

Defining Business Requirements using UML Use Case diagram in JDeveloper 10g

Purpose

This tutorial describes how to create a UML Use Case Diagram to define Business Requirements. UML Use Case Diagrams describe the functionality of a system in a horizontal way. UCs (Use Case Diagrams) can be used to show a high level vision of the available functionality of an application. However, they do not show the order or number of times the system actions should be executed. Further, UCs should not be used to describe exception behavior.

To help you define the scope of a use case, keep in mind that a use case starts with triggering events, and finishes when the actor goals are satisfied and the expected event response is achieved.

Topics

This lesson will discuss the following:

- ☒ [Overview](#)
- ☒ [Prerequisites](#)
- ☒ [Step 1 - Create a new Application Workspace](#)
- ☒ [Step 2 - Create a Use Case diagram](#)
- ☒ [Step 3 - Add details to diagram components](#)
- ☒ [Step 4 - Refine the Use Case diagram](#)
- ☒ [Step 5 - Generate Java Doc for the Use Case](#)
- ☒ [Summary](#)

Time to complete

This tutorial takes approximately half an hour to complete.

Viewing Screenshots



Move your mouse over this icon to show all screenshots. You can also move your mouse over each individual icon to see only the screenshot associated with it.

Overview

The goal of this tutorial is to teach you how to create a Use Case Diagram and how to use Use Case Components to describe how a user interacts with the system you are building.

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Scenario

Based on the common schema foundation and more specifically on the Order Entry sub system, this use case represents a fictitious web application allowing customers to order products.

Prerequisites

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Before starting this tutorial, you should have completed the following:

- 1. Install Oracle JDeveloper 10g.

Although this tutorial is based on the common schema for the scope of the business, it does not require any database resource.

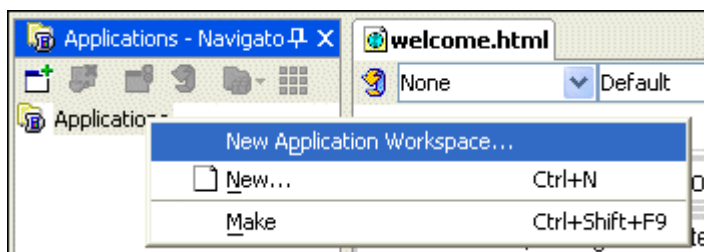
Step 1 - Create a new Application Workspace

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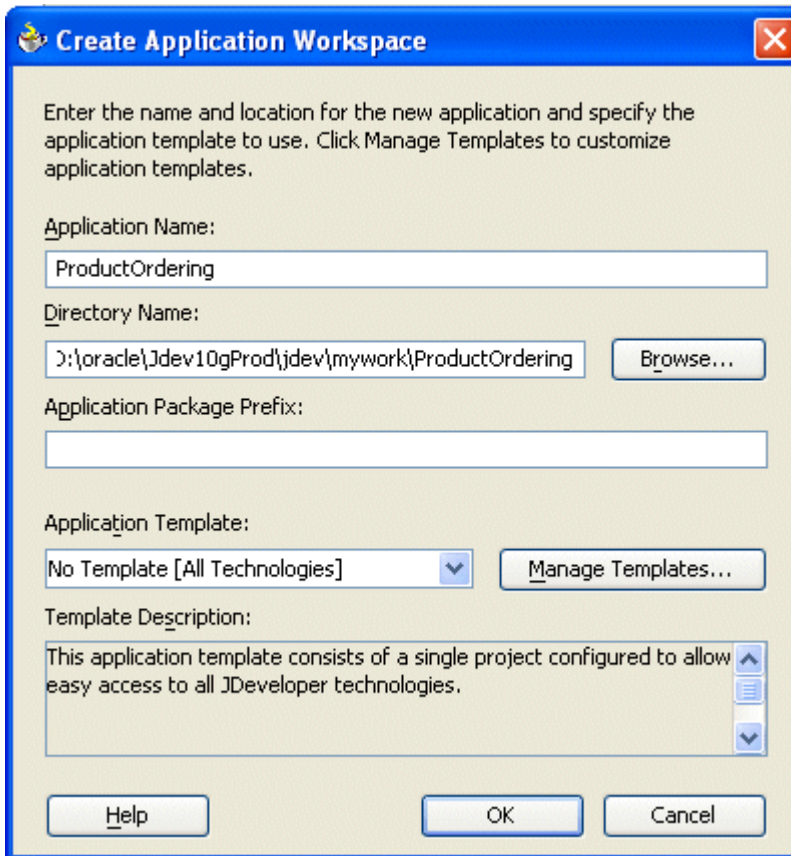
When you work in JDeveloper, you organize your work in projects within application workspaces. JDeveloper provides a number of predefined templates that allow you to create a workspace and projects that are configured for developing the type of application you are working on. The templates provide the basic range of technologies needed for an application. You create your working environment by selecting the template that fits your application type, and adding any additional technologies as necessary.

However, In this tutorial you are going to choose the No Template option.

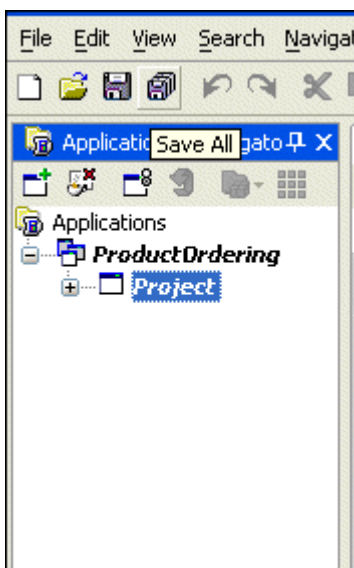
- 1. In the Applications Navigator, right-click **Applications** and choose **New Application Workspace** from the context menu.



- 2. In the **Create Application Workspace** dialog, rename the application `Application1` to `ProductOrdering`.
(Notice that the directory name changes to match the new name.) For the application template, select `No Template [All Technologies]`, and click **OK**.



- 3. The `ProductOrdering` workspace is created and displayed as a node in the navigator. A default project named `Project` has also been added. Save your work by clicking on the **Save All** button. You should save your work at regular intervals as you work through the rest of this tutorial.



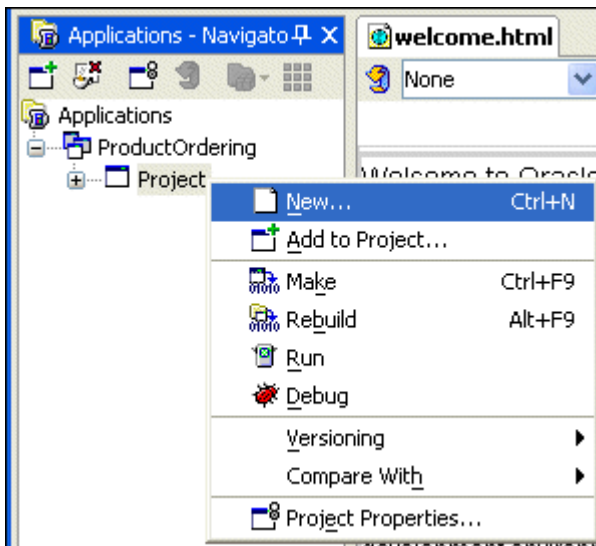
Step 2- Create the Use Case diagram

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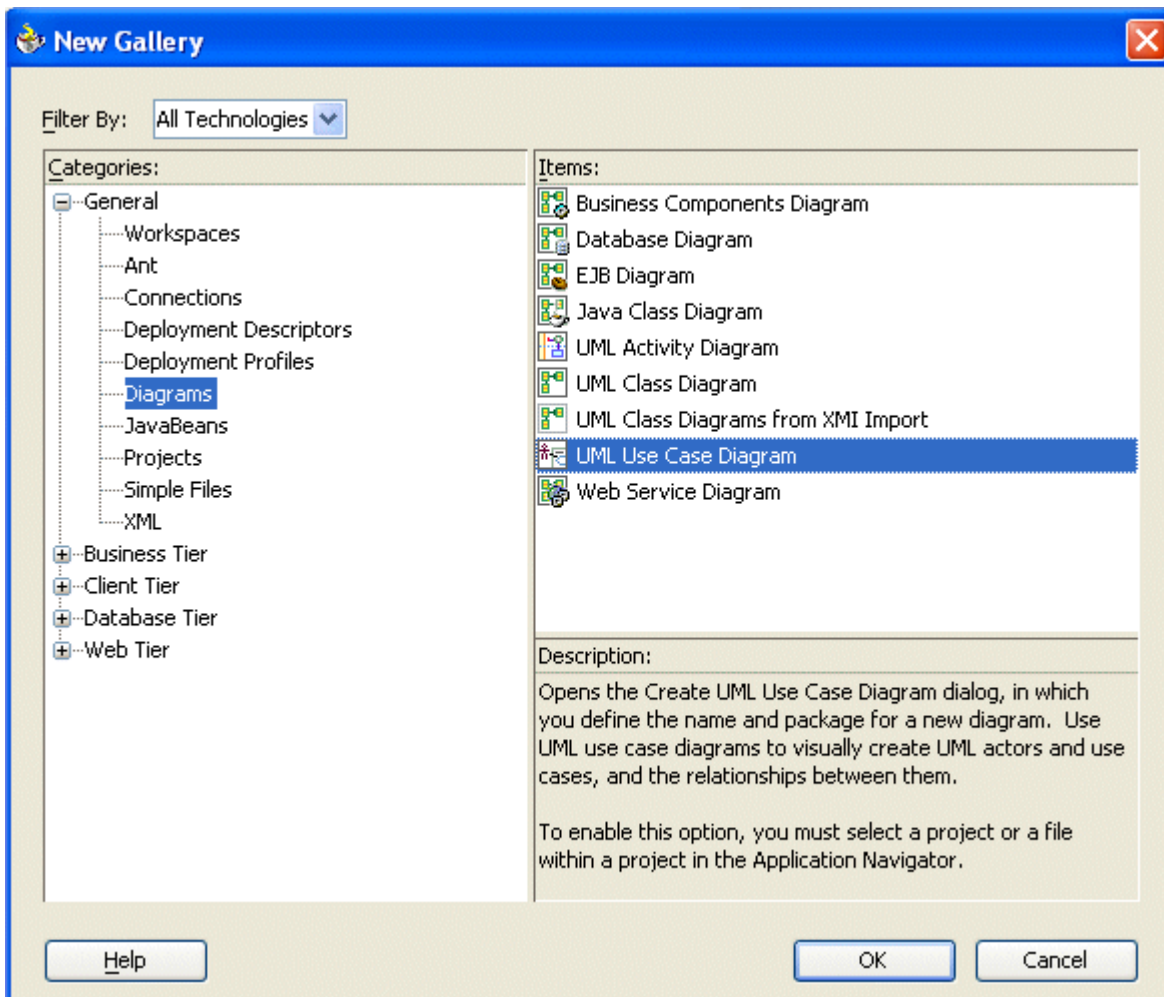
In this step, you use Actor, Communication, Use Case and Include components for your diagram. An Actor represents an external role that interacts with the system.

A Use Case is a description of a major function that the system performs for external actors. In JDeveloper, you have the choice between the Casual or the Fully Dressed use case. The second one supports more details in its description.

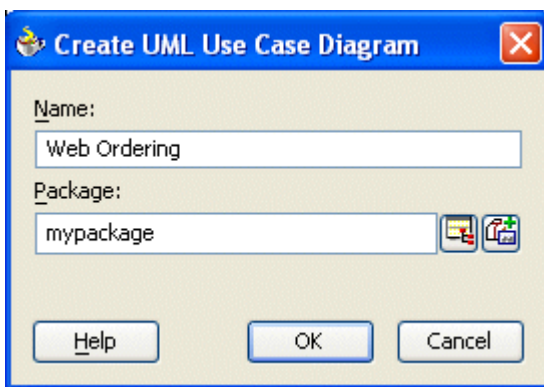
1. Select the **Project** node in the Navigator, and right-click to choose **New** to display the New Gallery.



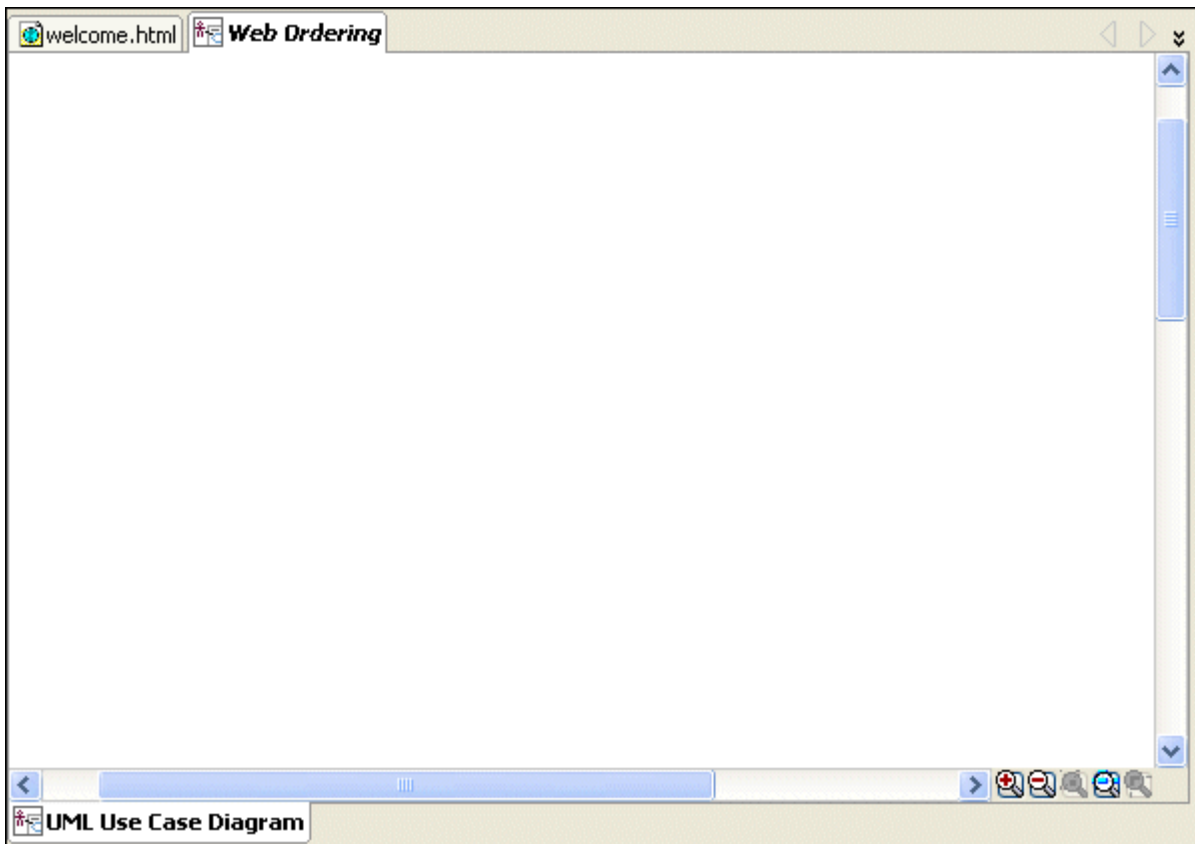
2. In the New Gallery, expand the General node, select the **Diagrams** category and double-click the **UML Use Case Diagram** item.



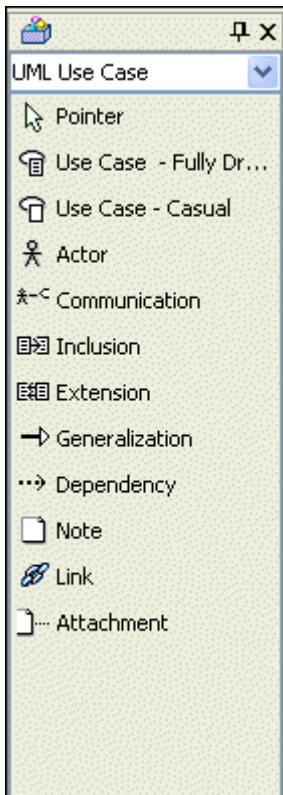
- 3. In the Create UML Use Case Diagram dialog, enter **Web Ordering** as the name, and leave the default package value. Click **OK**.



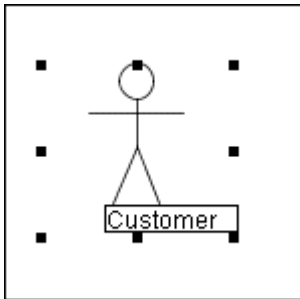
- 4. The Web Ordering empty diagram opens.

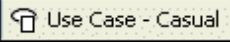


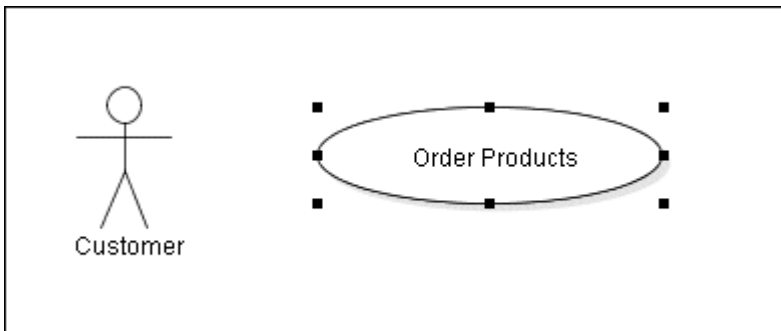
- 5. Select **Component Palette** from the View menu (if it is not already open) to display the various diagram components.



