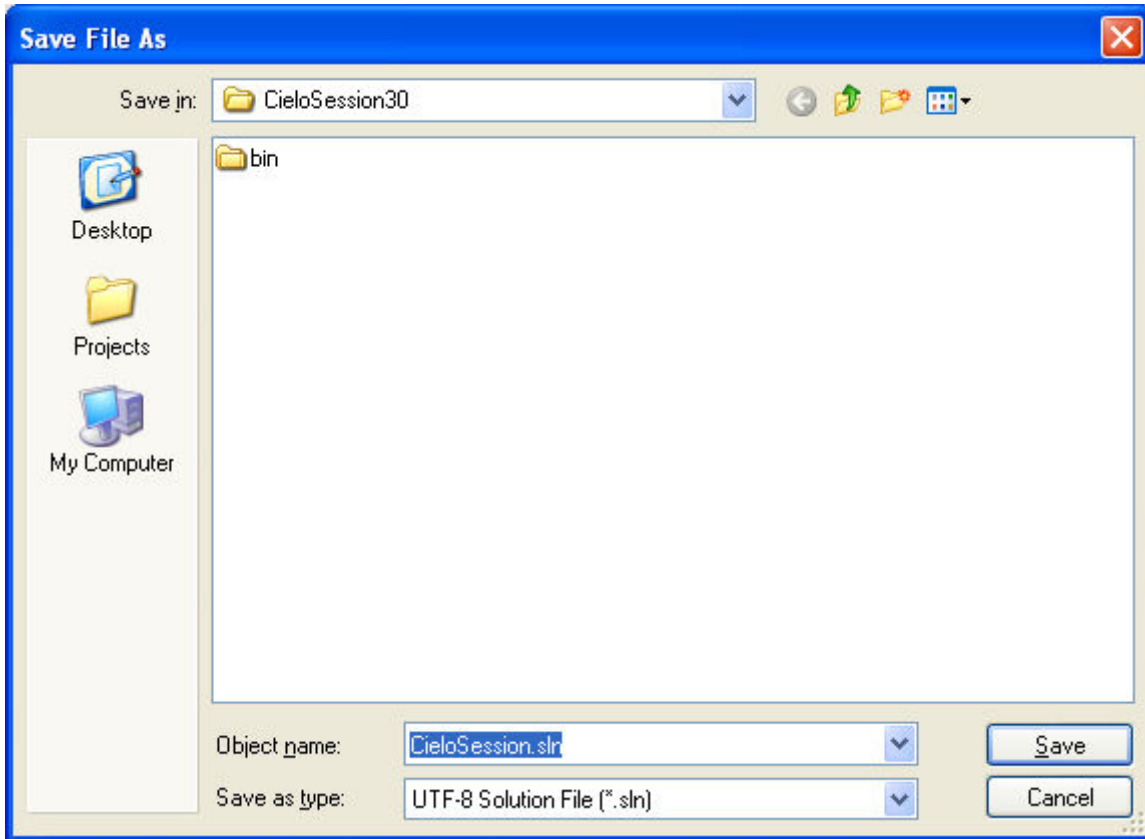




Once the programmer is comfortable with the 'desk calculator' mode of the Cielo Explorer, the script features of Cielo Explorer can be examined. To create a VisualAPL script, type `)edit script_name` [Enter] from the Cielo Explorer window.

