How to Draw UML Diagrams in NetBeans?

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Visual Paradigm is an award-winning agile development platform that encompasses widely-used agile toolsets such as user story, use case, UML visual model, coding engineering, teamwork, and project management capabilities. This one-stop solution enables developers to carry out the entire agile development process within one place.

Preparation

To follow and complete this tutorial, you must have Visual Paradigm installed. It can be downloaded from the Visual Paradigm download page. Of course, you also need the NetBeans IDE. We suppose you have already installed it, but if you haven't, please download and install it from the NetBeans official site.

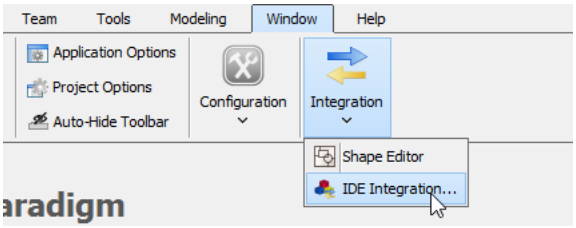
Note: We only support NetBeans 6.7 or upper versions. If you are using an earlier version, please consider upgrading your NetBeans.

Visual Paradigm targets software teams who want to develop software with professional design, reporting, code, and database engineering support. It supports all sorts of UML modeling features, Business Process Modeling with OMG's Business Process Modeling Notation (BPMN), ERD (for database design), code generation, reverse engineering, database generation/reversal, Hibernate, report composer, and report generation.

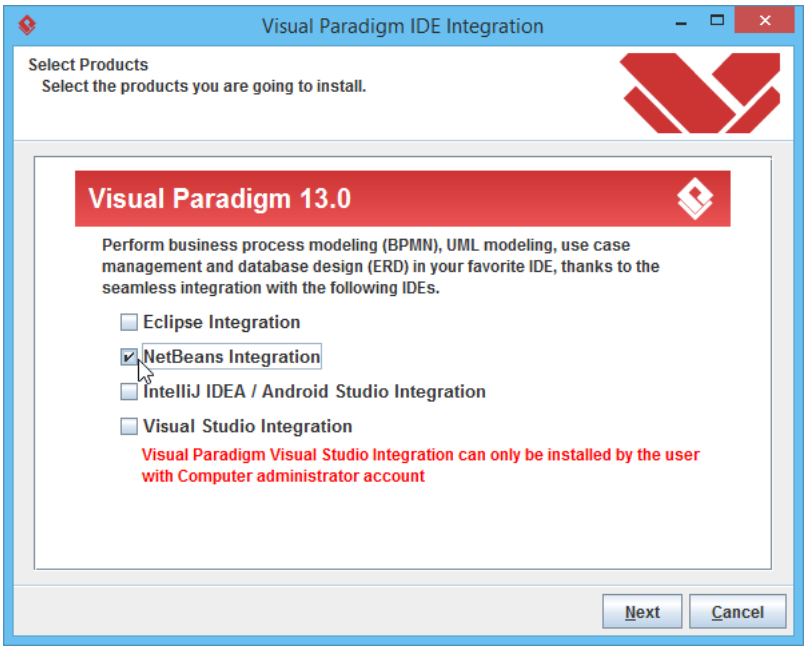
Integrate Visual Paradigm with NetBeans

Here we go. We need to install the integration from Visual Paradigm. So, turn off your NetBeans and start Visual Paradigm. Perform the steps below.

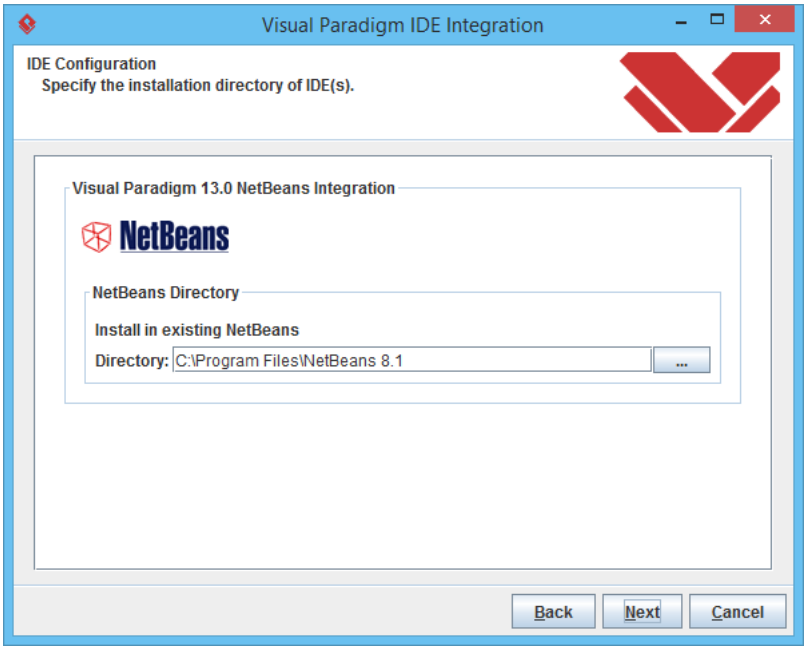
1. In Visual Paradigm, select **Window > Integration > IDE Integration...** from the application toolbar.