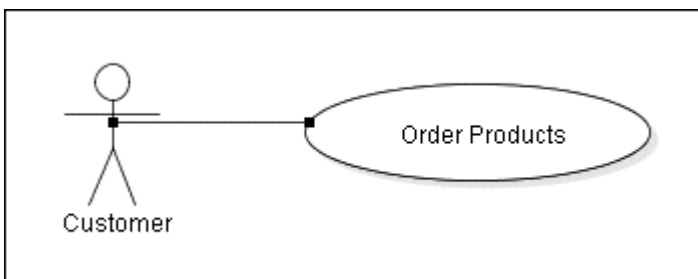
- 6. Select the **Actor** icon  in the Component Palette and click in the left part of the diagram surface. Replace the default **Actor1** name with **Customer**.

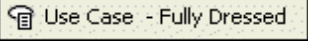


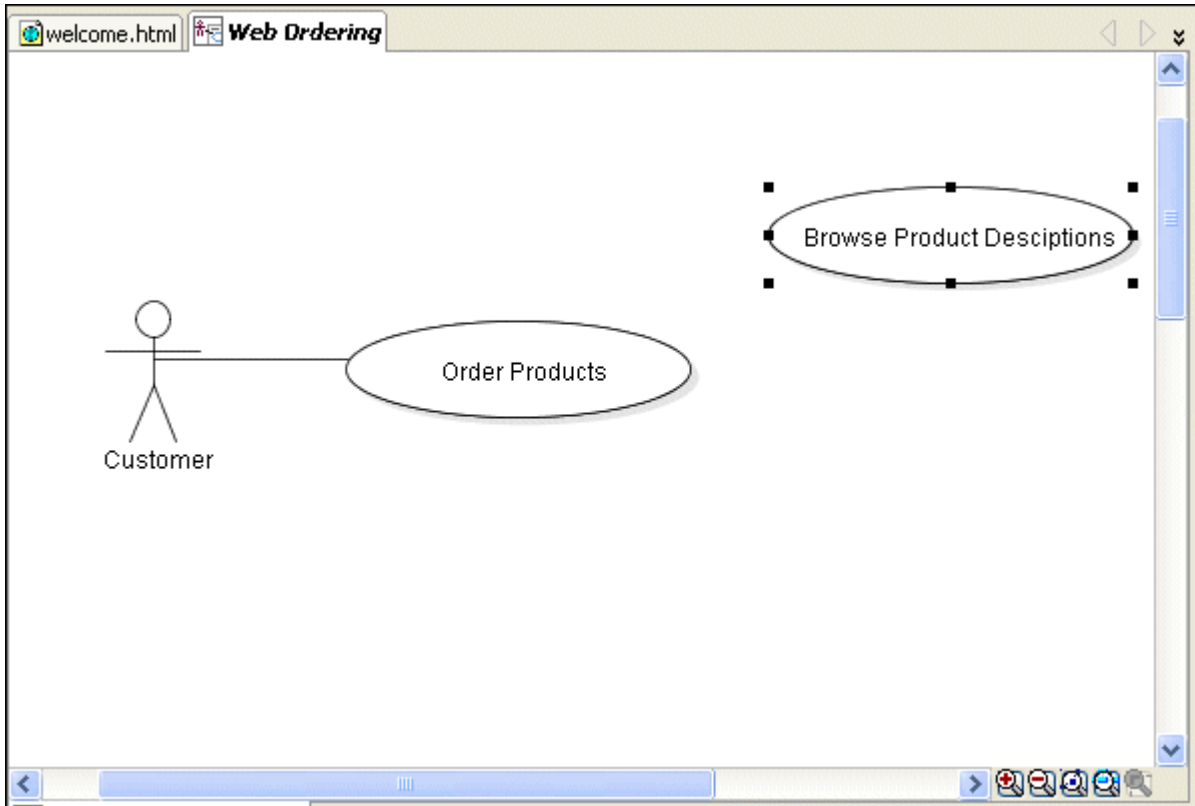
- 7. Select the **Use Case - Casual** icon  and drag it from the Component palette to the right of the Customer silhouette. Rename it to **Order Products**.

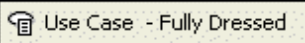


- 8. Select the **Communication** icon  and draw a line between the Customer actor and the Order Products Use Case.

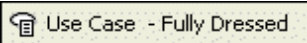


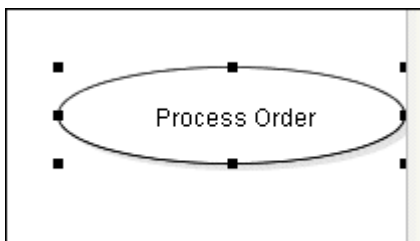
- 9. Select the **Use Case - Fully Dressed**  icon and drag it to the right of the Order Products Use Case. Change the name to **Browse Product Descriptions**.



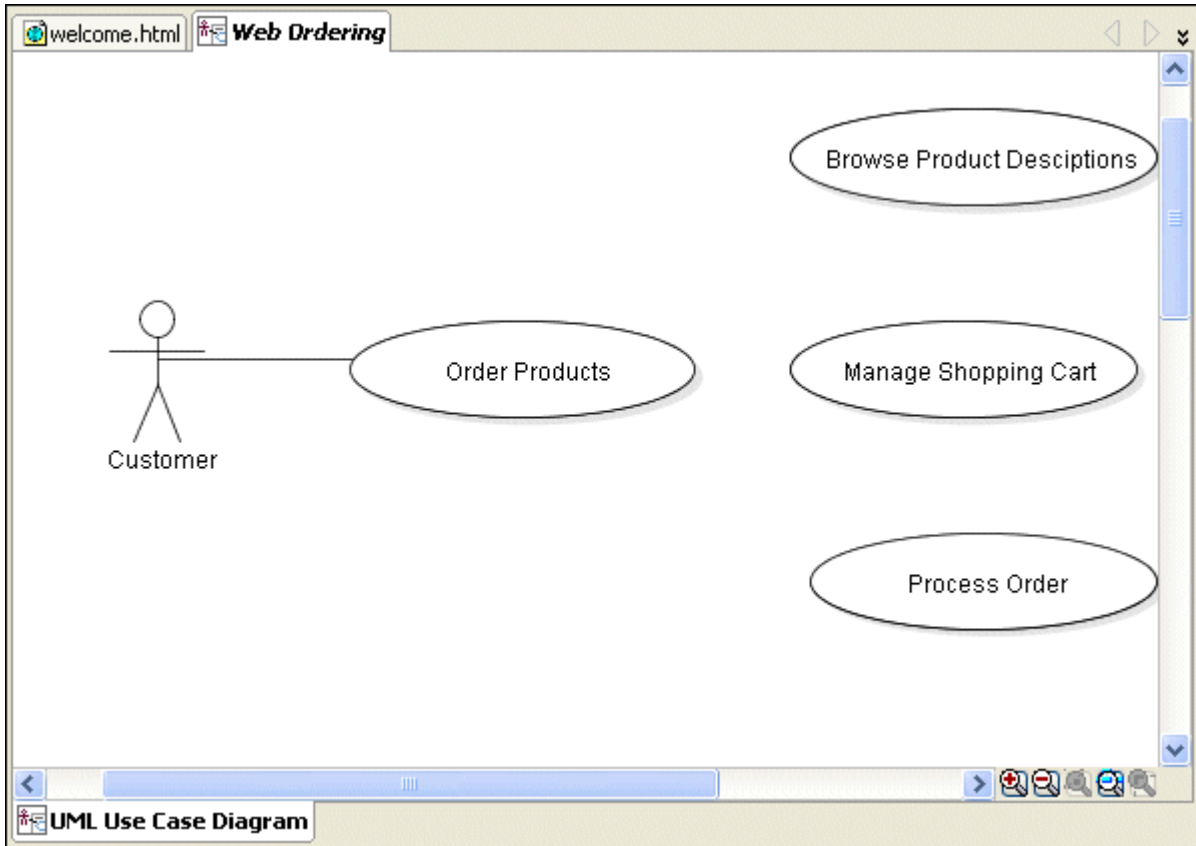
- 10. Select the **Use Case - Fully Dressed**  icon and click below the Browse Product Descriptions Use Case. Change the name to **Manage Shopping Cart**.



- 11. Select the **Use Case - Fully Dressed** icon  and click below the Manage Shopping Cart Use Case. Change the name to **Process Order**.

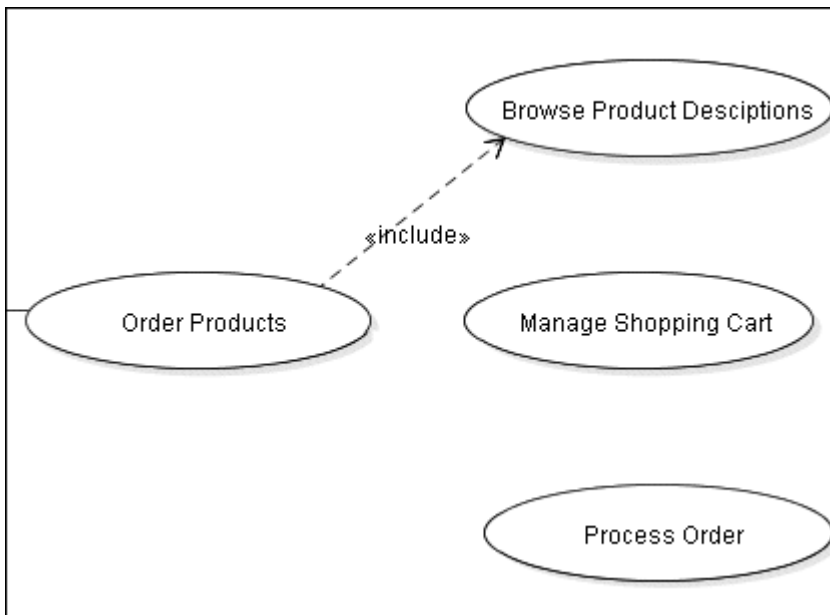


- 12. Your Use Case diagram should now look like this:

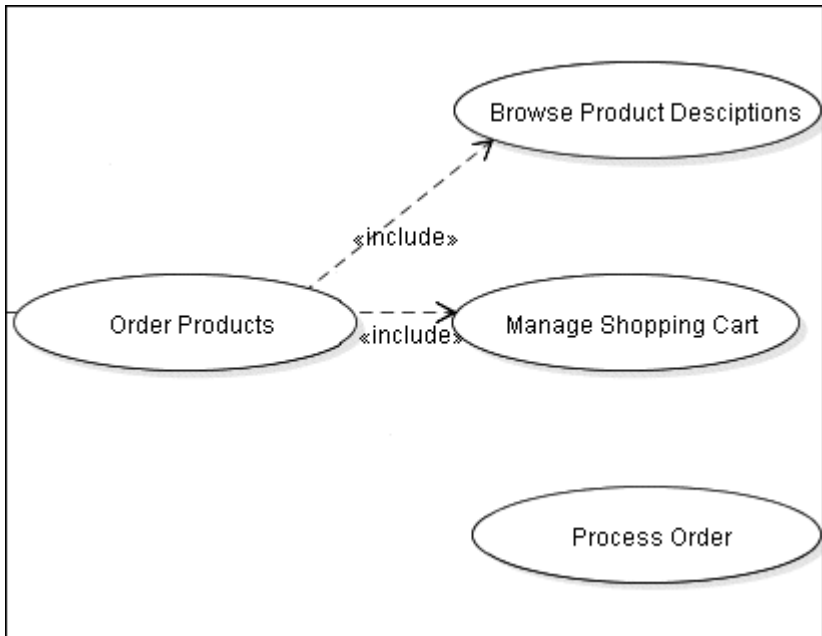


- 13. Since the **Order Products** Use Case includes all three other use cases on the diagram, do the following:

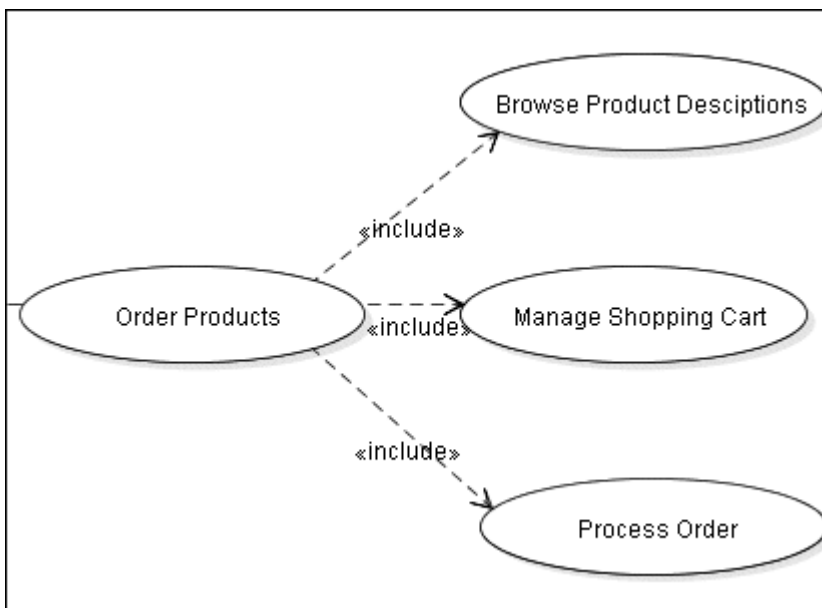
Select the **Inclusion** icon  in the Component Palette and draw a line from the **Order Products** Use Case to the **Browse Product Descriptions** Use Case.



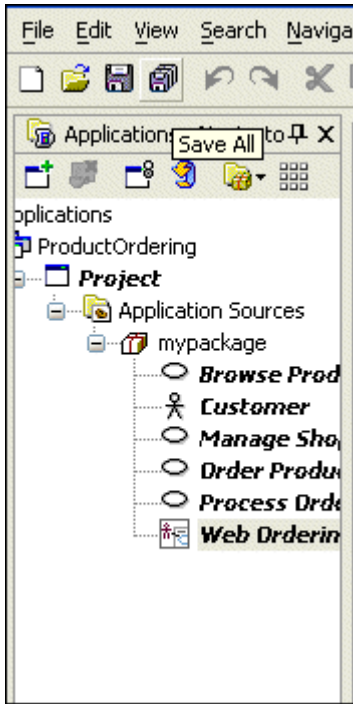
- Repeat the same operation to include the **Manage Shopping Cart** Use Case in the **Orders Products** Use Case.
- 14.



- Repeat the same operation to include the **Process Order** Use Case in the **Orders Products** Use Case.
- 15.

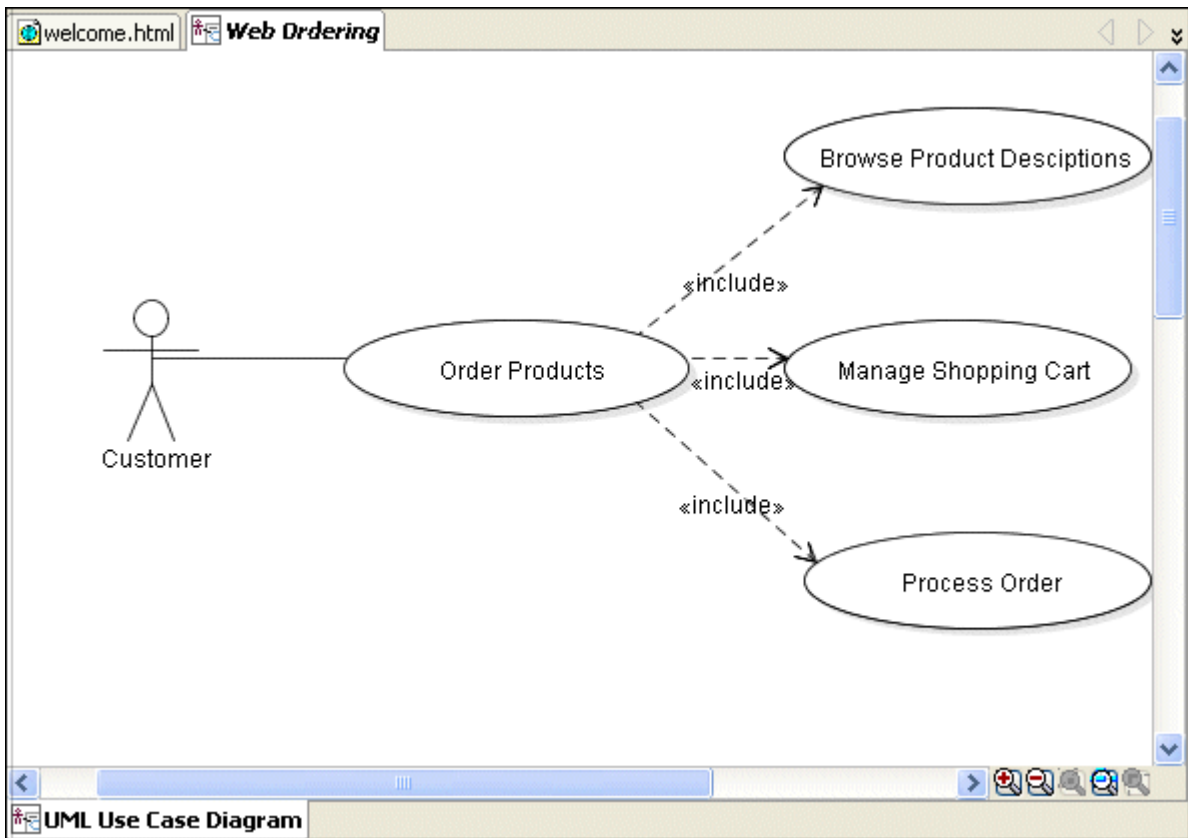


- Choose **File | Save All** to save all your work thus far.
- 16.