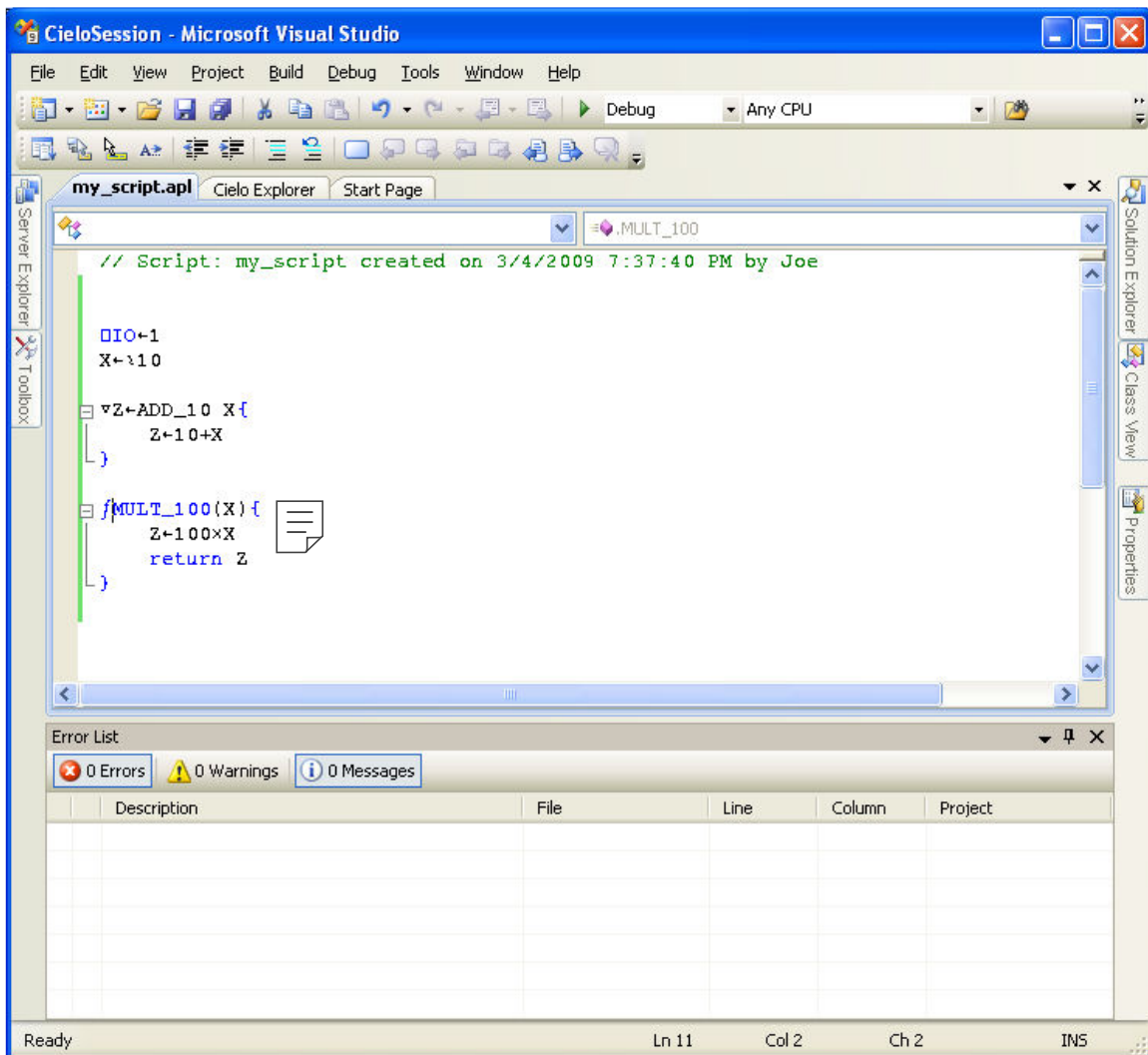


Because a Cielo Explorer script, with appropriate programmer actions, may be used with other Visual Studio solutions and projects, the script source is stored in a non-proprietary Unicode-format text file as any other Visual Studio solution. The programmer can select the location for this solution file with the Cielo Explorer script dialog illustrated below.