2. In the **Visual Paradigm IDE Integration** window, check **NetBeans Integration**. Click **Next**.



3. Specify the path of your NetBeans installation and click **Next**.



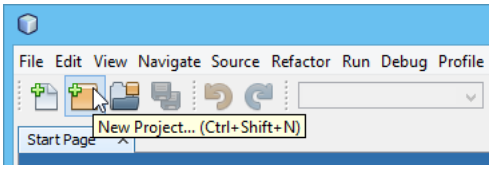
This begins file copying. If you see the error messages "java.io.IOException: Cannot make dirs for file...", please restart Visual Paradigm with the **Run as Administrator** option. When finished copying files, close Visual Paradigm and move on to the next section to see how to create a Java application in NetBeans along with the UML model.

Creating a UML Model for Your Java Project

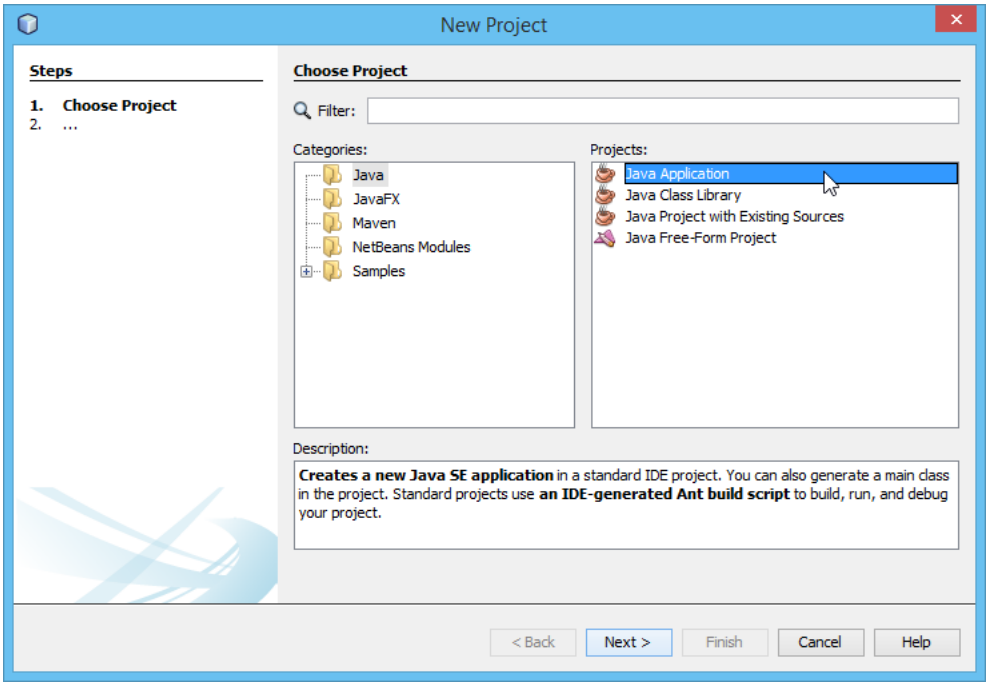
In this section, we are going to create a UML model from a Java project in NetBeans. To avoid interfering with your production work, we will create a new Java project for this tutorial.

1. Start the NetBeans IDE.

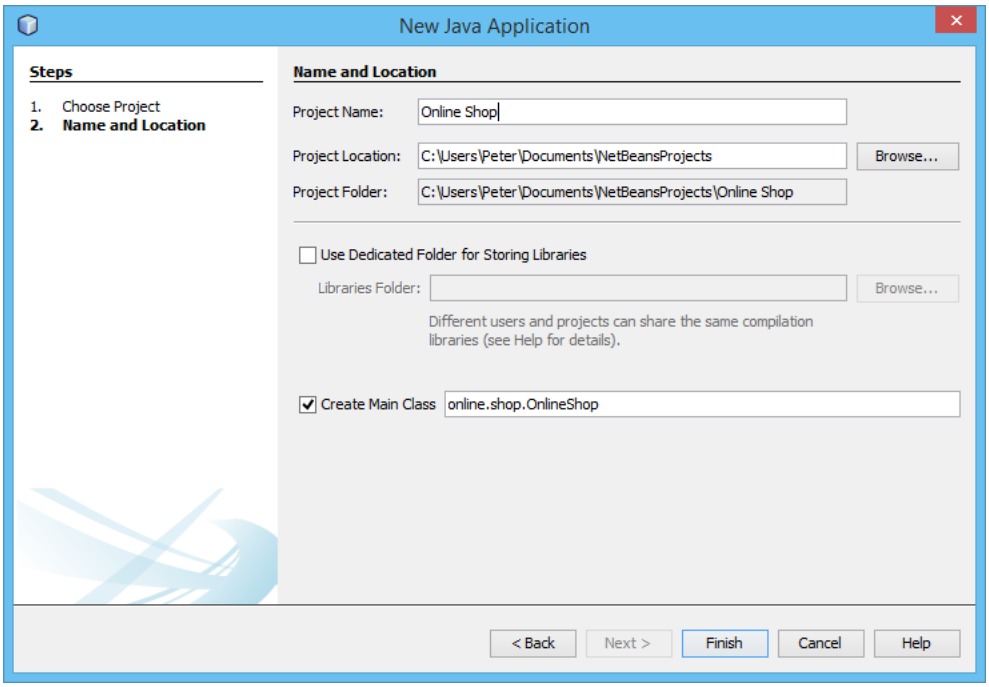
2. Click the **New Project** button on the toolbar to open the **New Project** window.