□ Your diagram should now look like this:

17.



Step 3- Add details to diagram components

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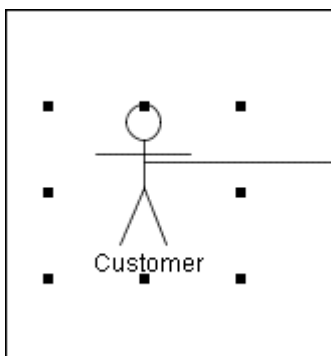
In this step, you add details to the components drawn on the diagram to complete their definitions and clarify the Use Case.

- [Add information to Customer definition](#)
- [Add details to Use Cases](#)

Add information to Customer definition

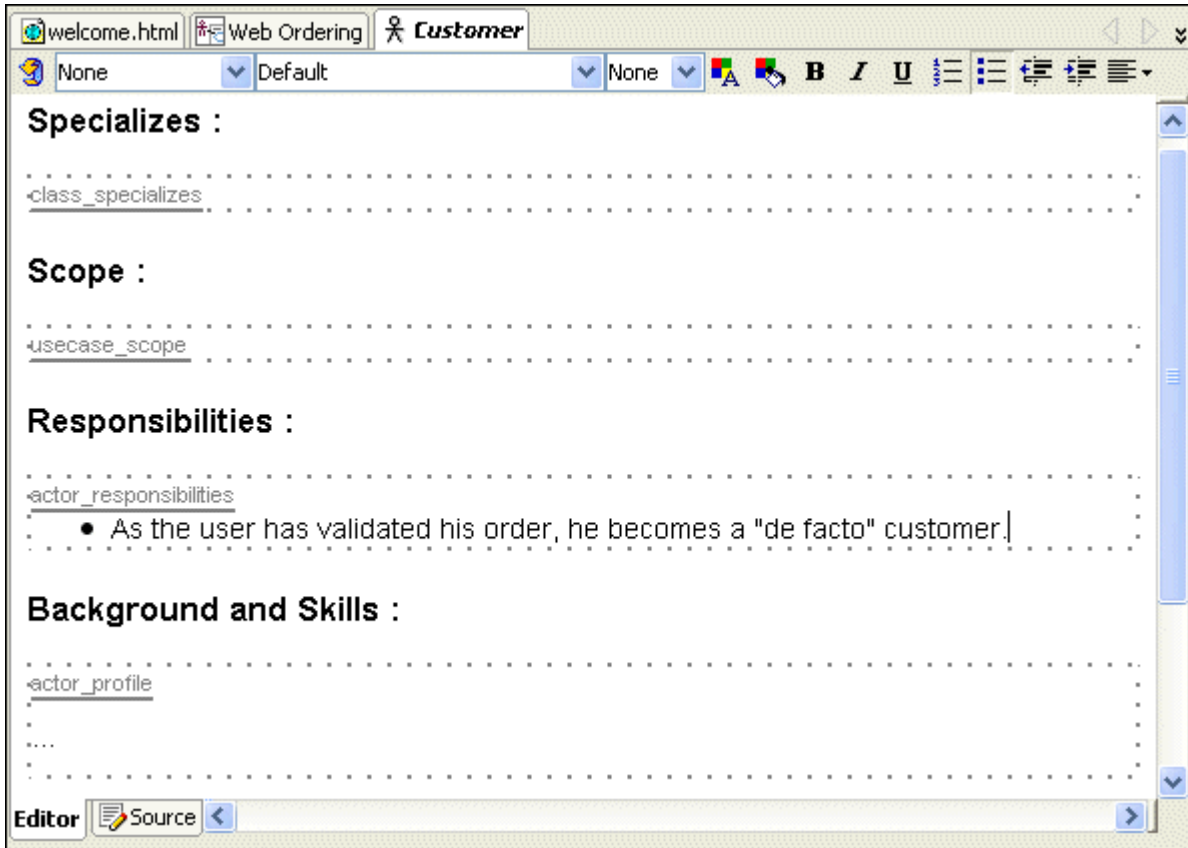
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- 1. Double click on the **Customer** actor silhouette to open its definition.



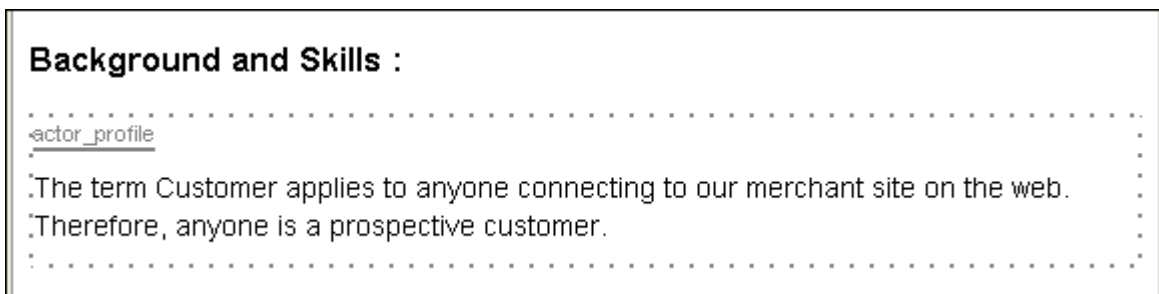
- 2. In the **Responsibilities** section, click next to the bullet below **actor_responsibilities**, and enter the following text:

As the user has validated his order, he becomes a "de facto" customer.



- 3. In the **Background and skills** section, under the **actor_profile**, enter the following text:

The term Customer applies to anyone connecting to our merchant site on the web. Therefore, anyone is a prospective customer.



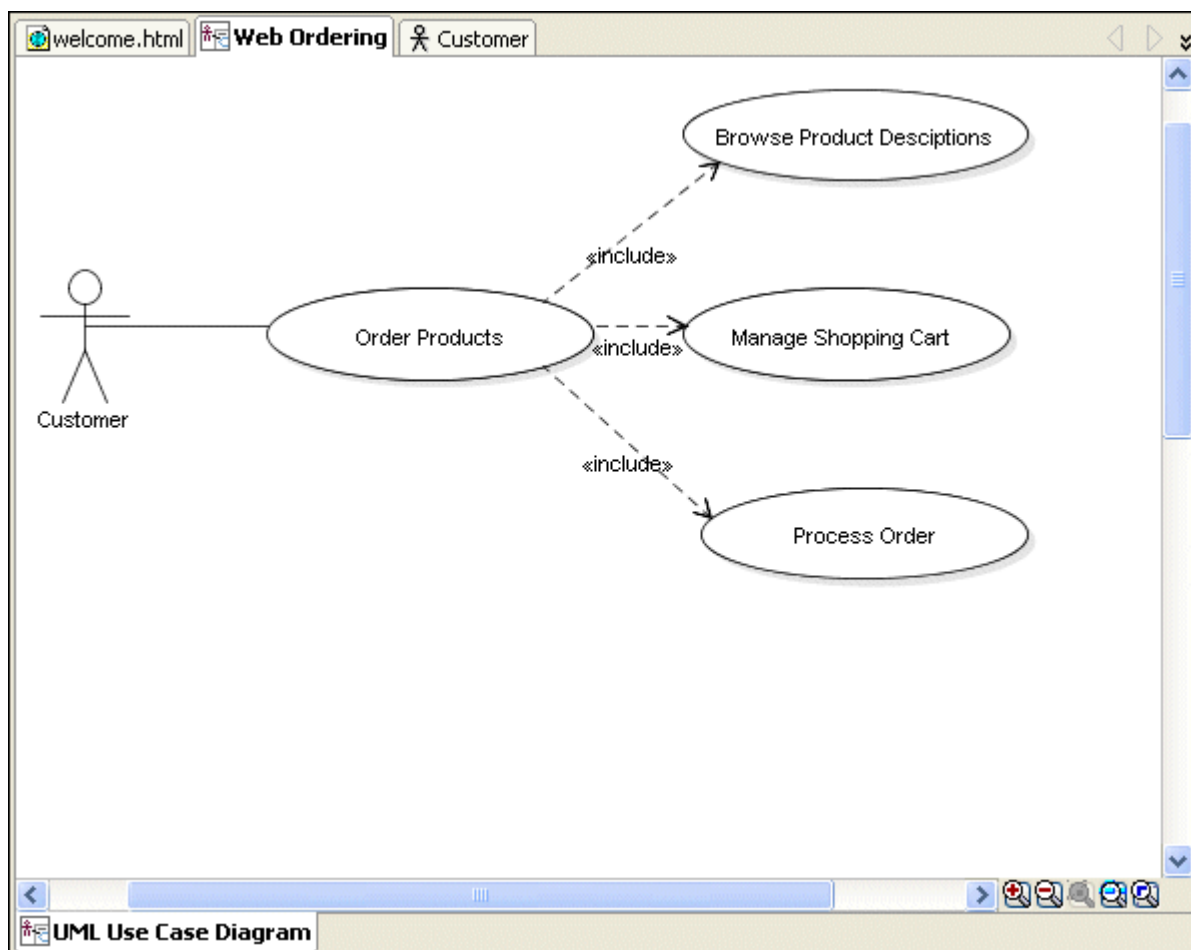
- 4. In the **Referenced By** section notice the link to **Order Products**. This was automatically created when you added the Communication line on the diagram.



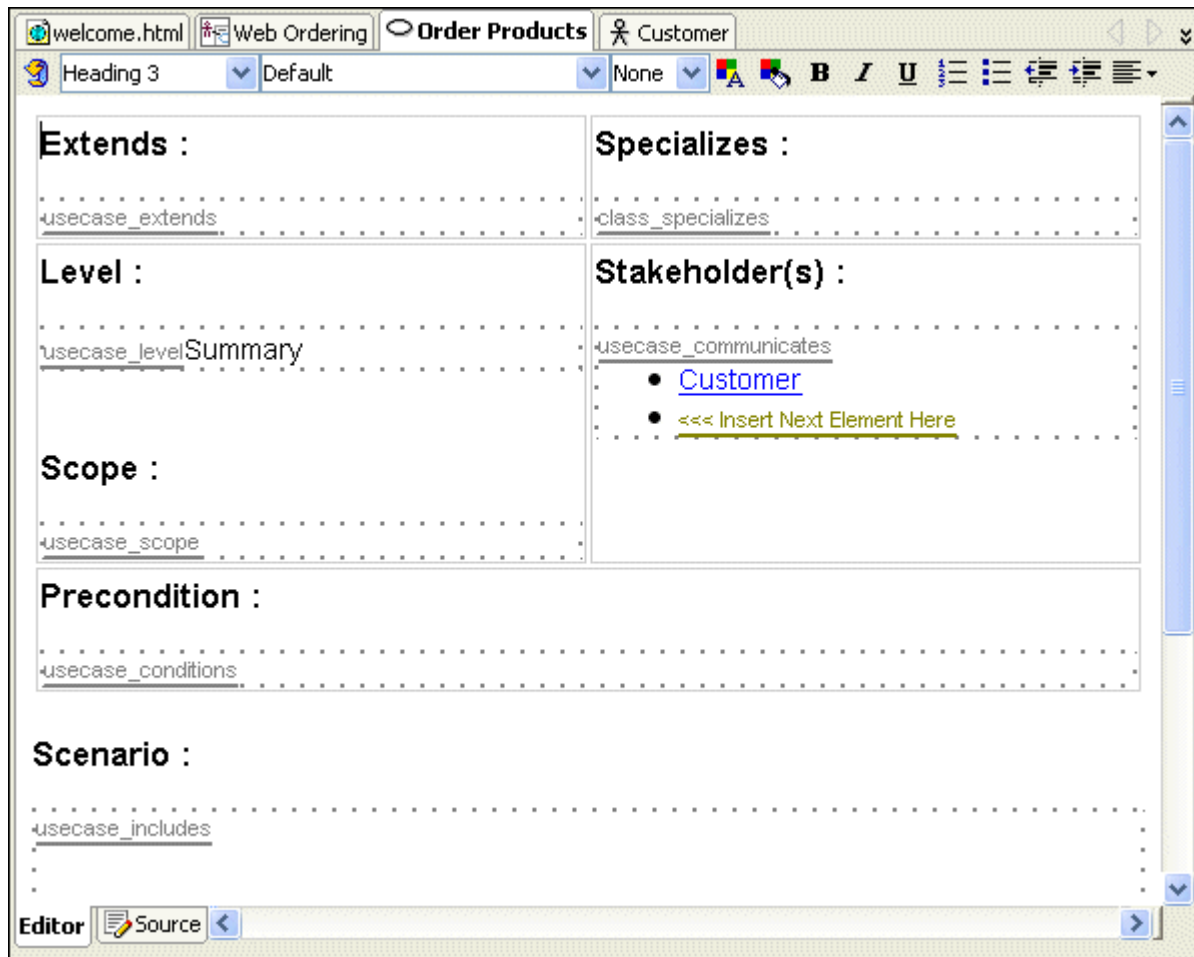
Add details to Use Cases

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1. Click the **Web Ordering** tab on the top of the **editor** window to display the Web Ordering diagram.



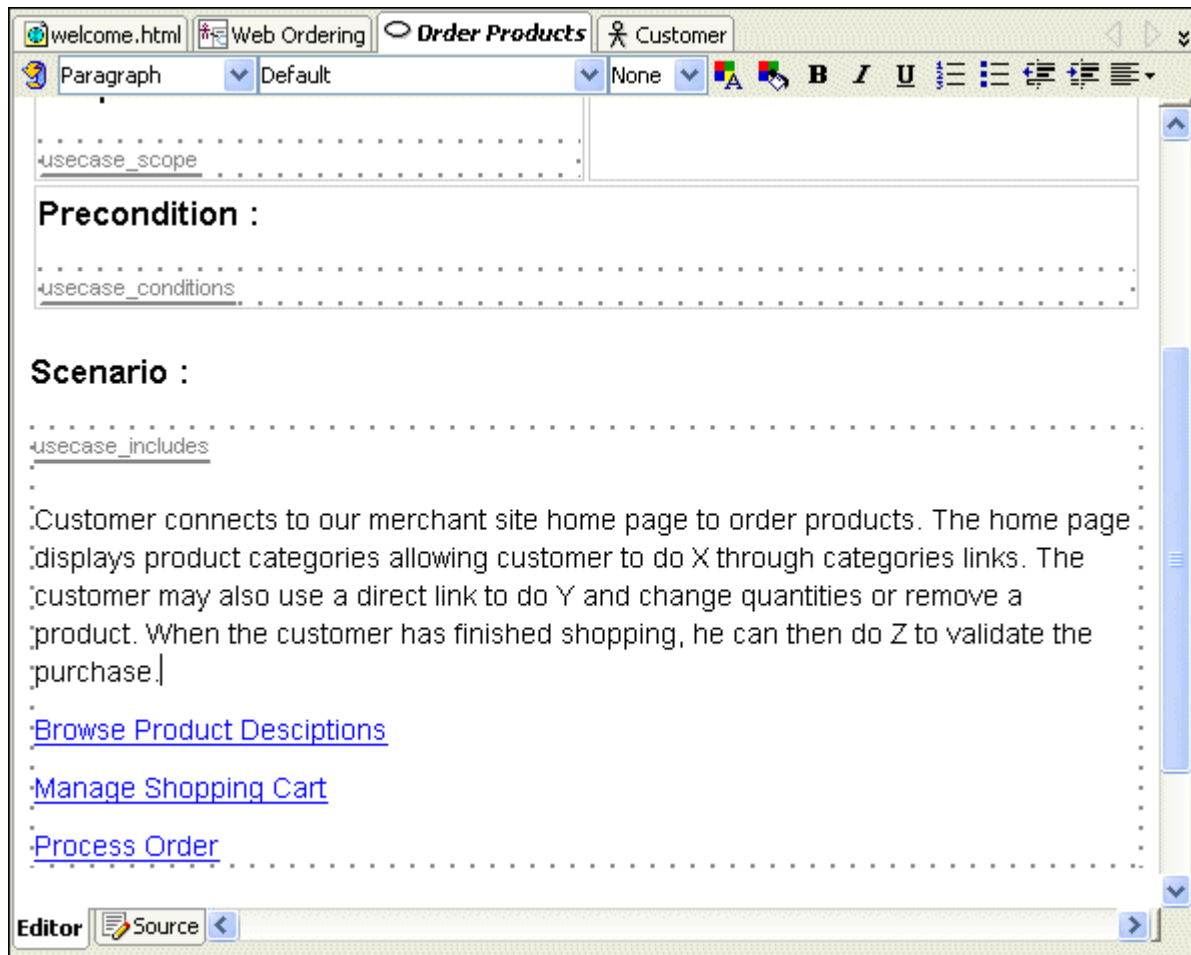
2. Double click the **Order Products** Use Case to open it. Notice that this use case was created using the **Casual** icon.