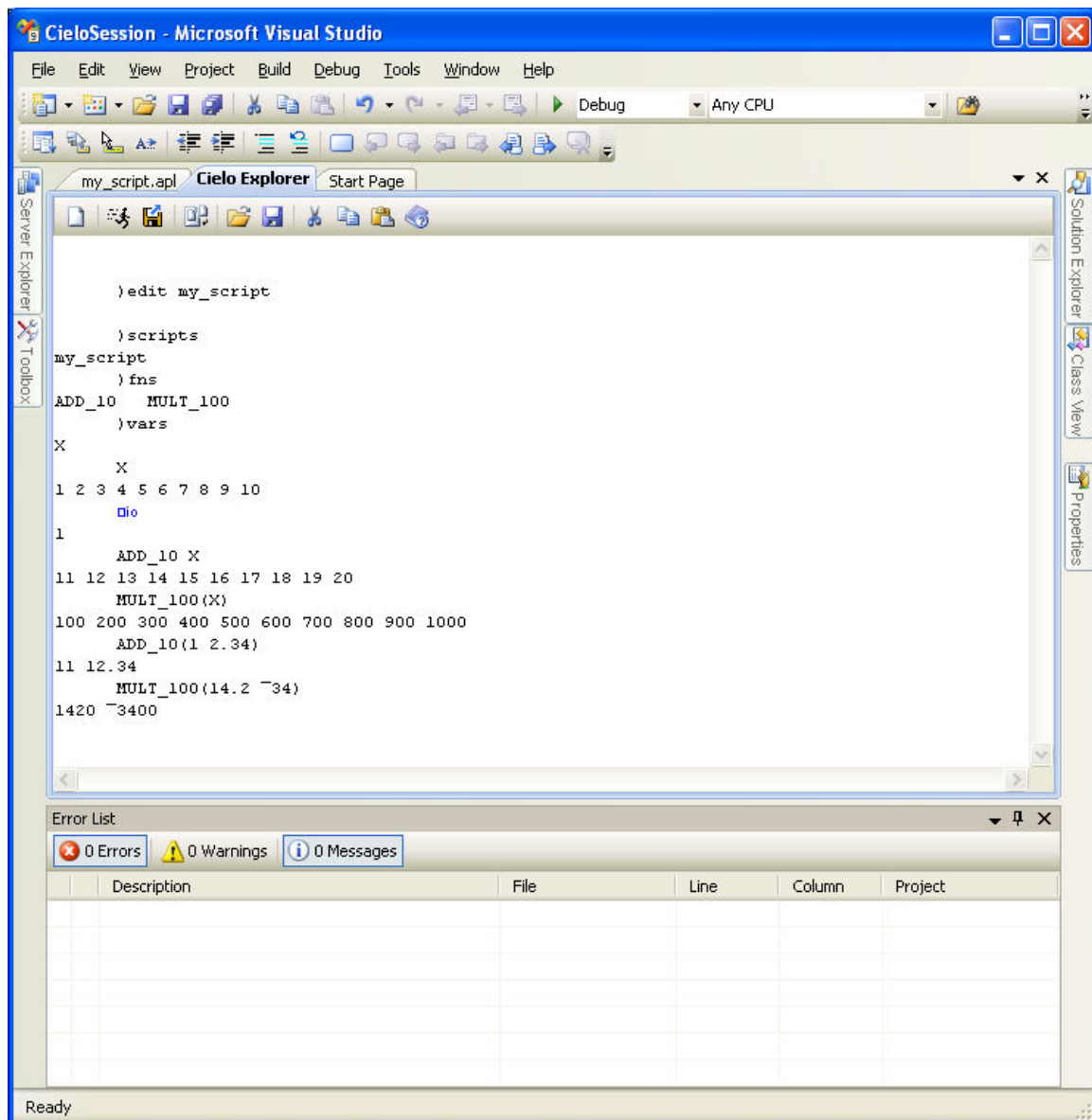
Any number of Cielo Explorer Scripts may be created by the programmer. In the following script editing session, observe:

- There is a 'my\_script.apl' tab in the Visual Studio programming window in addition to the Cielo Explorer session tab from which the script was created.
- The index origin, [jio, was modified in this script.
- A traditional APL function, ADD\_10, was defined in this script.
- A .Net format APL method, MULT\_100, was defined in this script.