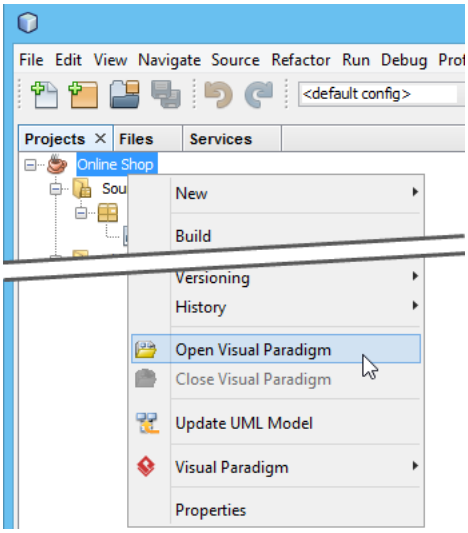
3. In the **New Project** window, select the **Java** category and choose **Java Class Library** as the project type. Click **Next**.



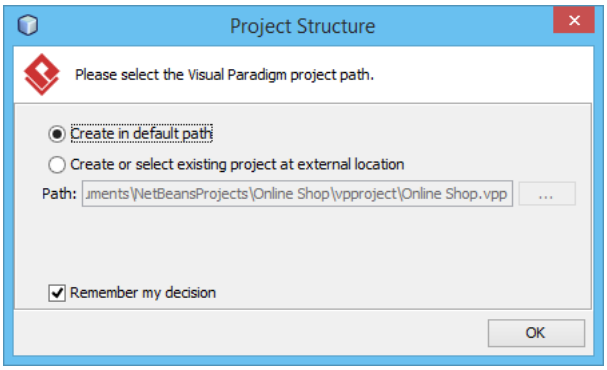
4. Enter *Online Shop* in the **Project Name** field. Leave other settings as default and click **Finish** to create the project.



5. Now, you have an empty Java project. Let's create a UML model from it. To create a UML model, right-click on the project root node in the **Projects** pane and select **Open Visual Paradigm** from the popup menu.



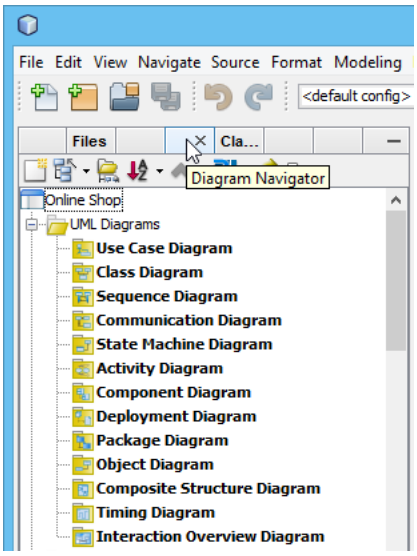
6. When you are prompted to enter the path of the project file, keep **Create in default path** selected and click **OK**. This will create the .vpp project file in the Java project folder.



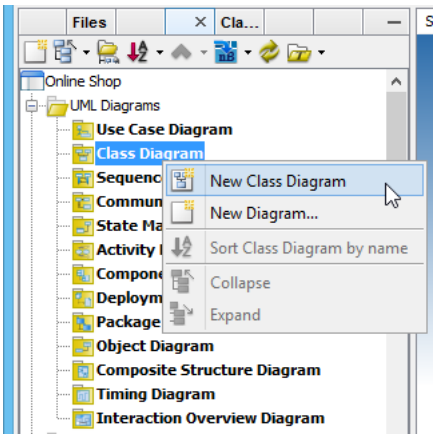
UML Modeling in NetBeans

Let's draw a simple class diagram. We will generate Java code from it in the next section.

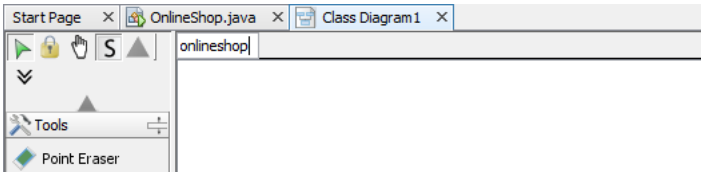
1. Open the **Diagram Navigator** of Visual Paradigm.



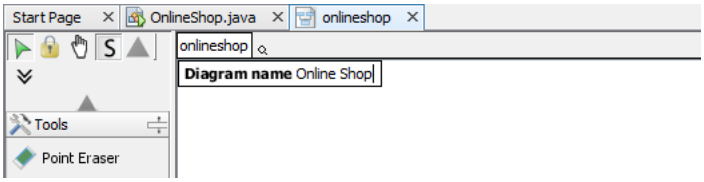
2. Right-click on the **Class Diagram** node and select **New Class Diagram** from the popup menu. This creates an empty class diagram.



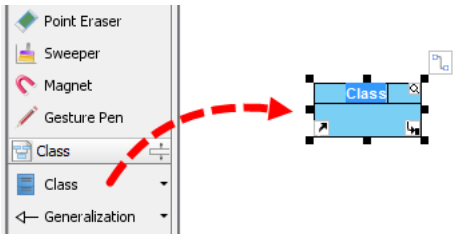
3. The diagram will automatically grab focus on its package header (top left of diagram). This allows you to specify the parent package for your diagram. If the package you specified does not exist in your project, it will be created for you automatically. Once you have specified the package, the class diagram along with the classes to be created in the diagram will automatically be put in the package. Enter *onlineshop* as the package name and press **Enter**.