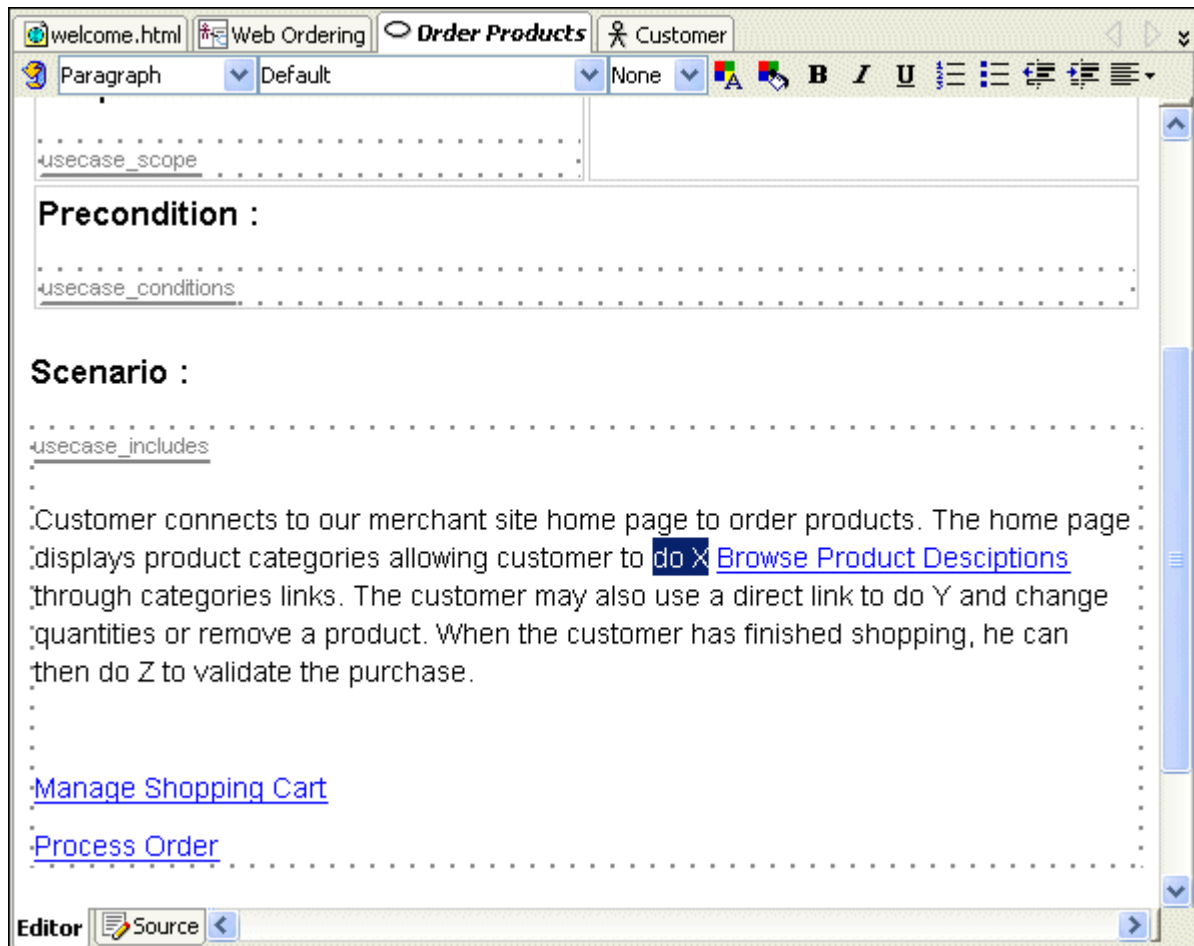
Click the Editor tab to open the editor view.

3. In the **Scenario** section you can see that references to the other use cases are included. Just above the reference to **Browse Product Descriptions**, cut and paste the following description for the scenario:

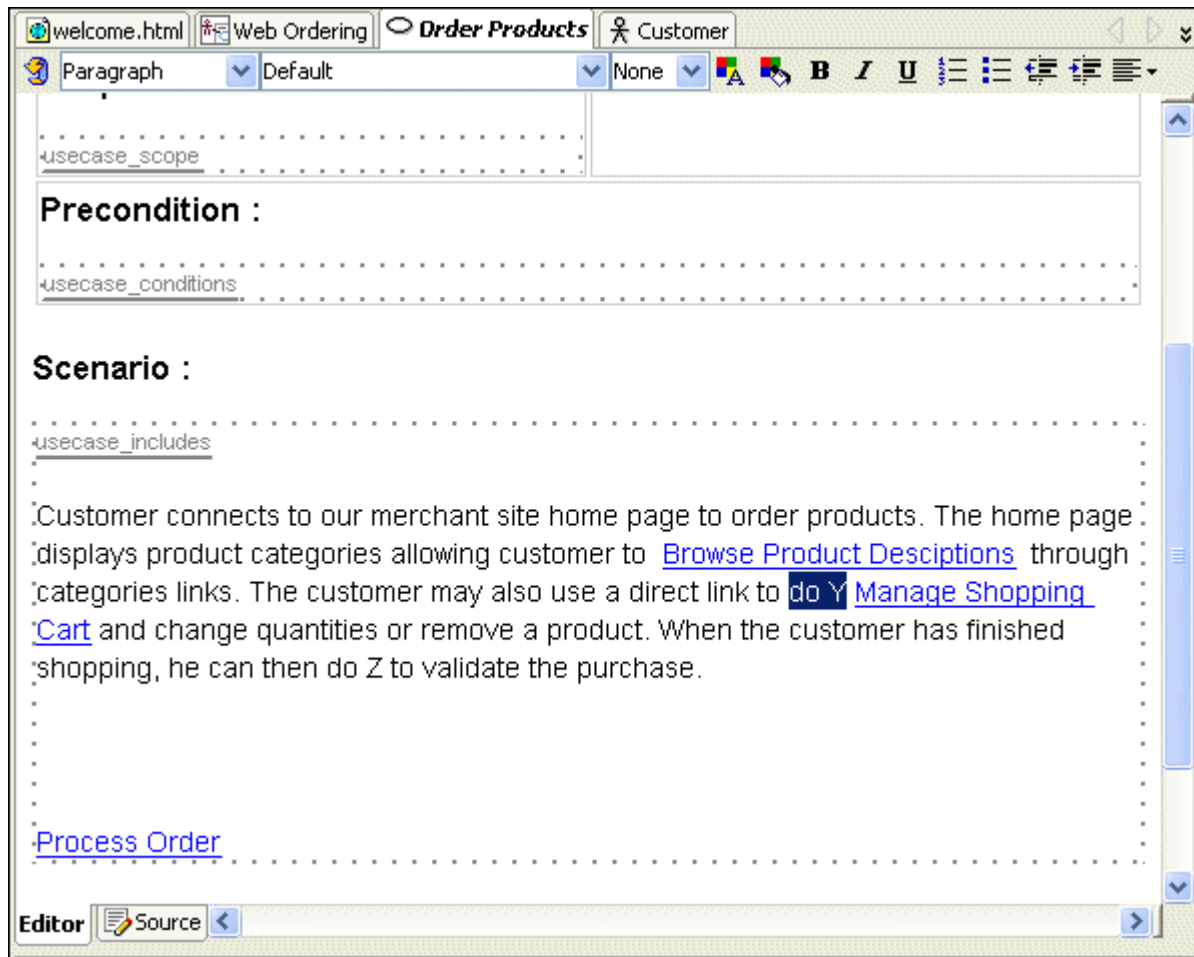
Customer connects to our merchant site home page to order products. The home page displays product categories allowing customer to **do X** through categories links. The customer may also use a direct link to **do Y** and change quantities or remove a product. When the customer has finished shopping, he can then **do Z** to validate the purchase.



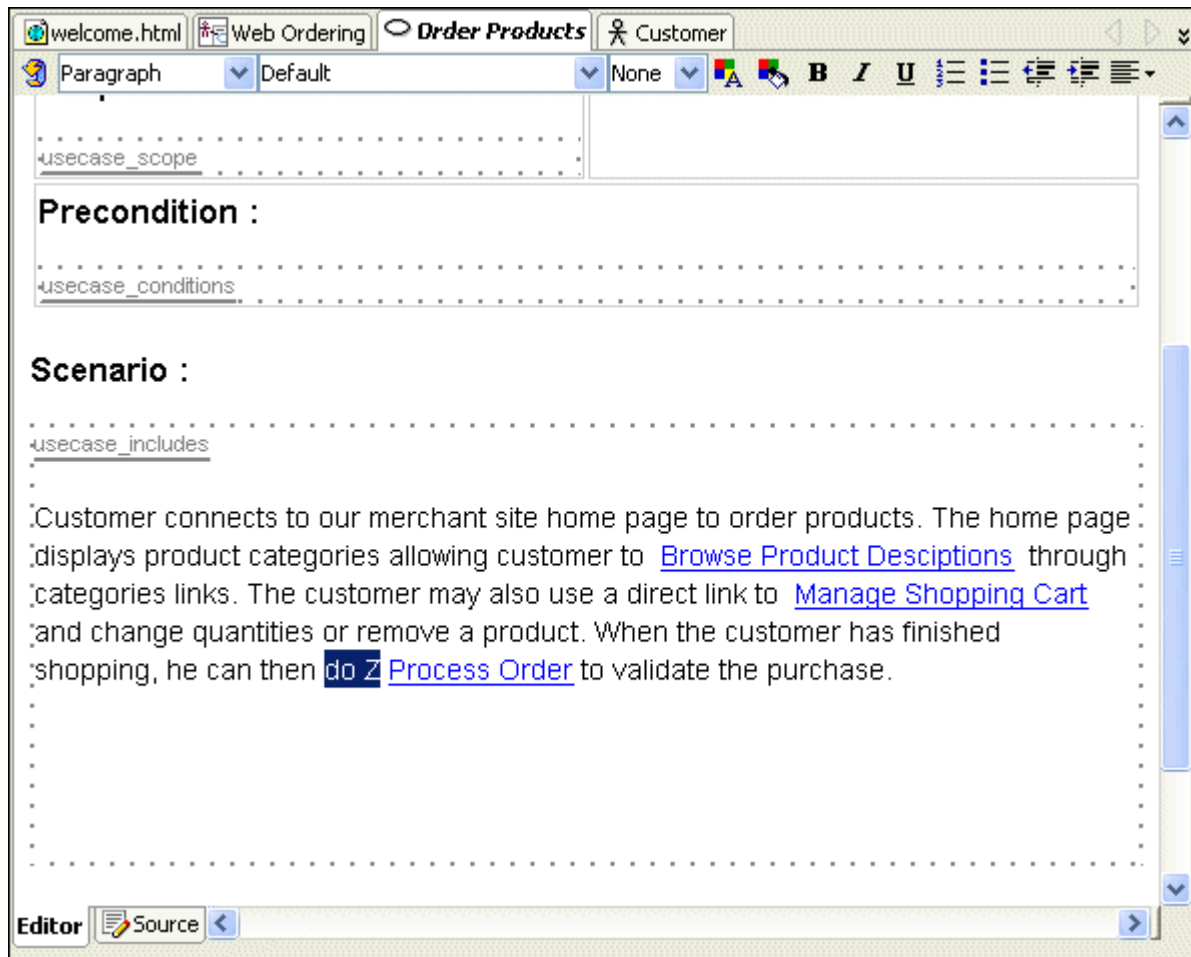
- 4. Select the "**Browse Product Descriptions**" link and drop it next to the **do X** words. Remove the placeholder words.



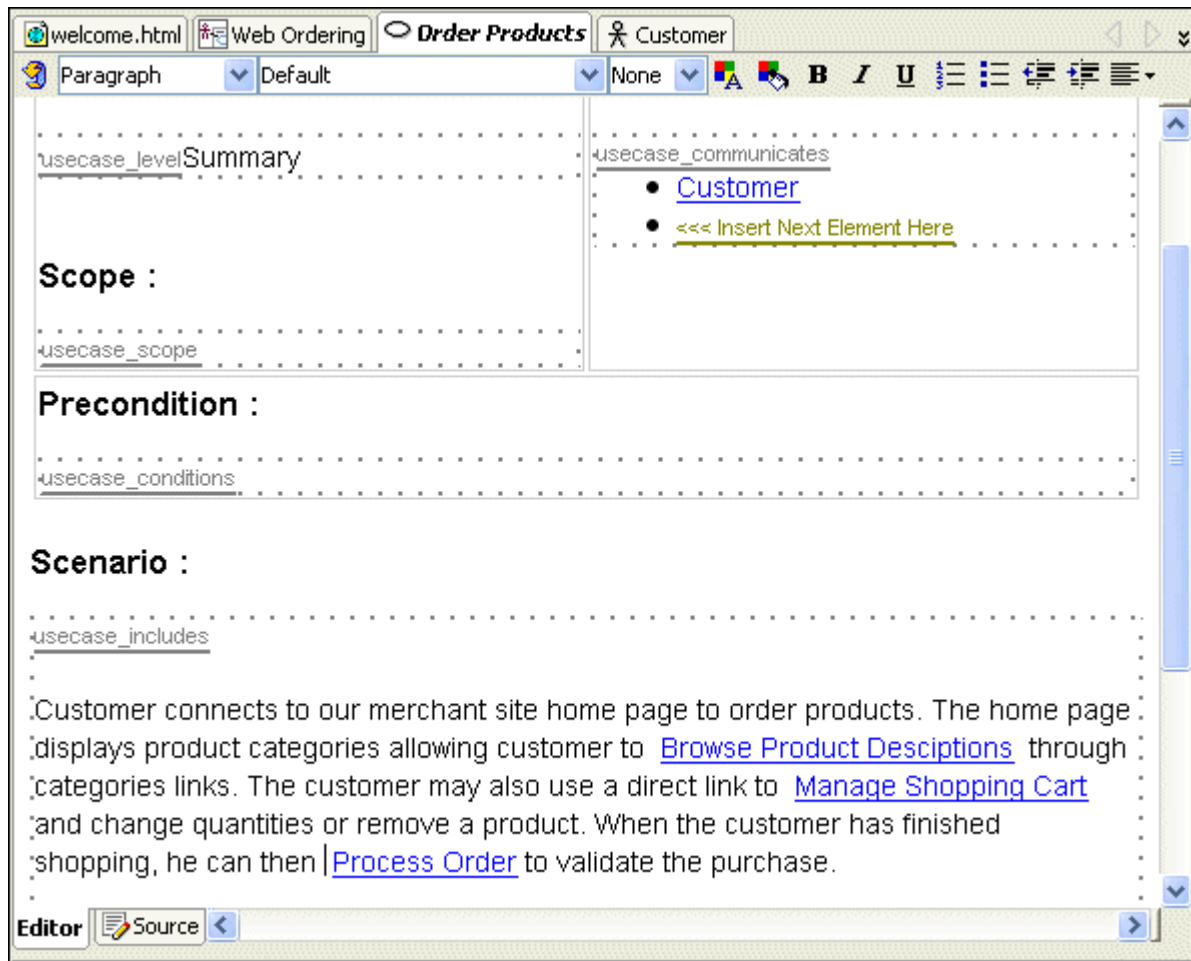
- 5. Select the “**Manage Shopping Cart**” link and drop it next to the **do Y** words. Remove the placeholder words.