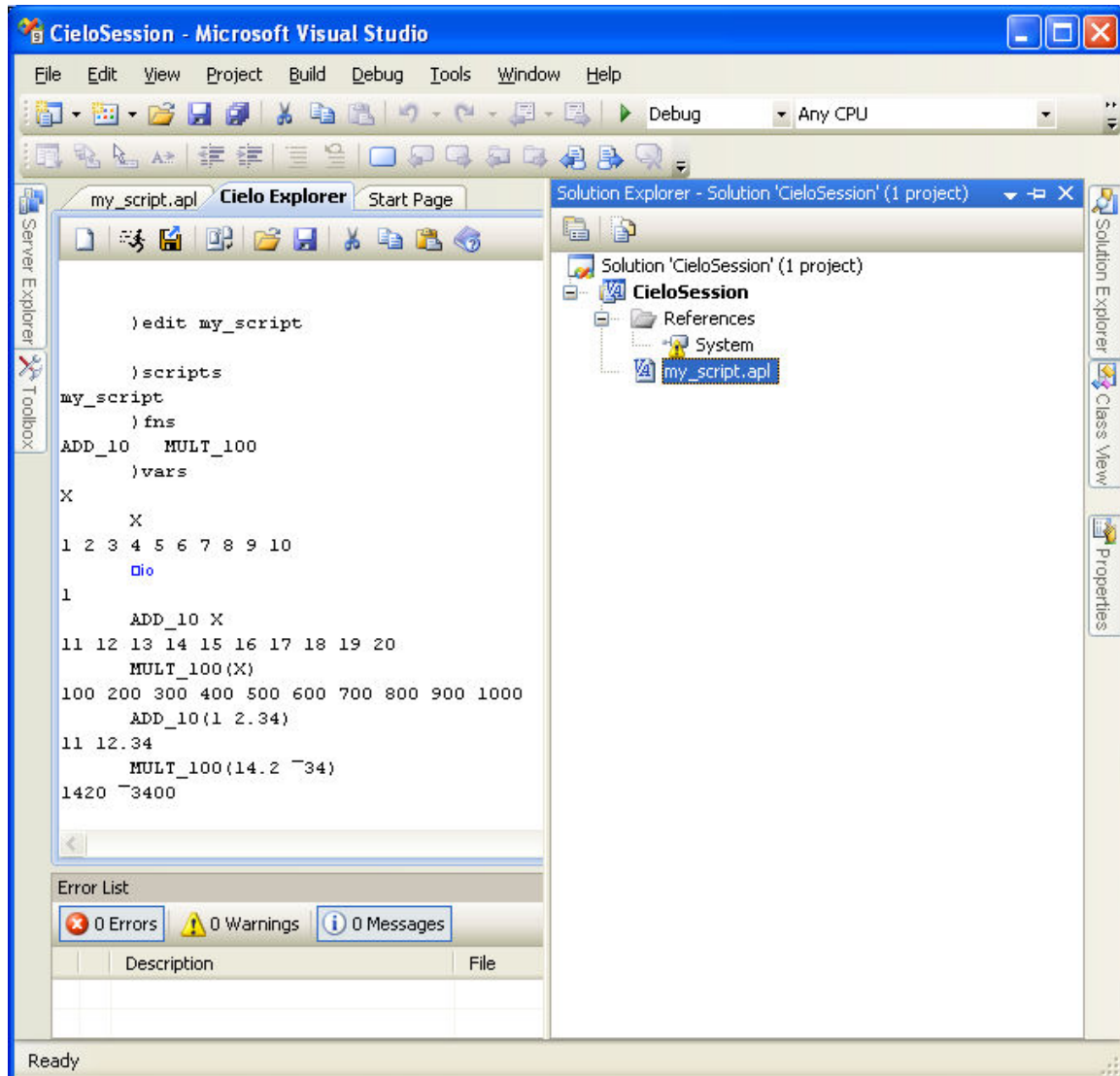
After editing of the script is complete, the programmer uses the Ctrl + E + E keystroke to save the edited script, return to the originating Cielo Explorer session and run the script. Note that the legacy Ctrl + E keystroke has been reserved by Microsoft for other Visual Studio functionality. Observe:

- The )scripts command displays the available scripts created during this Cielo Explorer session.
- Since the script was run, the )fns and )vars commands properly display the available functions and variables.
- The APL-style function, ADD\_10, and the .Net method, MULT\_100, have different calling syntax. The benefit of the .Net method format is that it can interoperate with other .Net languages. A .Net method can call an APL-style function, so one can consider a .Net method as a convenient way to encapsulate APL-style functions so that they can be used by any other .Net language.





Once a VisualAPL script has been created, there are additional options available either from the toolbar icons at the top of the Cielo Explorer session window or by right clicking the script filename from within the Visual Studio Solution Explorer tab on the right of the Visual Studio programming window.



Another important feature of the Cielo Explorer relevant to an APL+Win programmer is the “Paste APL+Win” tool. Assuming that the programmer has copied the text of an APL+Win function into the Windows Clipboard, the “Paste APL+Win” tool will convert the proprietary APL+Win characters into the .Net standard Unicode characters and place these characters into the Cielo Explorer session, where they may be copied and placed into the VisualAPL function of your choice.

