

## C# Round-trip Engineering

Written Date : November 22, 2010

<u>Visual Paradigm</u>'s Visual Studio</span> integration enables you to design your system with class diagram and generate code. On the other hand, you can update changes made in code back to the model. This makes sure both the design and source code are updated.

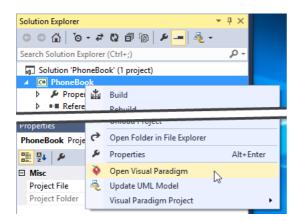
Start Page - Microsoft Visual Studio FILE EDIT VIEW MODELING DEBUG TEAM TOOLS TEST ANALYZE WINDOW HELP New The Project...
 Ctrl+Shift+N Open ۲ 🔴 Web Site... Shift+Alt+N Close 😨 Team Project... Close Solution 🖒 File... Ctrl+N Project From Existing Code... Save Selected Items Ctrl+S Discover whats new in r Save Selected Items As... Save All Ctrl+Shift+S You can find information about new feature Export Template... following sections. Source Control . Learn about new features in Professional 2013 🖺 🛛 Page Setup... See what's new in .NET Framework 4.5.1 Explore what's new in Team Foundation Service Print... Ctrl+P Account Settings... Relocate the What's New information Recent Files ۲ What's new on Microsoft Platforms Recent Projects and Solutions ٠ H Windows 🗷 Exit Alt+F4 Windows Azure ClassLibrary1

1. Select File > New > Project... from the main menu of Visual Studio.

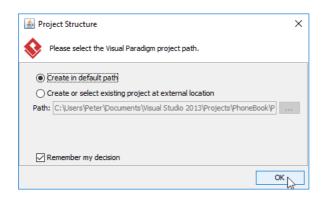
2. In the **New Project** window, select **Class Library** as template, enter *PhoneBook* as project name and click **OK**.

New Project						? ×
▶ Recent			.NET Framework 4.5   Sort by: Default			Search Installed Templates (Ctrl+E)
▲ Installed			C"	Windows Forms Application	Visual C#	Type: Visual C#
▲ Templates ▷ Visual Basic ▲ Visual C#	Î	Î		WPF Application	Visual C#	A project for creating a C# class library (.dll)
Windows Store     Windows Store     Windows     Web     Office/SharePoint     Cloud     LightSwitch			G	Console Application	Visual C#	
		<b>_</b> ]	ASP.NET Web Application	Visual C#		
			Class Library	Visual C#		
Reporting Silverlight	Reporting Silverlight			Portable Class Library	Visual C#	
Test WCF			₹Ĵ	Blank App (XAML)	Visual C#	
Workflow ▷ Visual C++				Grid App (XAML)	Visual C#	
▷ Visual F# SQL Server TypeScript ▷ JavaScript			Hub App (XAML)	Visual C#		
		Ÿ	Silverlight Application	Visual C#		
Python <ul> <li>Other Project T</li> </ul>	vnec	Ŧ	C	Split App (XAML)	Visual C#	*
▷ Online				Click here to go online and find templates.		
Name:	PhoneBook					
Location:	c:\users\pete	r∖do	cuments	\visual studio 2013\Projects	•	Browse
Solution name: PhoneBook						<ul> <li>Create directory for solution</li> <li>Add to source control</li> </ul>
						OK Cancel

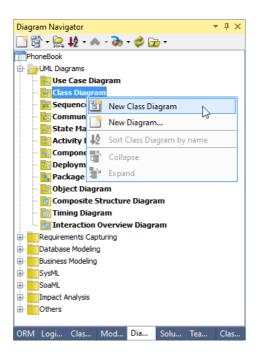
3. In the **Solution Explorer**, right-click on the project *PhoneBook* and select **Open Visual Paradigm** from the popup menu.



4. Click **OK** when the project structure dialog box appears.



5. From the **Diagram Navigator**, right-click on **Class Diagram** node and select **New Class Diagram** from the popup menu. This creates a blank class diagram.



6. Select **Class** from the diagram toolbar.



7. Click on the diagram to create a class. Name it as *Book* and press **Enter** to confirm editing.



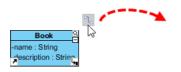
8. Right-click on the *Book* class and select **Add** > **Attribute** from the popup menu.

Book				
	Add	>	Attribute	Alt+Shift+A
• •	Open Specification	Enter	Attribute with Getter and Setter	63
	Stereotypes	>	Property	
	Model Element Properties	>	Operation	Alt+Shift+O
	Sub Diagrams	>	Constructor	
	Create Parent	>	Template Parameter	
	Update to Code			

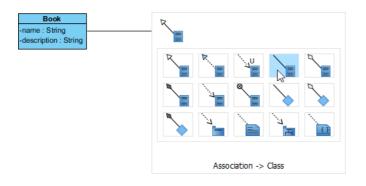
- 9. Input *name : String* and press **Enter**.
- 10. Input *description : String* and press Enter. Press Esc to confirm editing.



11. A phone book contains many contacts. Let's create a *Contact* class from the *Book* class with an association. Move the mouse pointer over the *Book* class. Press on the **Resource Catalog** icon and drag it out.



12. Release the mouse button. Select **Association -> Class** from Resource Catalog to create the class.



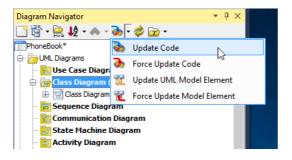
13. Name the class Contact.



- 14. Right-click on the *Contact* class and select **Add** > **Attribute** from the popup menu.
- 15. Input *name : String* and press Enter.
- 16. Input age : int and press Enter.
- 17. Input *phoneNum : String* and press Enter. Press Esc to confirm editing.



18. Select Update Code from Diagram Navigator. You can see that two code files are generated.



19. Add an operation *printlnfo* in the source code of *Book* class.



20. Right-click on the code editor and select **Update UML Model** from the popup menu. You can see that the operation *printlnfo()* is added to the *Book* class at UML model side.





Visual Paradigm home page (https://www.visual-paradigm.com/)

Visual Paradigm tutorials (https://www.visual-paradigm.com/tutorials/)