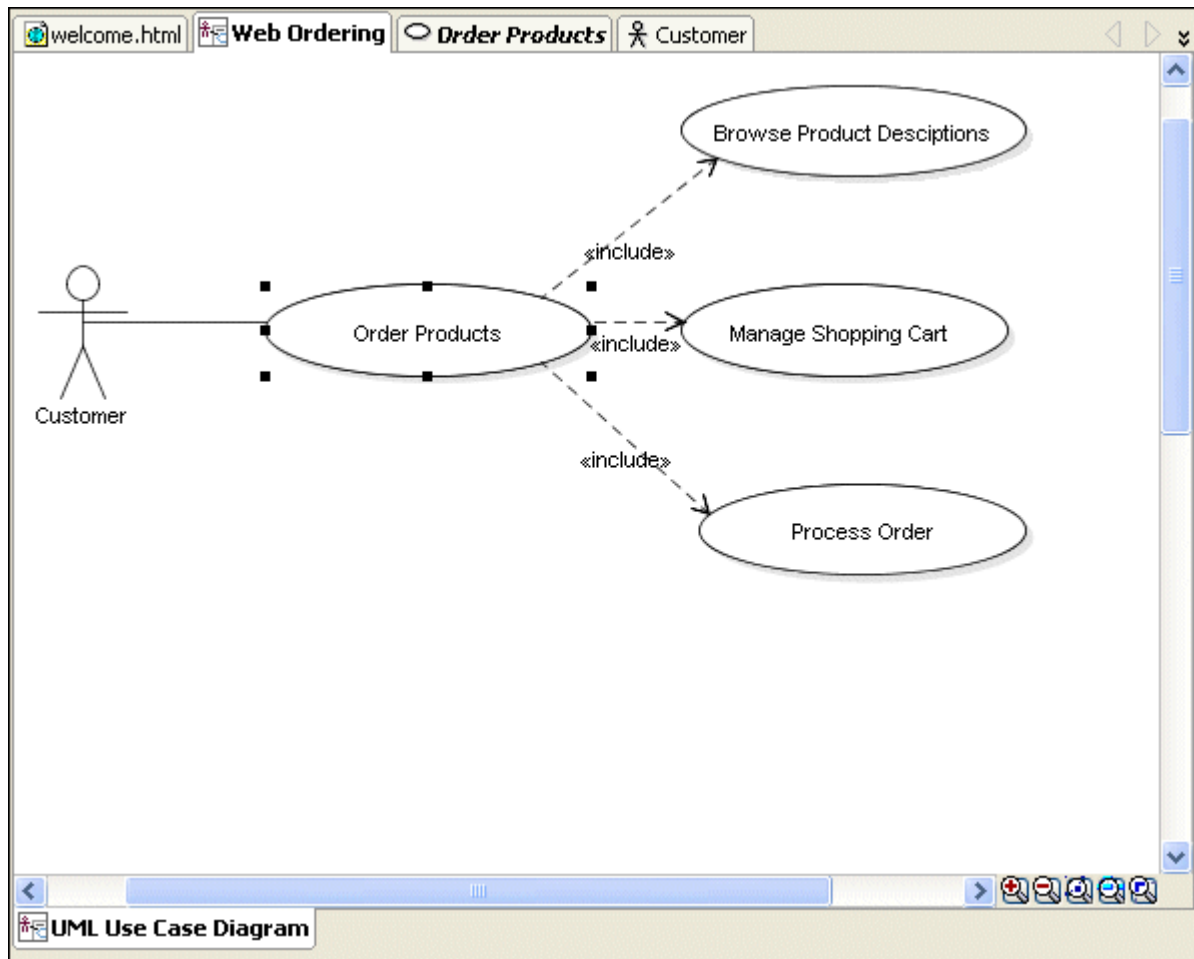
- 6. Select the “**Process Order**” link and drop it next to the **do Z** words. Remove the placeholder words.



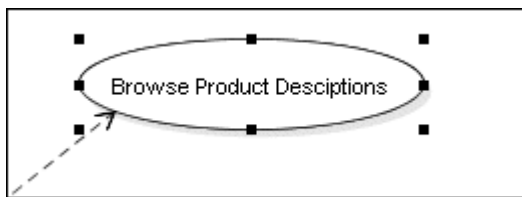
- 7. The Use Case should look like this:



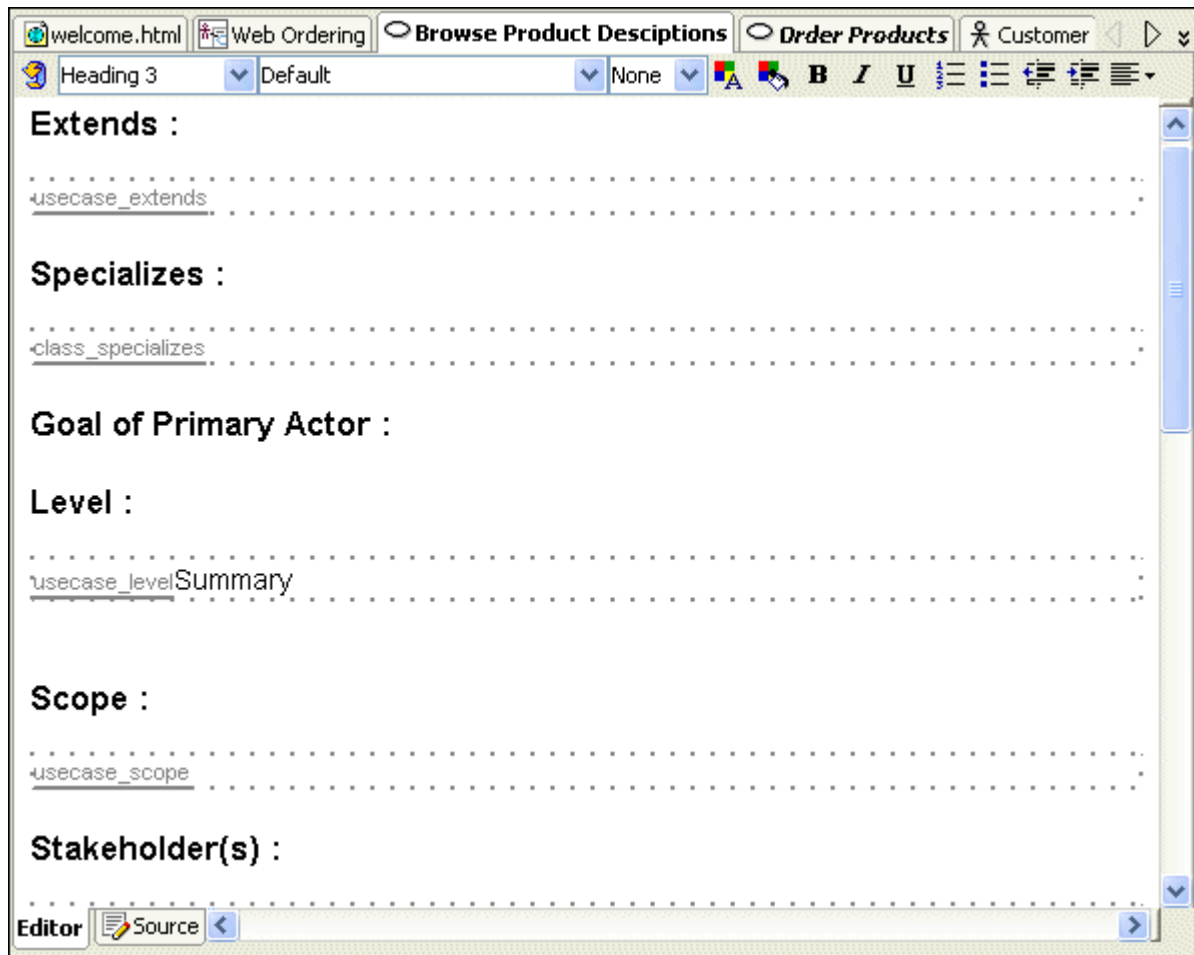
- 8. Click on the **Web Ordering** tab to open the diagram in the editor.




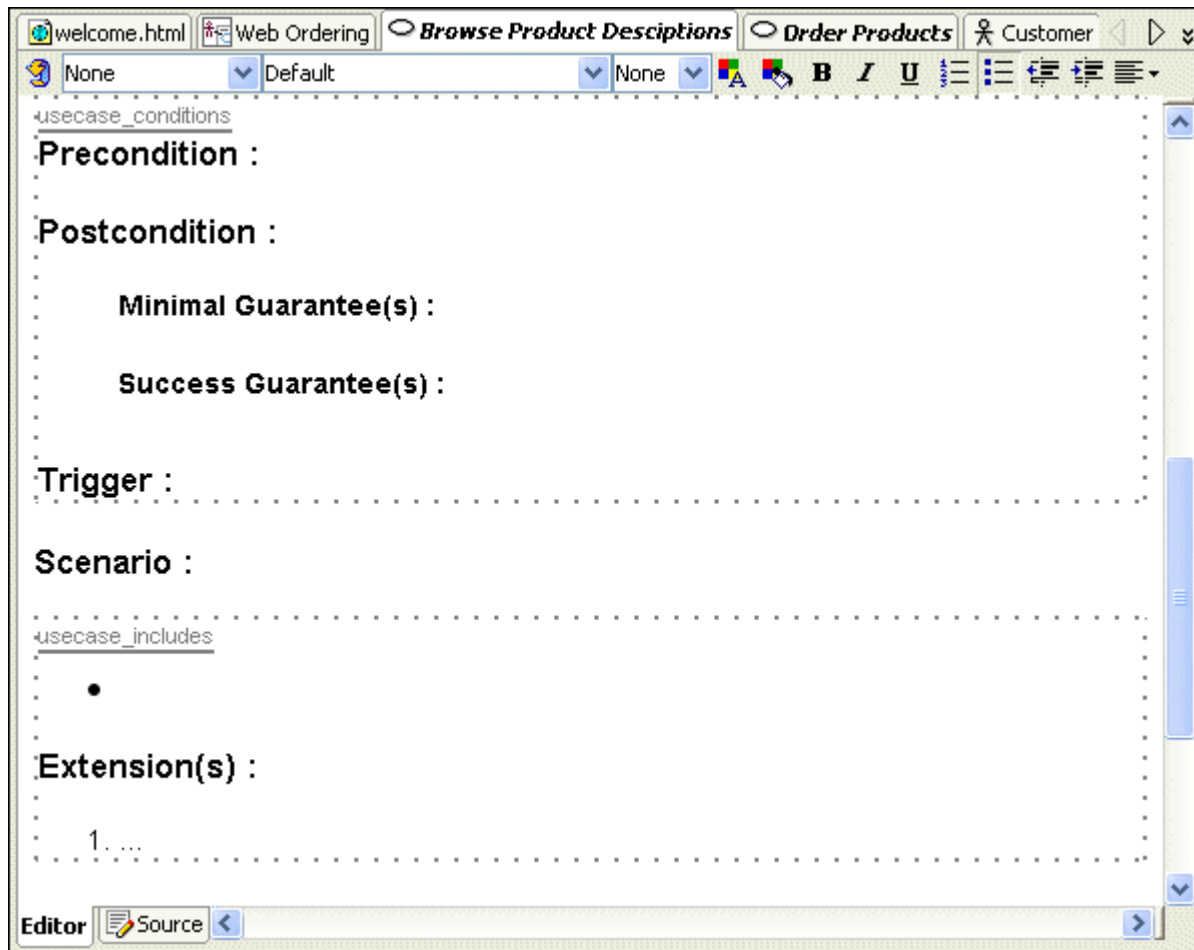
- 9. Double click the **Browse Product Definitions** Use Case to open its definition.



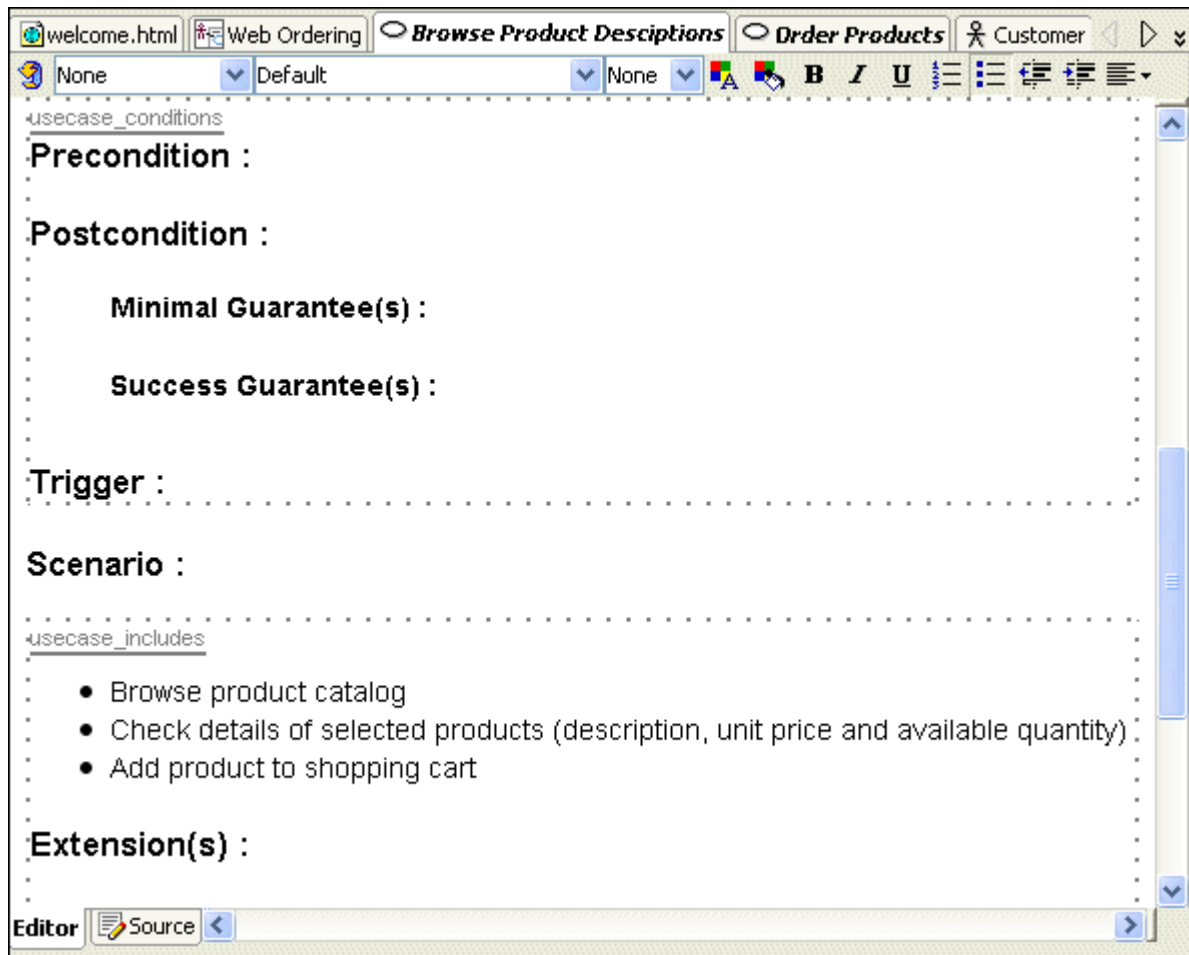
- Notice that the sections are more detailed than the previous use case. This use case was created using the **Fully dressed** icon.
- 10.



11. In the **Scenario** section, select the <<< **Insert Next Element Here** message, delete it and click on the **Unordered list**  icon in the editor toolbar to replace the numbering by a bulleted list.

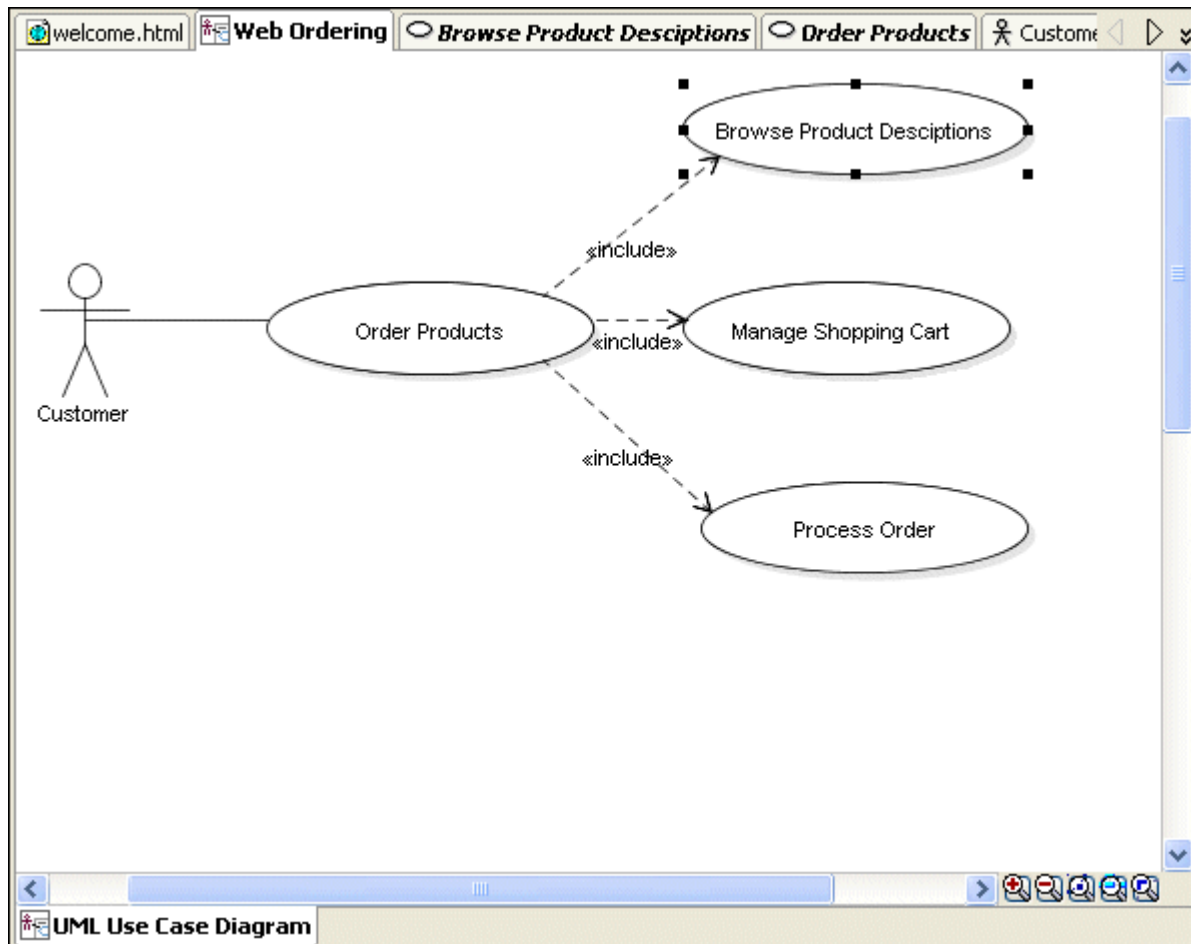


12. In the **Scenario** section, below the **usecase_includes** add the following description for the use case:
- **Browse product catalog**
 - **Check details of selected products (description, unit price and available quantity)**
 - **Add product to shopping cart**



- Open the **Web Ordering** diagram. (use the tab on the top of the editor window)

13.