4. Now, the focus will shift to the diagram name field. Enter *Online Shop* as the name of the diagram and then press **Enter**.

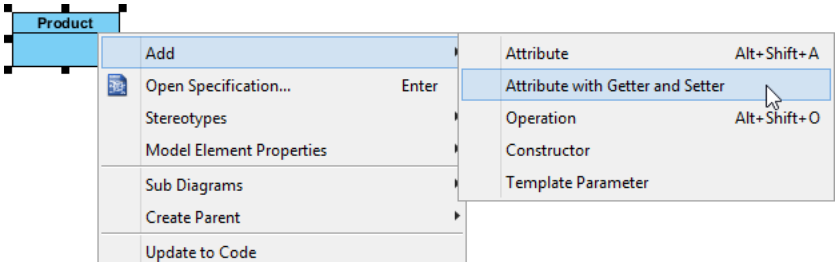


5. Next, we are going to create a class. Select **Class** from the diagram toolbar and drag it onto the diagram to create a class.

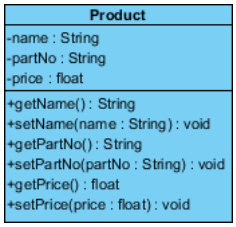


6. Enter *Product* as the name and press **Enter** to confirm.

7. A product has three attributes: name, partNo, and price. Let's add them. Right-click on the *Product* class and select **Add > Attribute with Getter and Setter** from the popup menu.



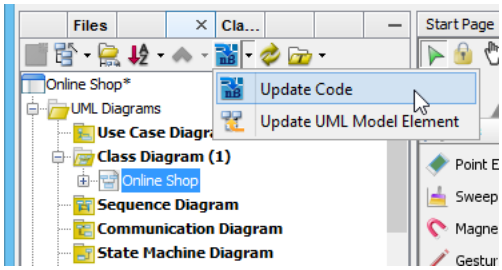
8. Enter *name : String* to create the name attribute in String type. Then, press **Enter** to confirm. Right after your confirmation, the getter and setter operations for the name attribute will automatically be inserted into the class. Similarly, create two more attributes: *partNo : String* and *price : float*.



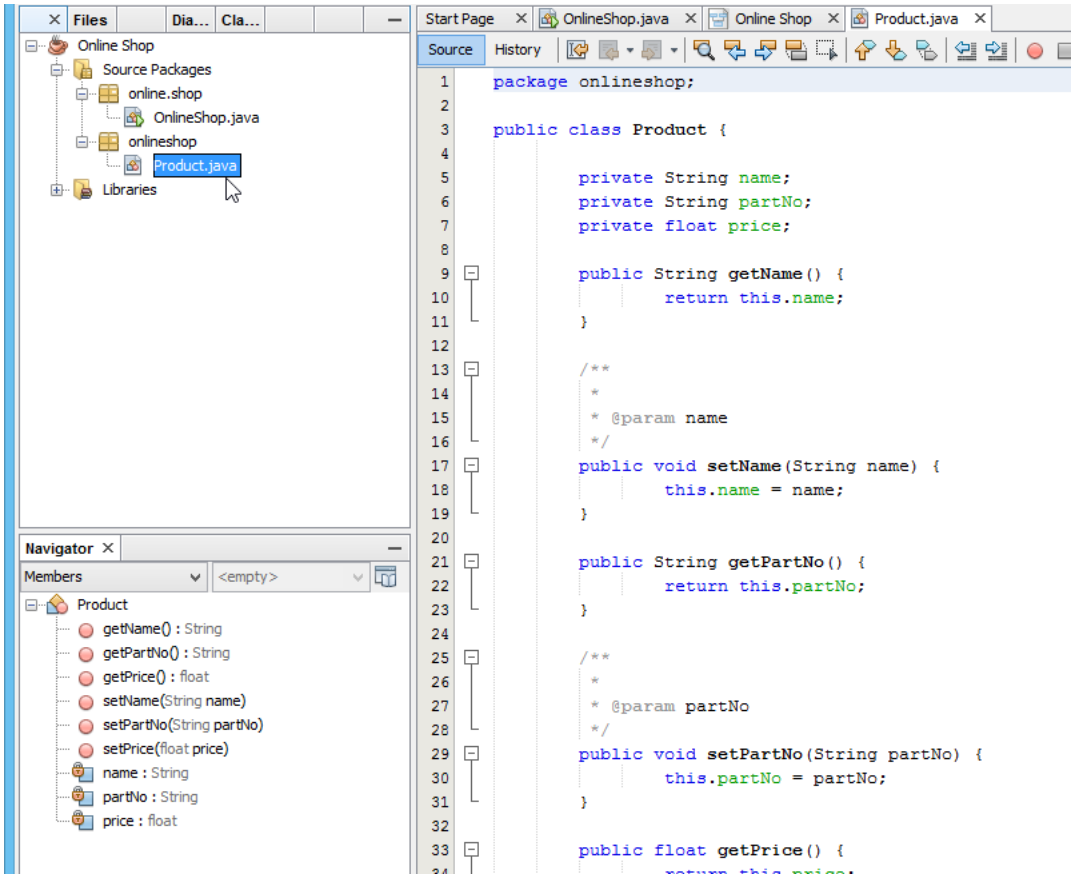
9. Press **Esc** to cancel the next attribute.

