* 5 basic steps
* Intro to Visual Basic Express 2008
* Intro to ESRI templates
* XML syntax

GEOG 4/590: GIS Programming

5 steps to a program

- Algorithm
- Pseudo-code
- Source code
- Debugging
- Compiling

Algorithm

- A procedure for solving a problem in terms of the actions to be executed and the order in which those actions are to be executed.
- The sequence of steps taken to solve a problem. The steps are normally "sequence," "selection, " "iteration," and a case-type statement.

Pseudo-code

- An artificial and informal language that helps programmers develop algorithms. Pseudo-code is a "text-based" detail (algorithmic) design tool.

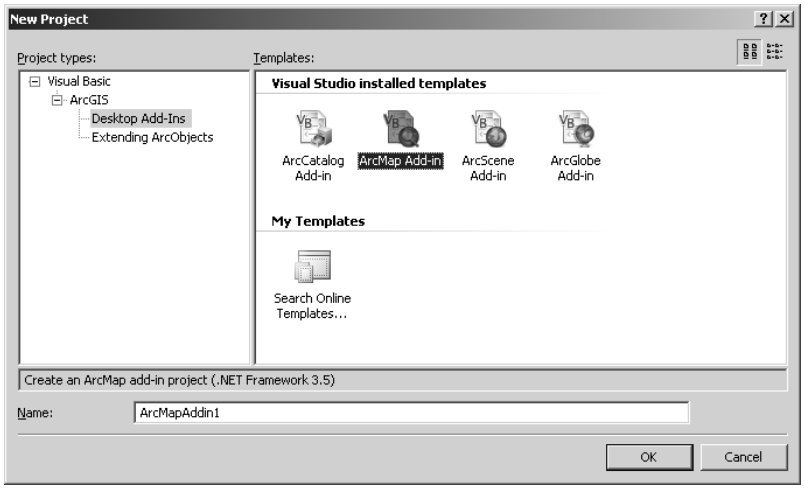
Pseudo-code Example

Problem: Calculate the average class score for the mid-term exam

Pseudo-code:

Set total to zero
Set student counter to one
…

Create a project



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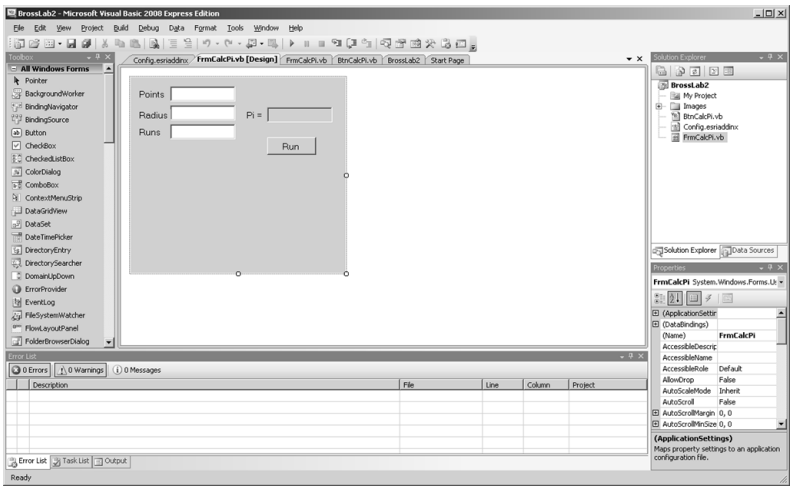
Project window (designer view)



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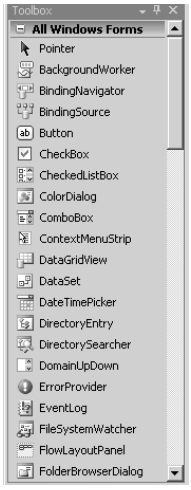
Toolbox



- Add controls to your form
- Drag-and-drop

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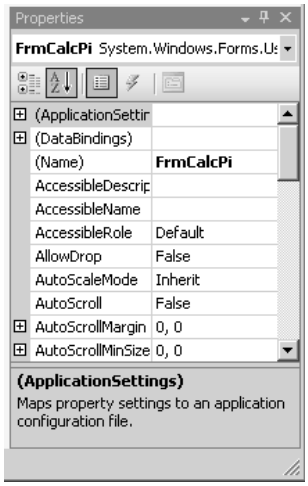
Properties window



- View/modify properties of form and/or its controls

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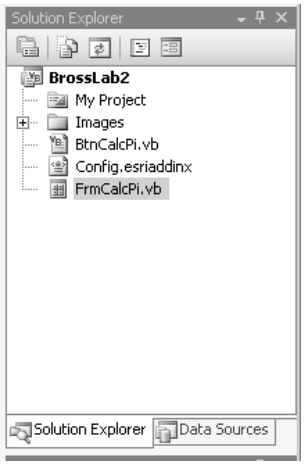
Solution explorer



- Shows hierarchy of your project elements
- Add new Items to your project here by right-clicking project name
- Launches ArcGIS Add-Ins Wizard

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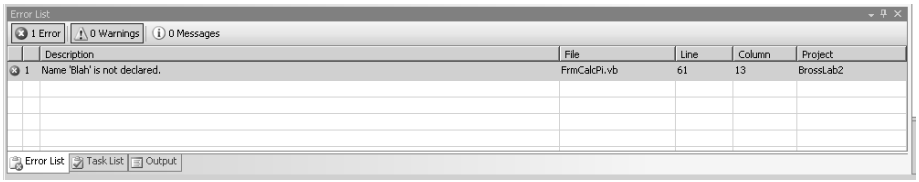
Error list