- Double click on the **Manage Shopping Cart** Use Case to open its definition.

14.



- In the **Scenario** section, select the <<< **Insert Next Element Here** message, delete it and

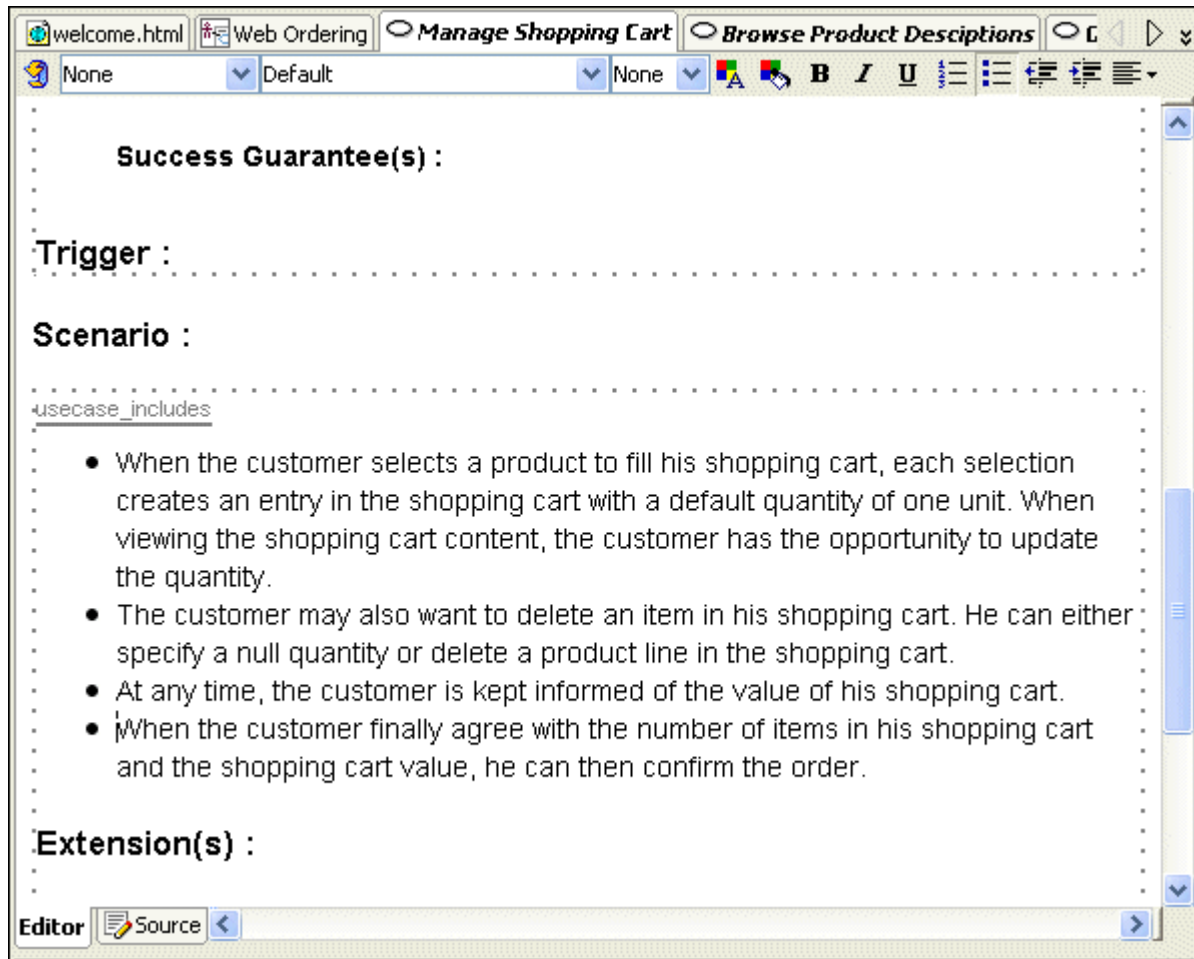
15.

click on the **Unordered list** icon  to replace the numbering by a bulleted list. In the **Scenario** section, below the **usecase_includes** add the following description for the use case:

- When the customer selects a product to fill his shopping cart, each selection creates an entry in the shopping cart with a default quantity of one unit. When viewing the shopping cart content, the customer has the opportunity to update the quantity.
- The customer may also want to delete an item in his shopping

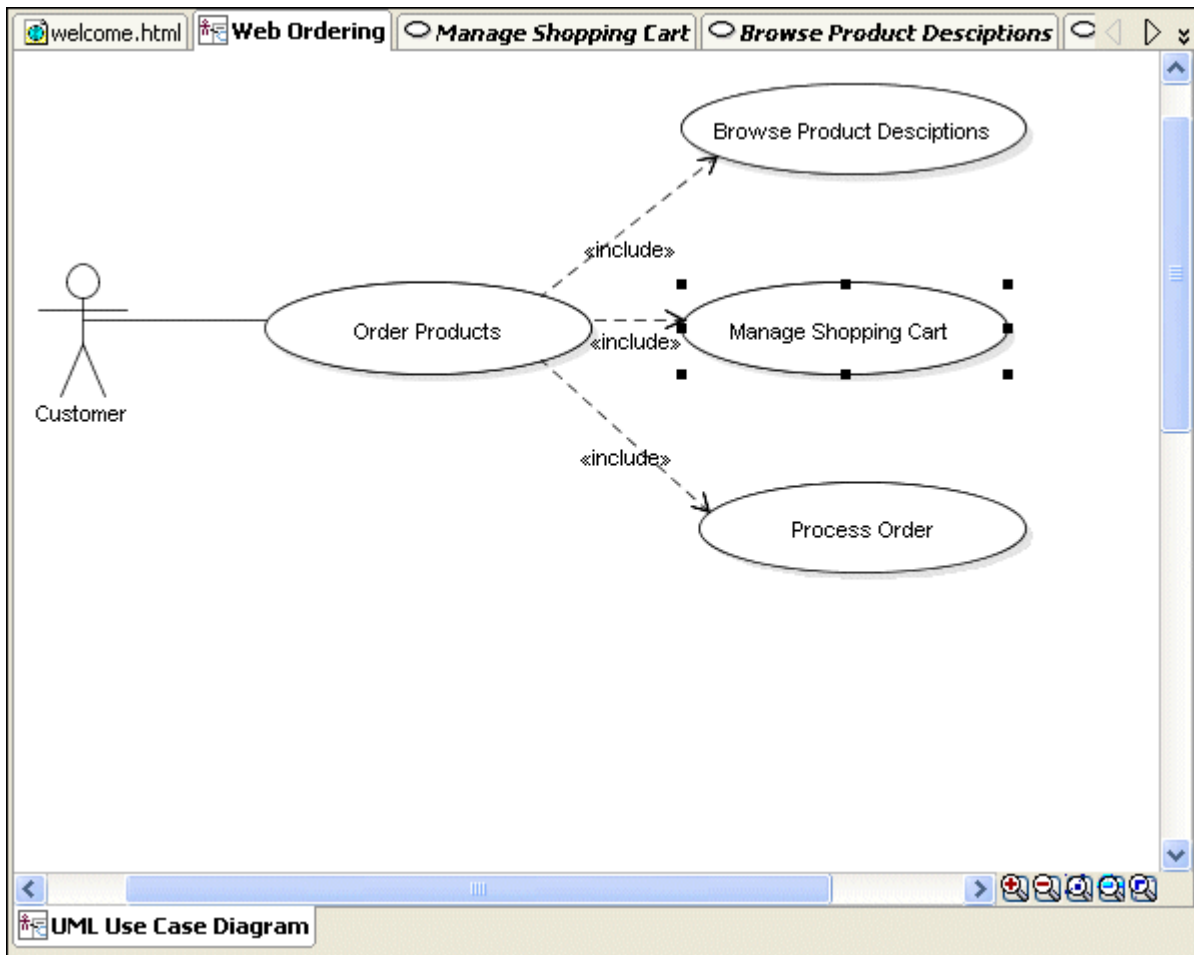
cart. He can either specify a null quantity or delete a product line in the shopping cart.

- At any time, the customer is kept informed of the value of his shopping cart.
- When the customer finally agree with the number of items in his shopping cart and the shopping cart value, he can then confirm the order.



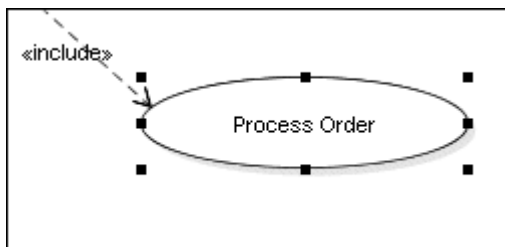
- Open the **Web Ordering** diagram. (use the tab on the top of the editor)

16.



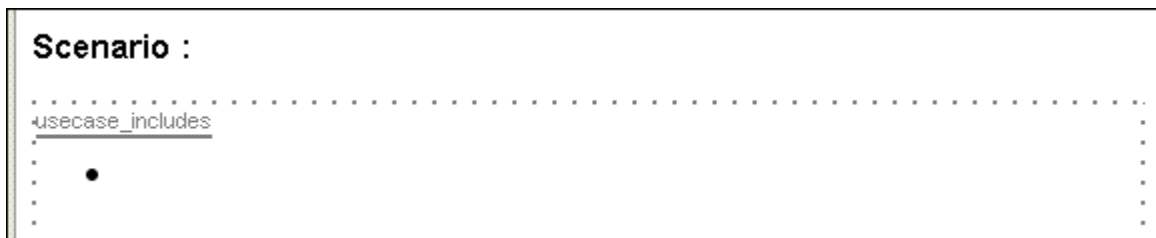
- Double click the **Process Order** Use Case to open its definition.

17.



- In the **Scenario** section, select the <<< **Insert Next Element Here** message, and delete it.

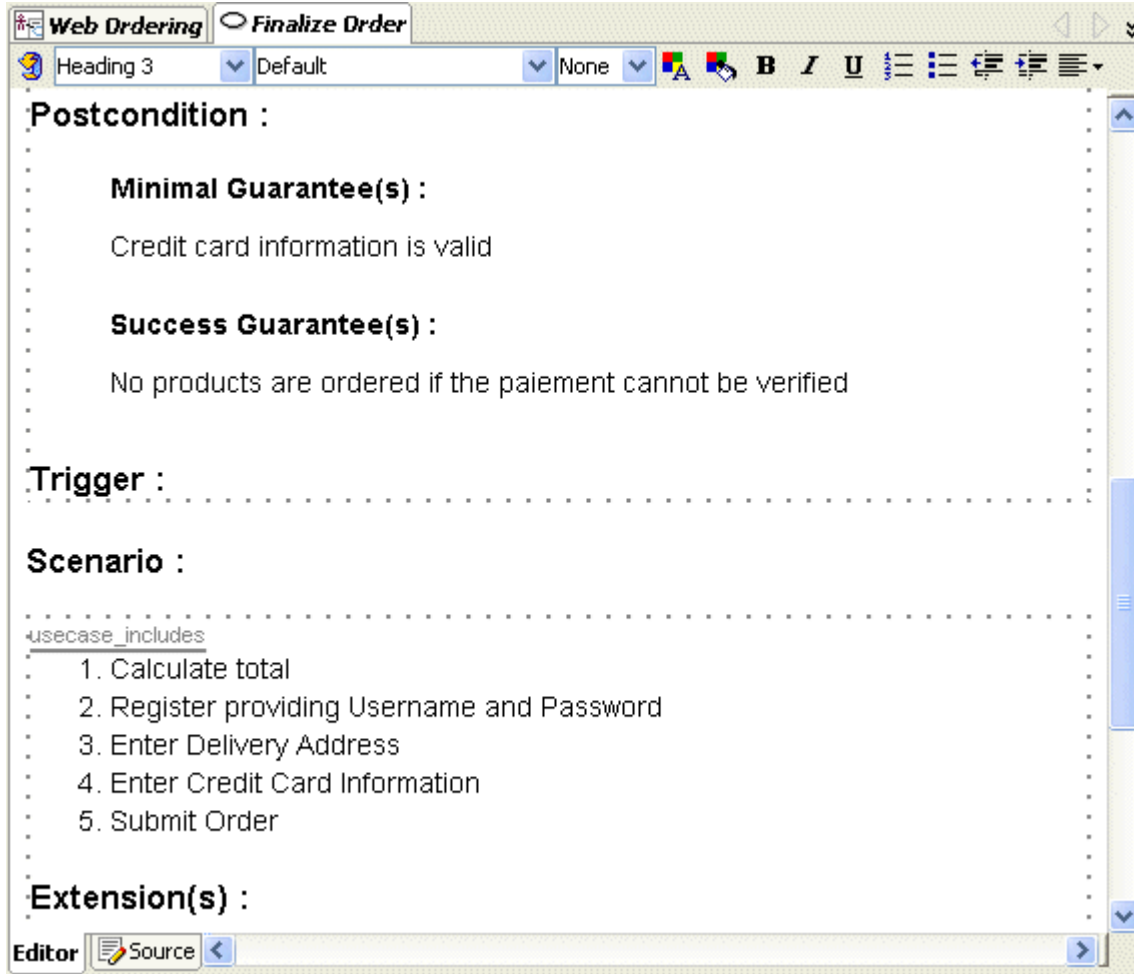
18.



- Add the following actions:

19.

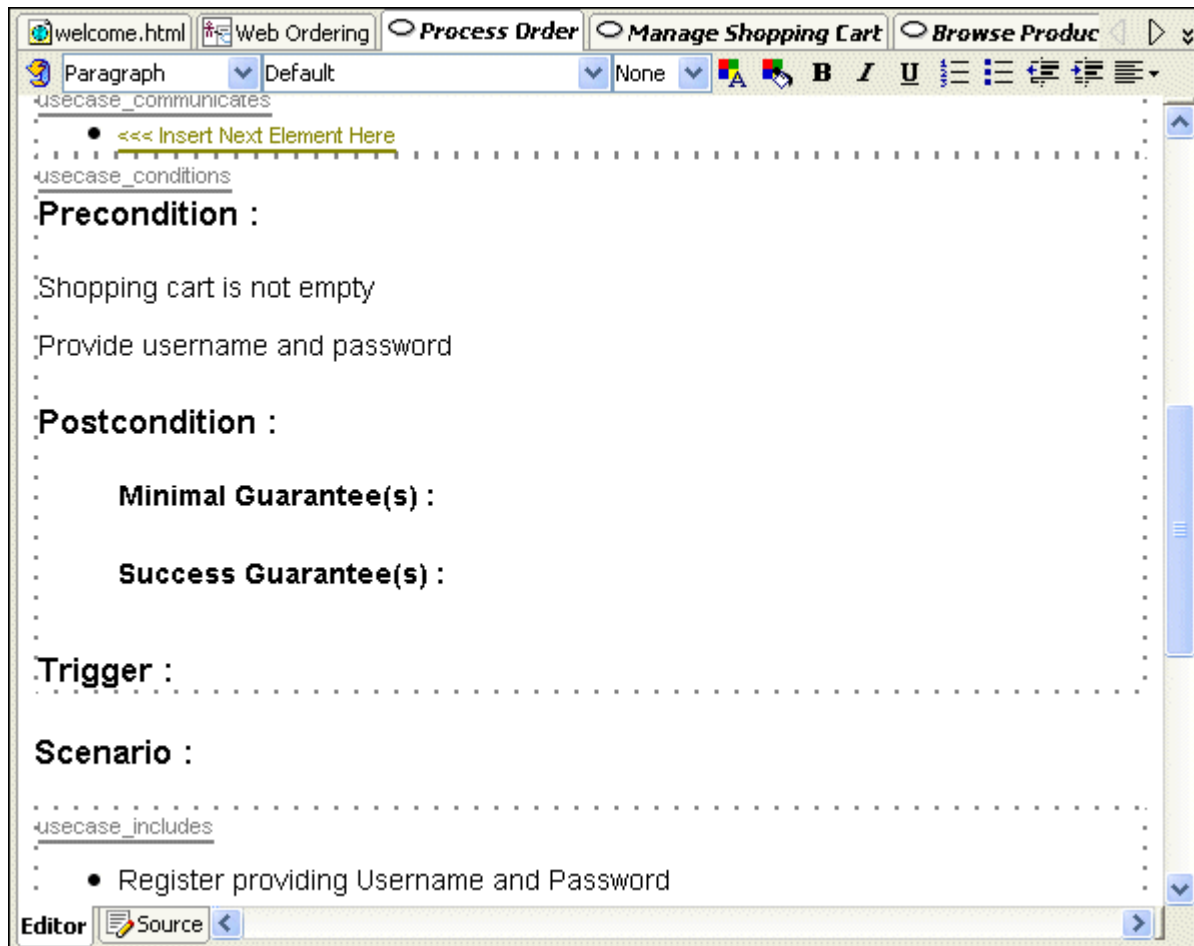
1. Calculate total
2. Register providing Username and Password
3. Enter Delivery Address
4. Enter Credit Card Information
5. Submit Order