Generate Java Code from a Class Diagram

Let's generate Java source code from the UML class. There are several ways to achieve this. Here, let's try the one that generates code for the entire UML model. Click on the **Update Code** button at the top of the **Diagram Navigator**.



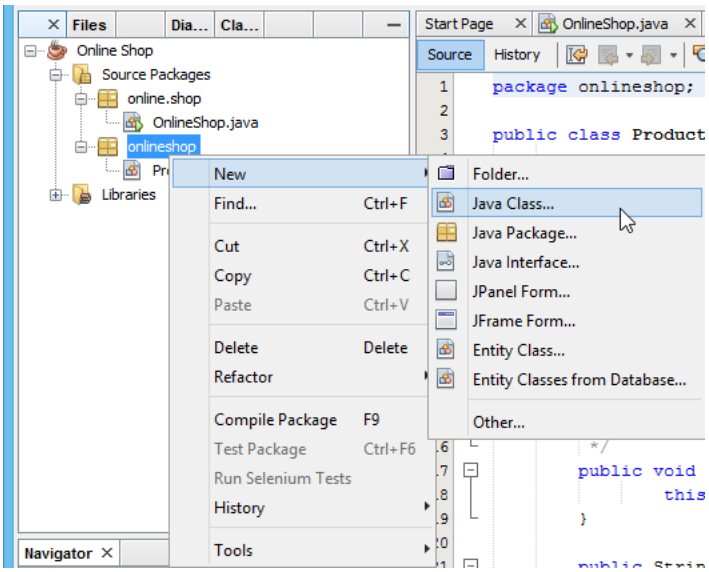
In the **Projects** pane, expand the project node and check **Source Packages**. The package *onlineshop* and *Product* class are there. Open **Product.java**; you can see the *Product* class filled with attributes and its getter and setter.



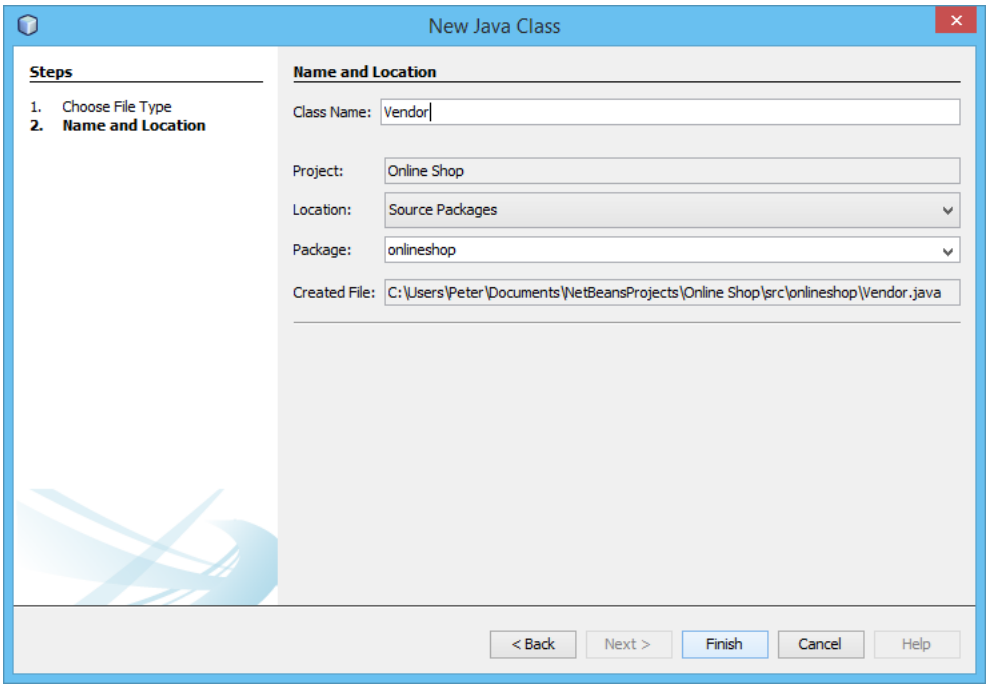
Generate and Update UML Classes from Java Code

You've learned how to create UML diagrams in NetBeans. If you want to know how to produce a UML class model from your Java source code, which is essential to keep the design conformed to your source code, you need to perform the steps below.

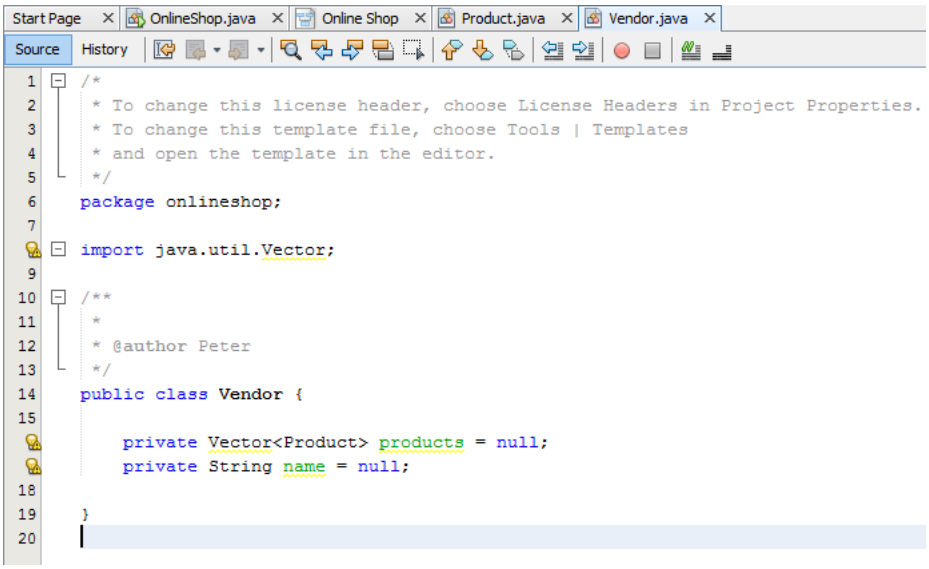
1. Let's create a class in NetBeans. Right-click on the package *onlineshop* and select **New > Java Class...** from the popup menu.