- Errors or warnings will appear here with suggestions on how to resolve them
- Clicking on an error brings you to the code

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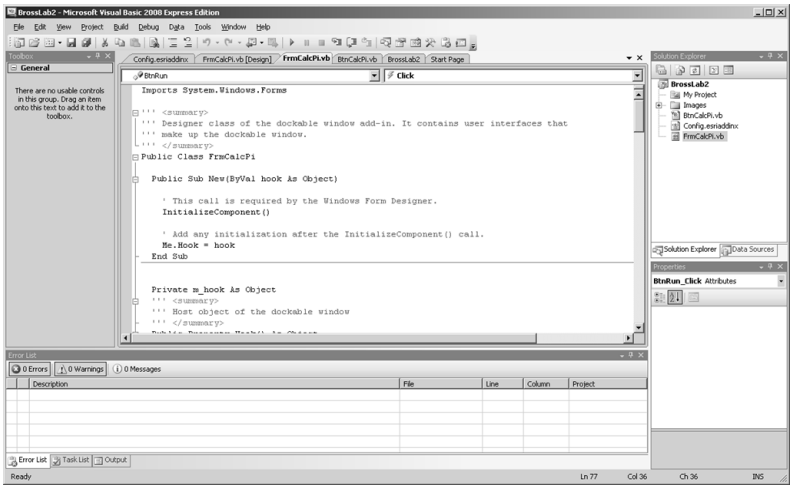
Project window (code view)



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API

- A---------- P---------- I--------
- Software packages provide an API to customize the software
- API authors expose only selected items
- Most API's are published; Dictionary for developers
- ArcObjects is an API for ESRI software

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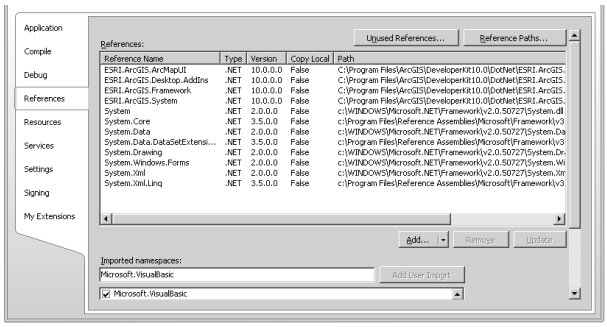
References

- API is organized into series of assemblies
- Add a reference to an assembly to your project to use the API
- Project | Properties… References



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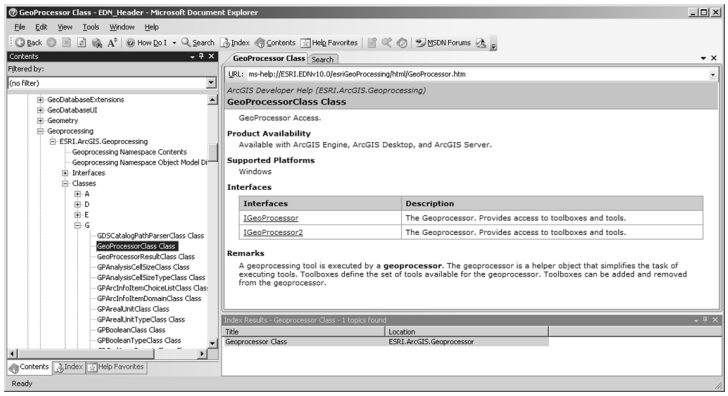
References (example)

- The GeoProcessor class requires reference to ESRI.ArcGIS.Geoprocessing



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XML

- eXtensible Markup Language
- Technology-agnostic way to store/exchange data
- Looks similar to HTML

```
<Book>
  <Title>Beginning ArcObjects</Title>
  <ISBN>xxxx123456</ISBN>
  <Publisher>ESRI</Publisher>
</Book>
```

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Config.esriaddinx

- Describes the add-in and its' components
- Auto-generated by the add-in wizard
- Some properties of your add-in can only be set here

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Config.esriaddinx (Button)

```
<Commands>
    <Button id="BrossLab2_BtnCalcPi"
      class="BtnCalcPi"
      message="Add-in command"
      caption="Calculate PI"
      tip="Calculate PI"
      category="GEOG 590 Add-In Controls"
      image="Images\BtnCalcPi.png" />
  </Commands>
```

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Config.esriaddinx (DockableWindow)

```
<DockableWindows>
  <DockableWindow
      id="BrossLab2_FrmCalcPi"
      class="FrmCalcPi+AddinImpl"
      caption="Numerical approximation of Pi"
      image="Images\FrmCalcPi.png">
     <InitialPlacement
            height="330" width="300"
            state="pinned" position="left" />
  </DockableWindow>
</DockableWindows>
```

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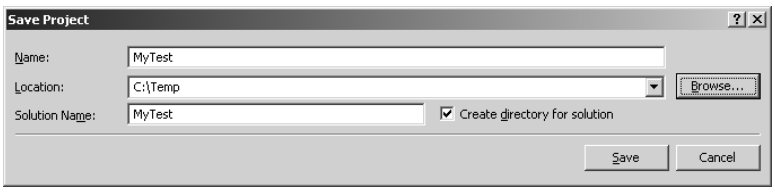
Lab 1

- Easy A?
- Save early, save often (File > Save All)



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