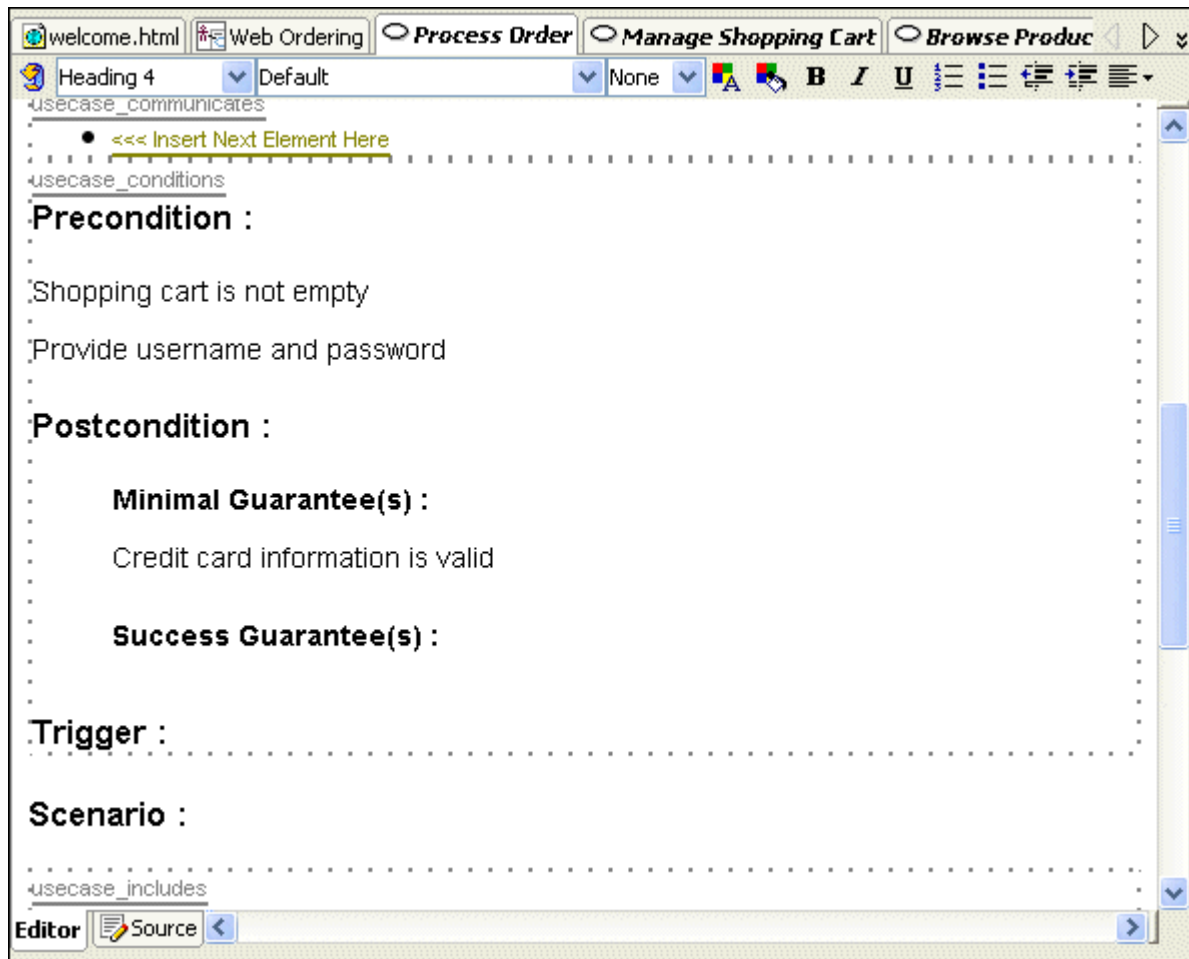
- In the **Precondition** section add the following text:

20.

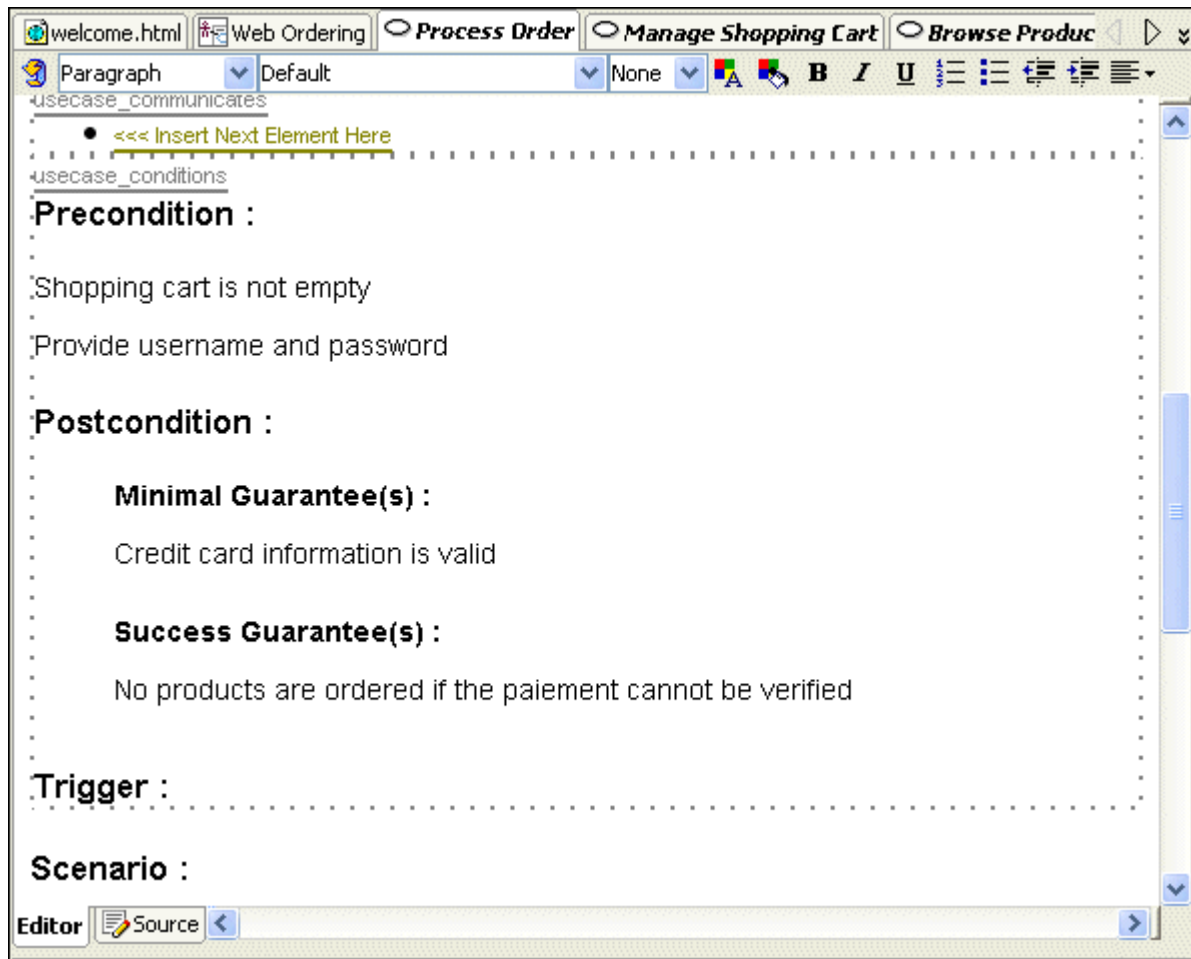
Shopping cart is not empty
Provide username and password



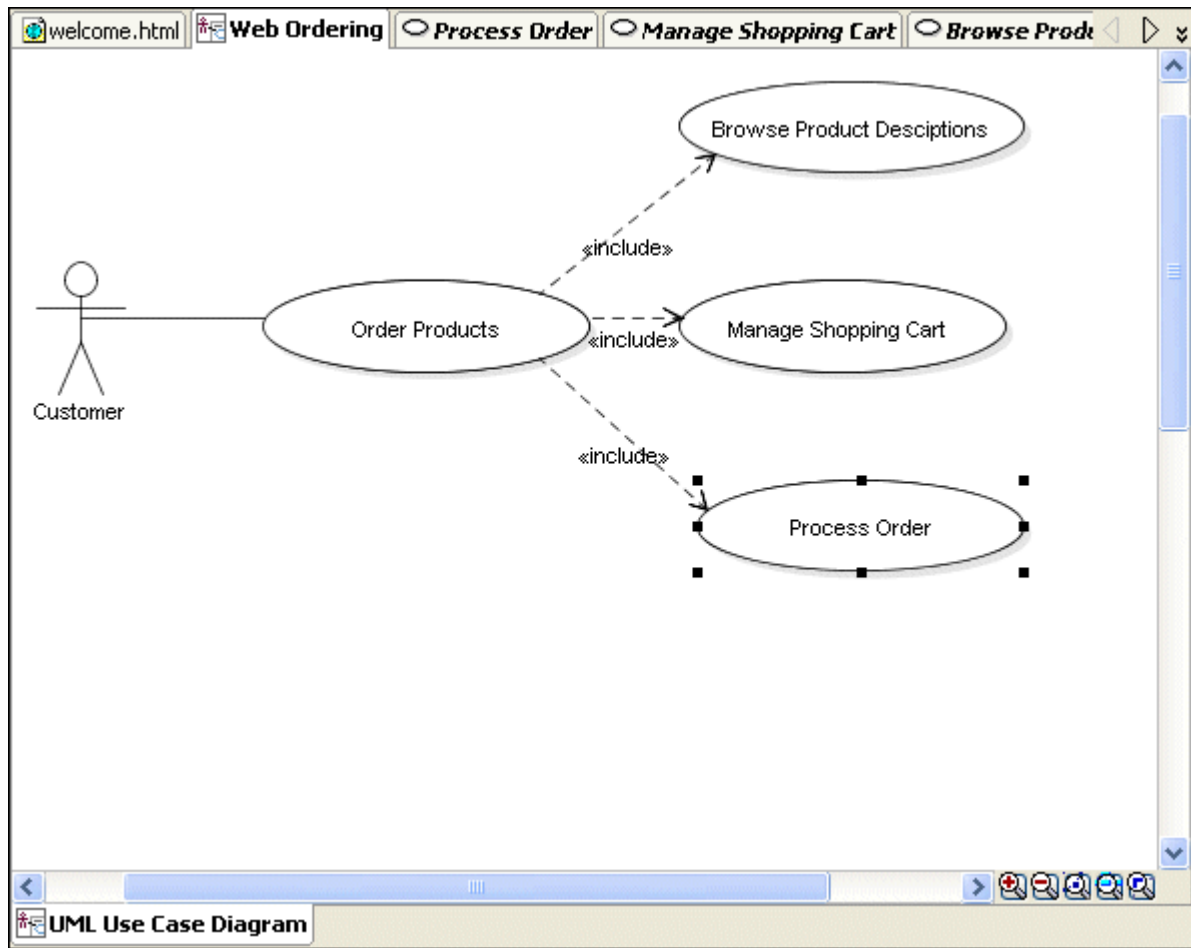
- In the **Postcondition** section, enter the following text for **Minimal Guarantee(s) :**
21. **Credit card information is valid**



- In the **Postcondition** section, enter the following text for **Success Guarantee(s) :**
22. **No products are ordered if the payment cannot be verified**

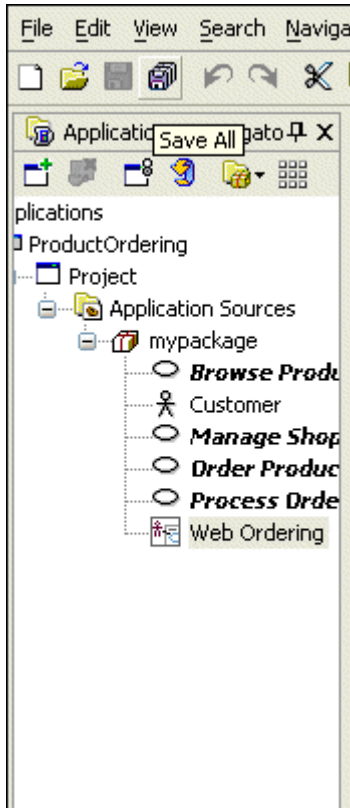


- Open the **Web Ordering** diagram in the diagram.
- 23.



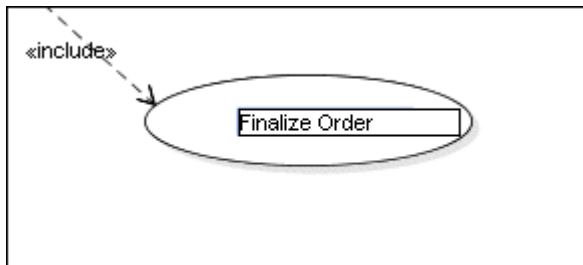
- Choose **File | Save All** to save all your work thus far.

24.



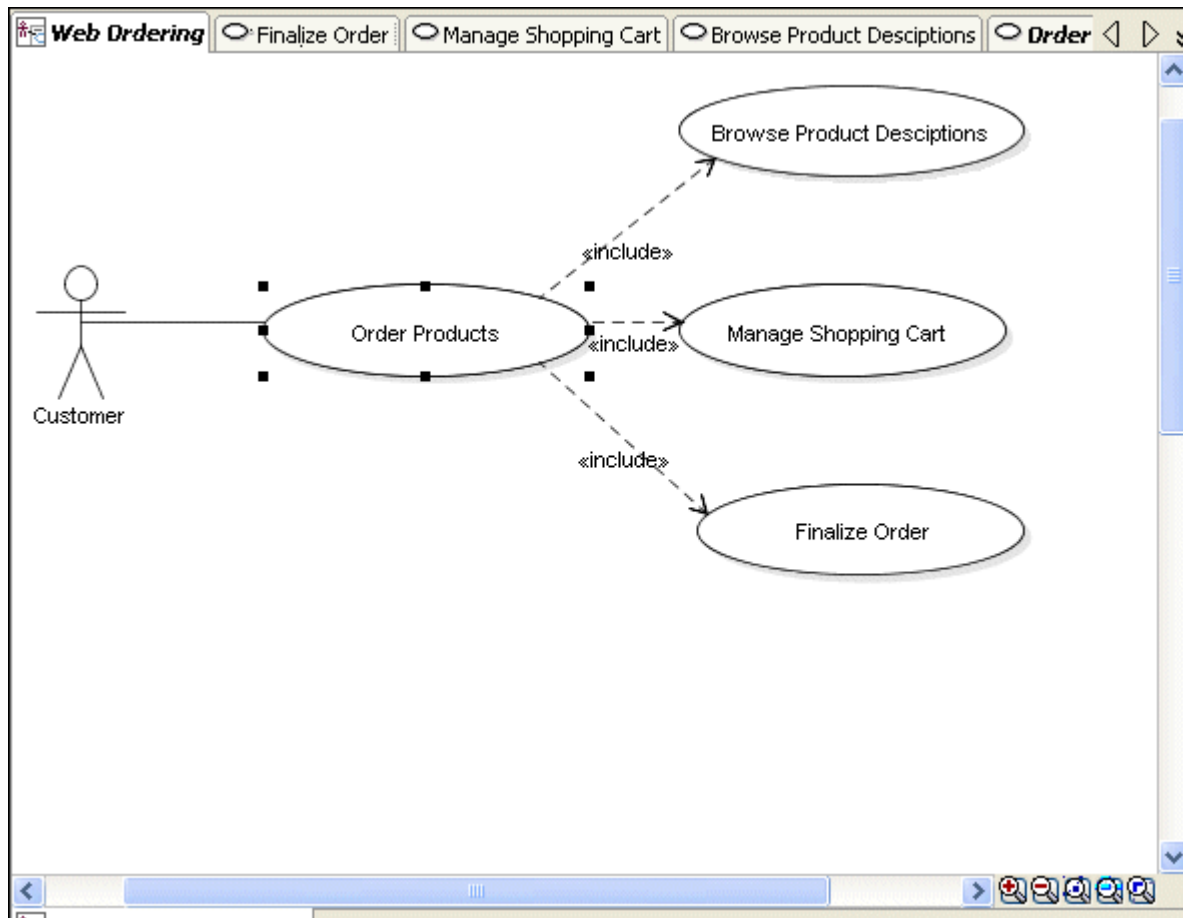
- Select the text for the **Process Order** Use Case and change it to **Finalize Order**.

25.



- Double click the **Order Products** Use Case.

26.



- Note that the **Finalize Order** link in the Scenario section has been changed to the new name.

27.