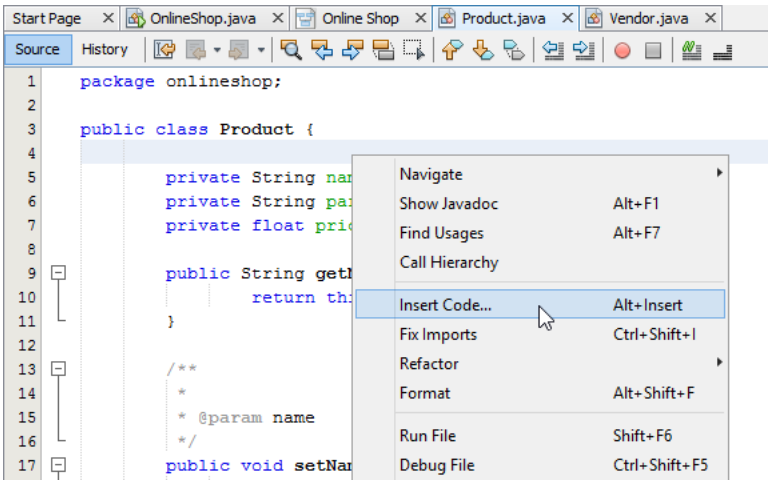
2. In the **New Java Class** window, enter *Vendor* as the class name and click **Finish**.



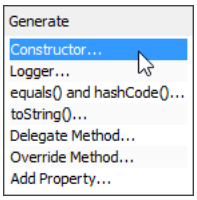
3. Add two attributes to the *Vendor* class: a *name* in String type and a collection of *Product*.



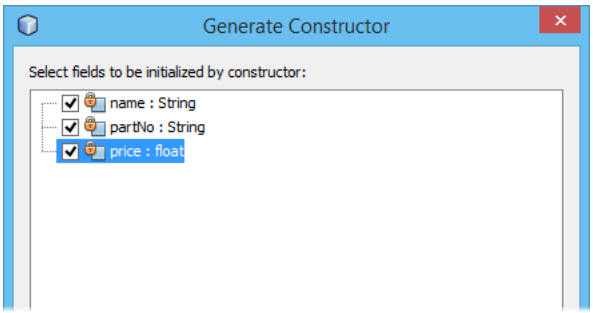
4. Next, we try to update the *Product* class which was just generated in the previous step. Let's try to add a constructor to it. Right-click on the source file of the *Product* class and select **Insert Code**.



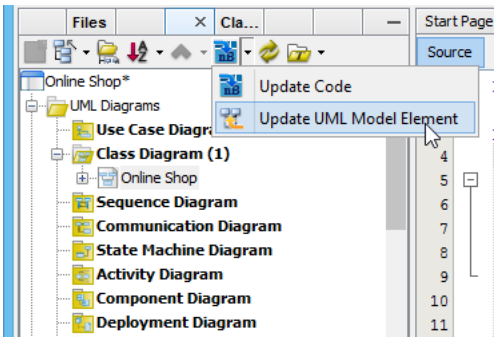
5. Select **Constructor...** from the popup pane.



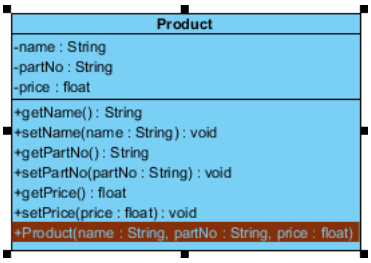
6. Select all three attributes and click **Generate** to generate the constructor.



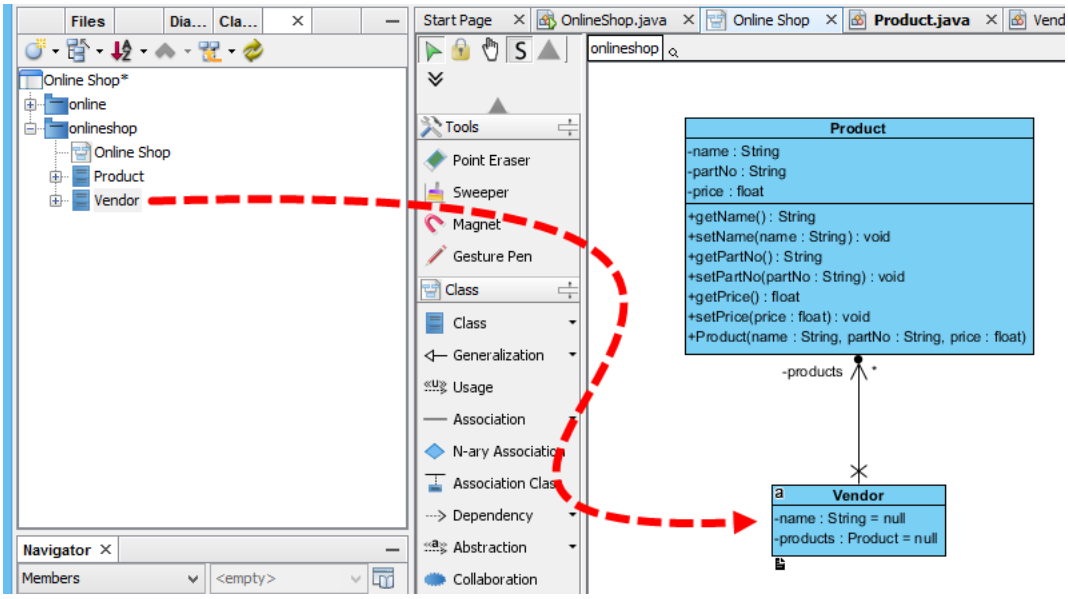
7. Now, go to the **Diagram Navigator**. Click on the **Update UML Model Element** button to have your changes reflected in the UML model.



8. Open the class diagram. The constructor method is presented in the *Product* class.



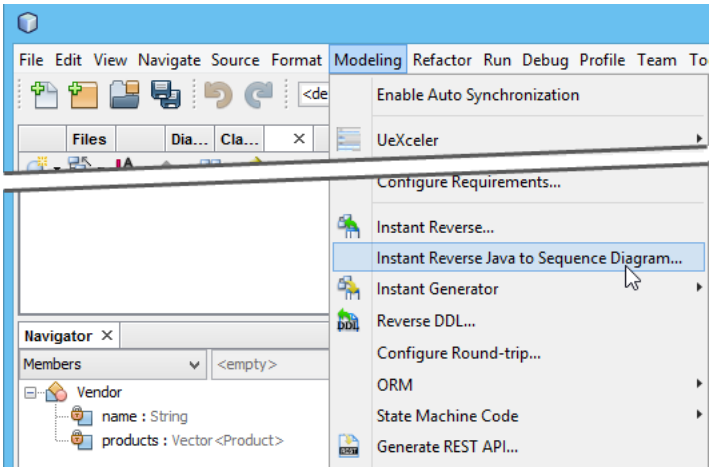
9. Switch to the **Model Explorer** pane. You can find the *Vendor* class inside the *onlineshop* package. Drag out the *Vendor* class and drop it onto the class diagram. The *Vendor* class will be visualized with an association with the *Product* class.



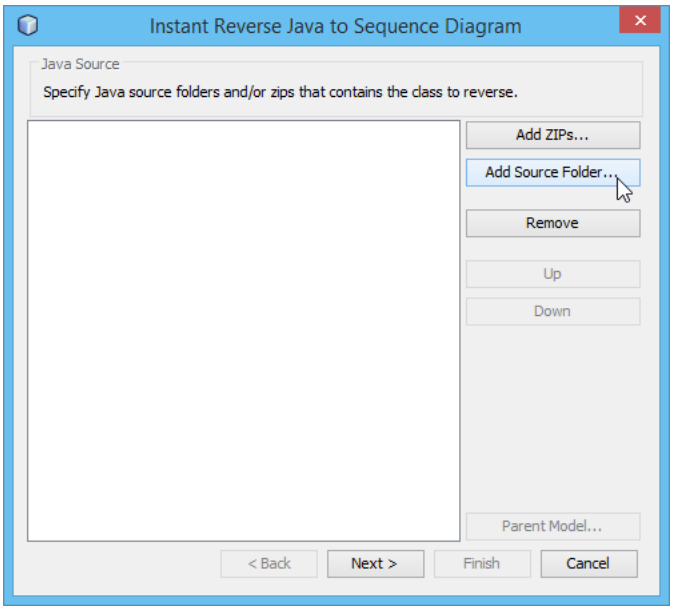
Something More - Generate a UML Sequence Diagram from Java Code

The class diagram helps you understand the static data structure of your system. However, what about its dynamic behavior? A Sequence diagram is one of the popular diagrams in UML used to model the dynamic behavior of a system. You can reverse-engineer Java source code into a sequence diagram inside the NetBeans integration environment. Let's walk through the steps below to create a sequence diagram from source code. Before you start, please note that the classes drawn in the previous sections will be overwritten by the steps to be performed.

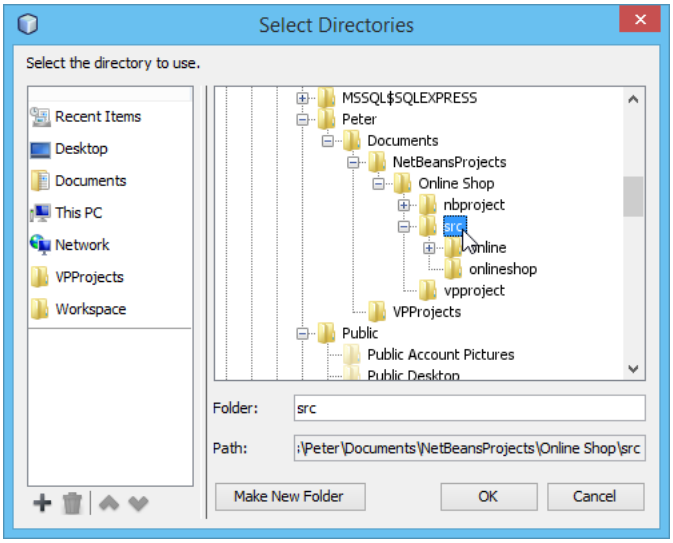
1. Select **Modeling > Instant Reverse Java to Sequence Diagram...** from the menu.



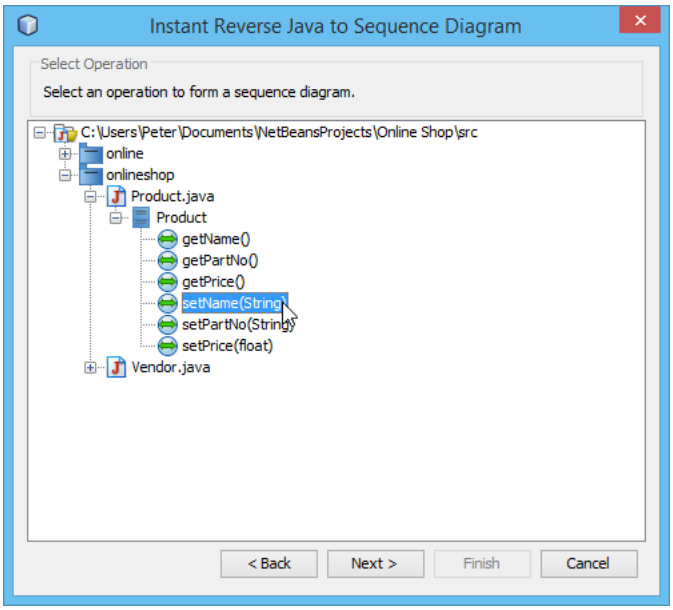
2. Click the **Add Source Folder** button in the **Instant Reverse Java to Sequence Diagram** window.



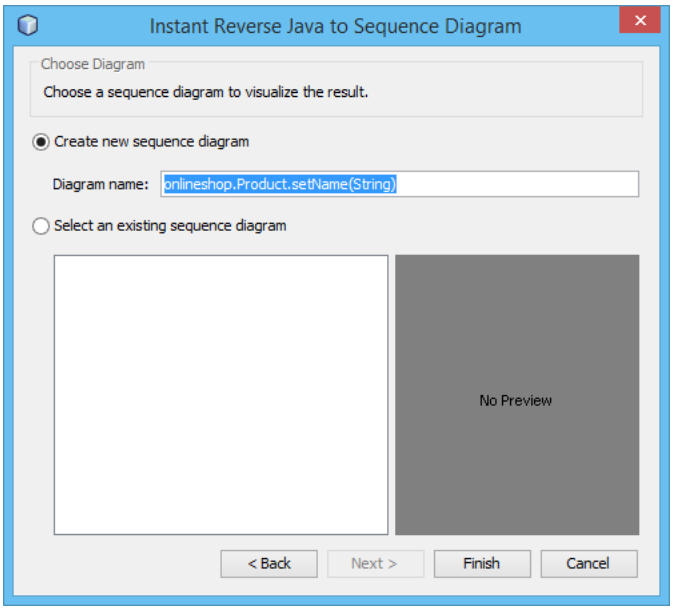
3. Specify the source folder of the Java project in the **Select Directories** window. Click **OK** and then click **Next**.



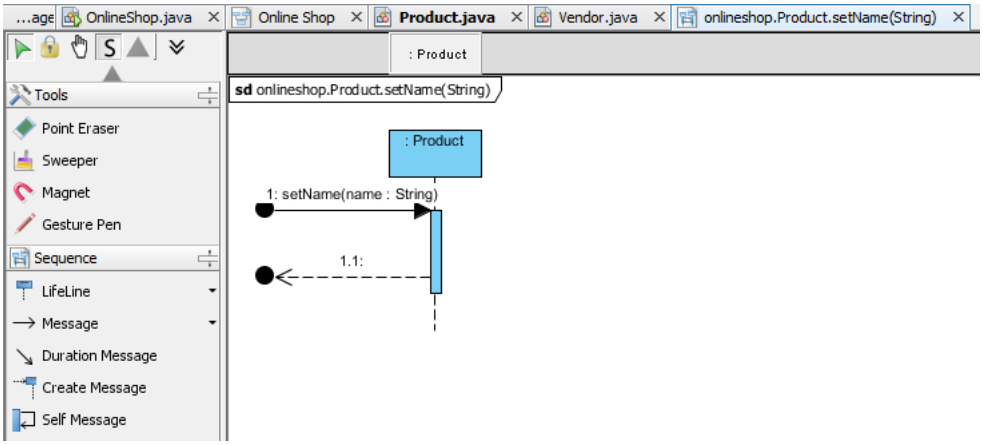
4. Now, expand the tree in the **Select Operation** step and choose the operation you would like to reverse to a sequence diagram. Click **Next** to proceed.



5. Select **Create New Sequence Diagram** in the **Choose Diagram** step and leave the diagram name as default. Click **Finish**.



Now the sequence diagram of your selected operation is being generated.



Watch This Tutorial on YouTube

Perform UML Modeling in NetBeans with Visual Paradigm

Related Links

- Visual Paradigm User's Guide - NetBeans Integration
- Tutorials on Visual Paradigm IDE Integration
- Full set of UML tools and UML diagrams

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