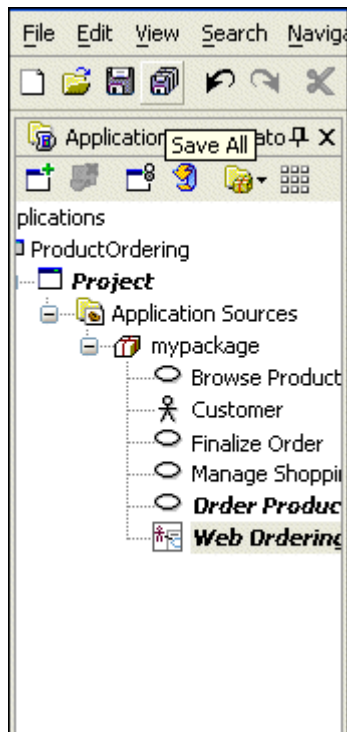
Scenario :

.....
usecase_includes

 .Customer connects to our merchant site home page to order products. The home page
 .displays product categories allowing customer to [Browse Product Descriptions](#) through
 .categories links. The customer may also use a direct link to [Manage Shopping Cart](#)
 .and change quantities or remove a product. When the customer has finished
 .shopping, he can then [Finalize Order](#) to validate the purchase.

- Choose **File | Save All** to save all your work thus far.

28.

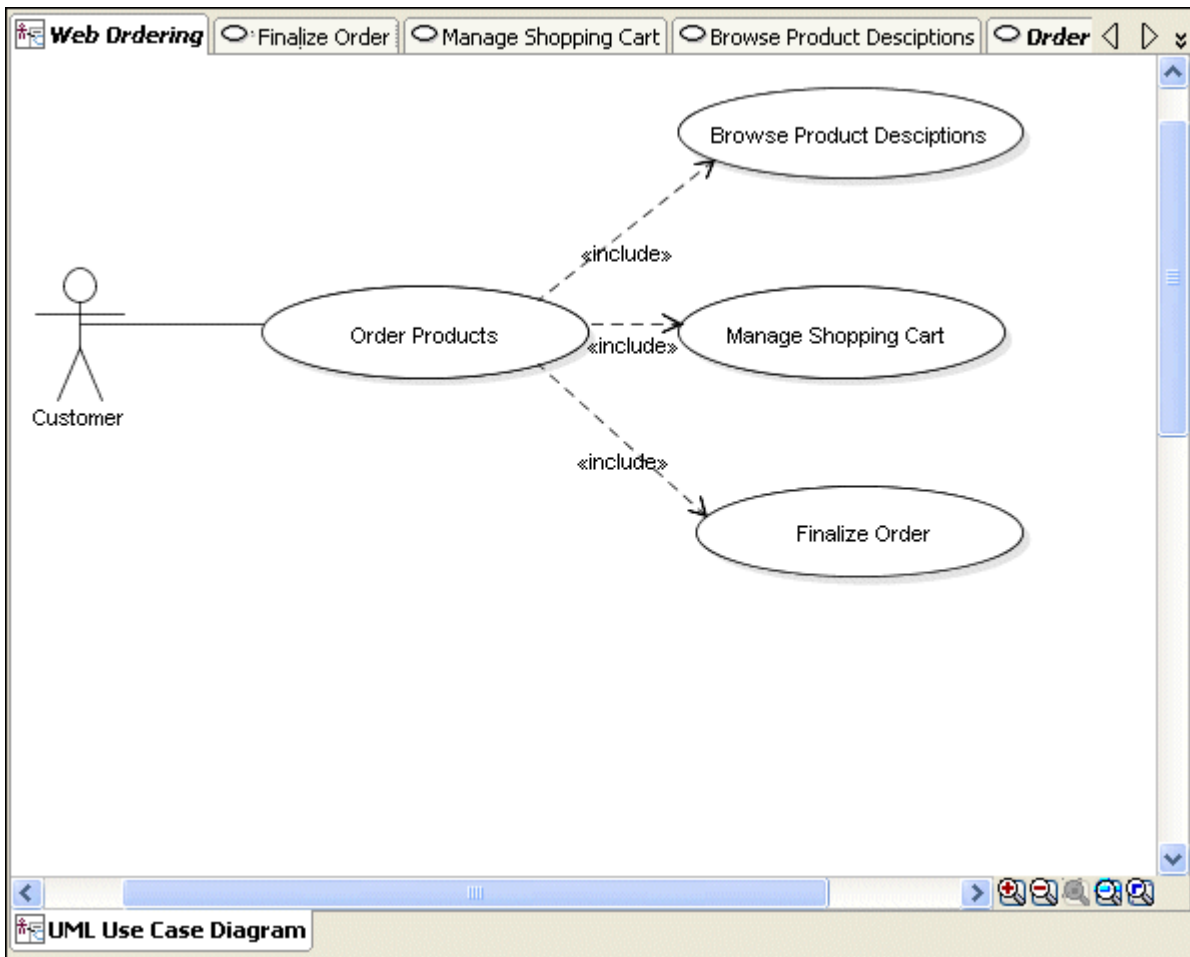


Step 4 - Refine the Use Case diagram

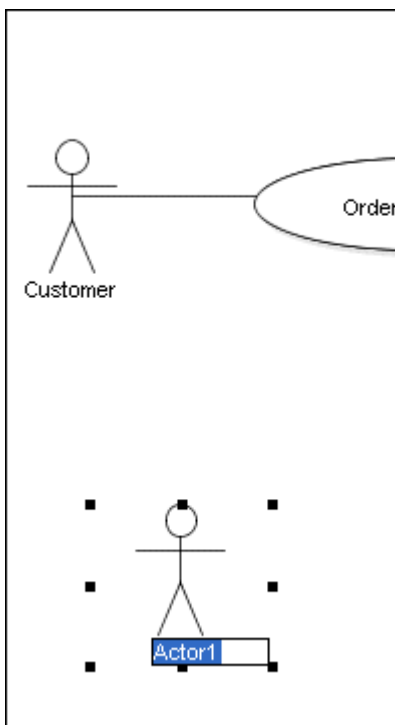
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In the following steps, you use Generalization and Extension to refine the Use Case.

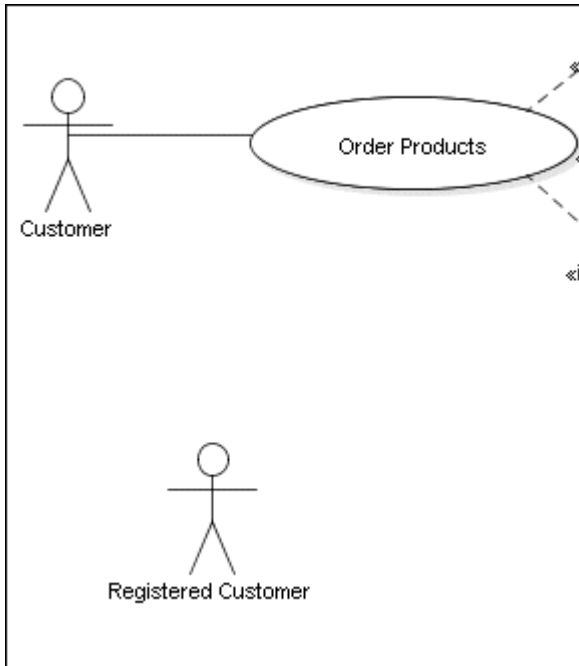
1. Open the **Web Ordering** diagram in the editor.

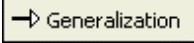


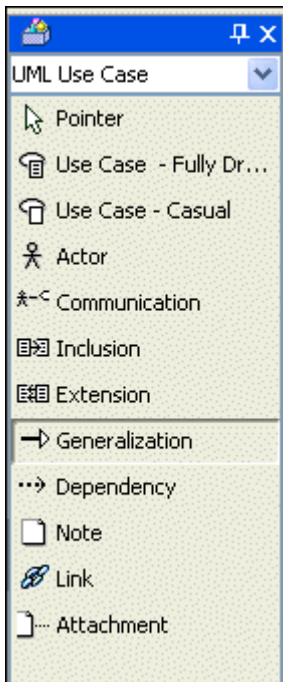
- 2. In the Component Palette, select the **Actor** icon  and click below the already existing **Customer** actor on the diagram.



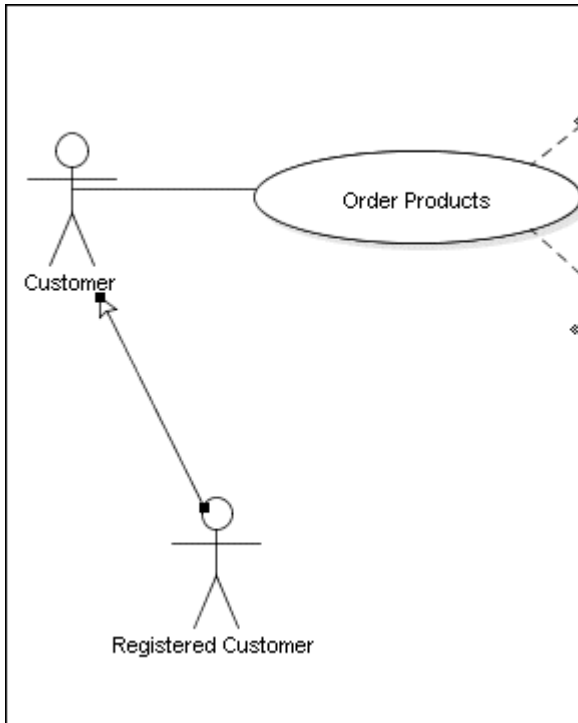
- 3. Rename the new actor **Actor1** to **Registered Customer**.



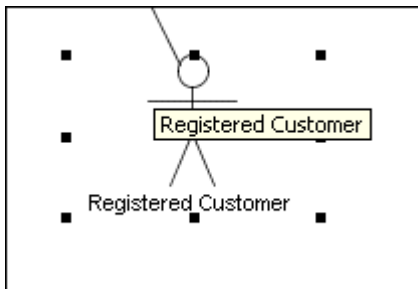
- 4. Select the **Generalization** icon  from the Component Palette.



- 5. Click in the **Registered Customer** silhouette as the source and draw a **Generalization** line toward **Customer**. (Hint: the arrow head of the generalization should be pointing to “**Customer**”, not “**Registered Customer**”).

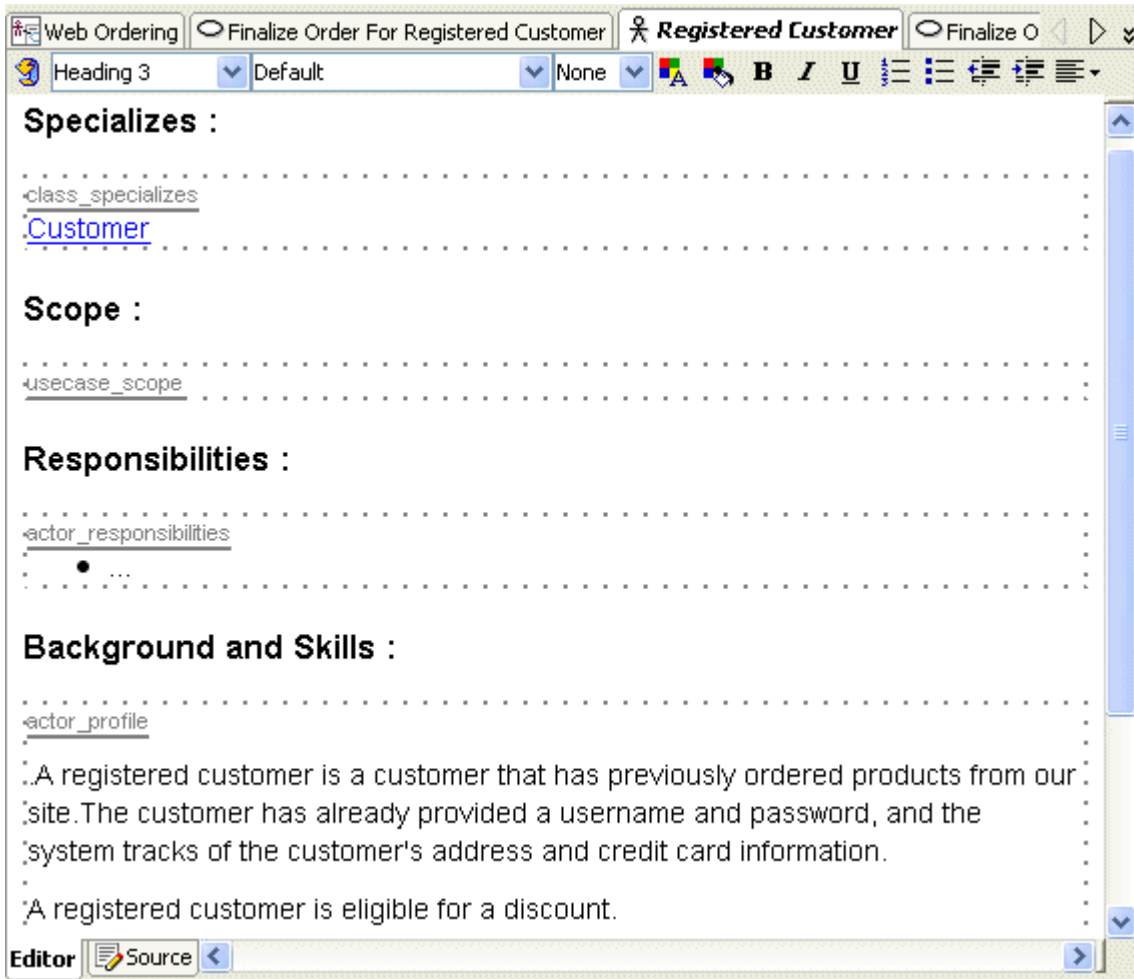


- 6. Double click on the **Registered Customer** silhouette to open its properties.

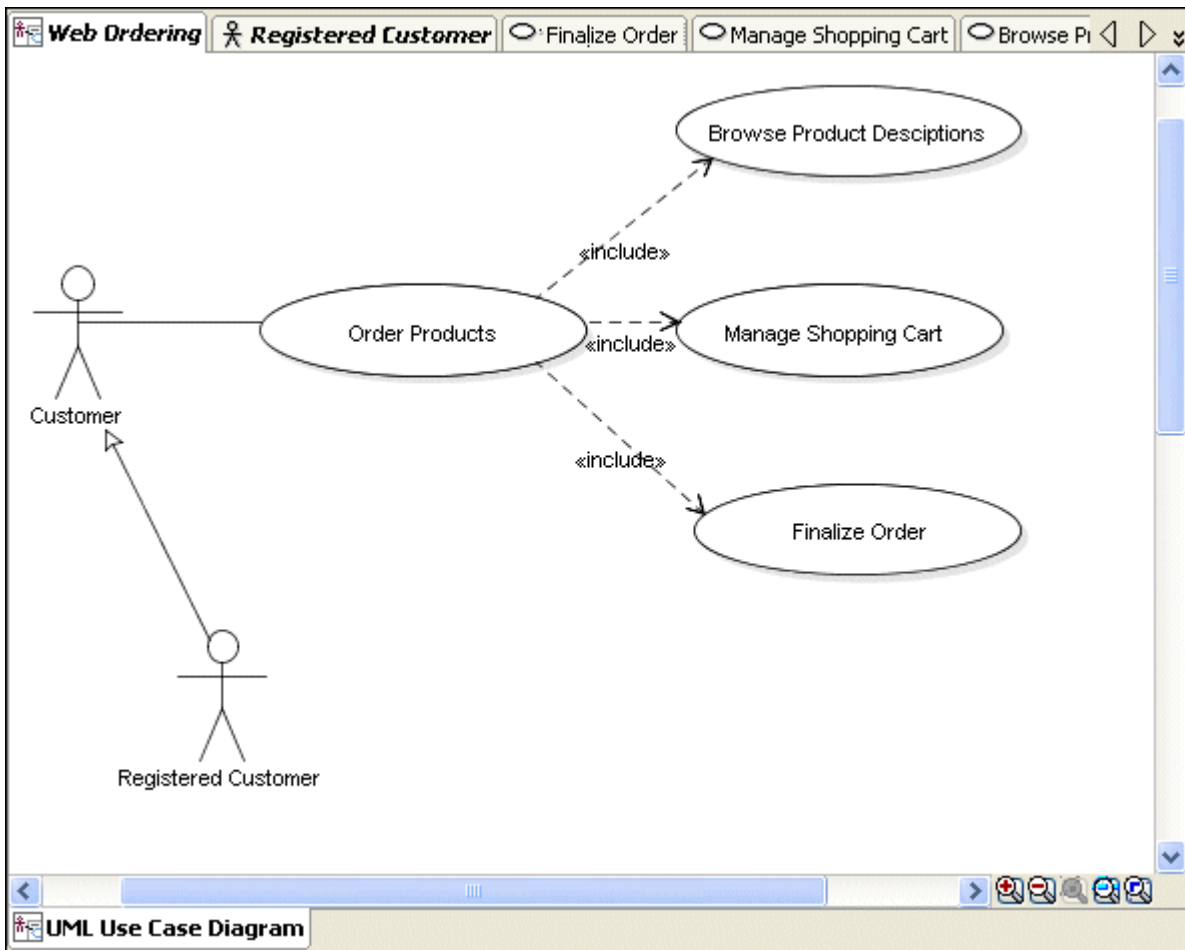


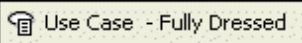
- 7. In the **Background and skills** section below the **actor_profile** reference cut and paste the following text:

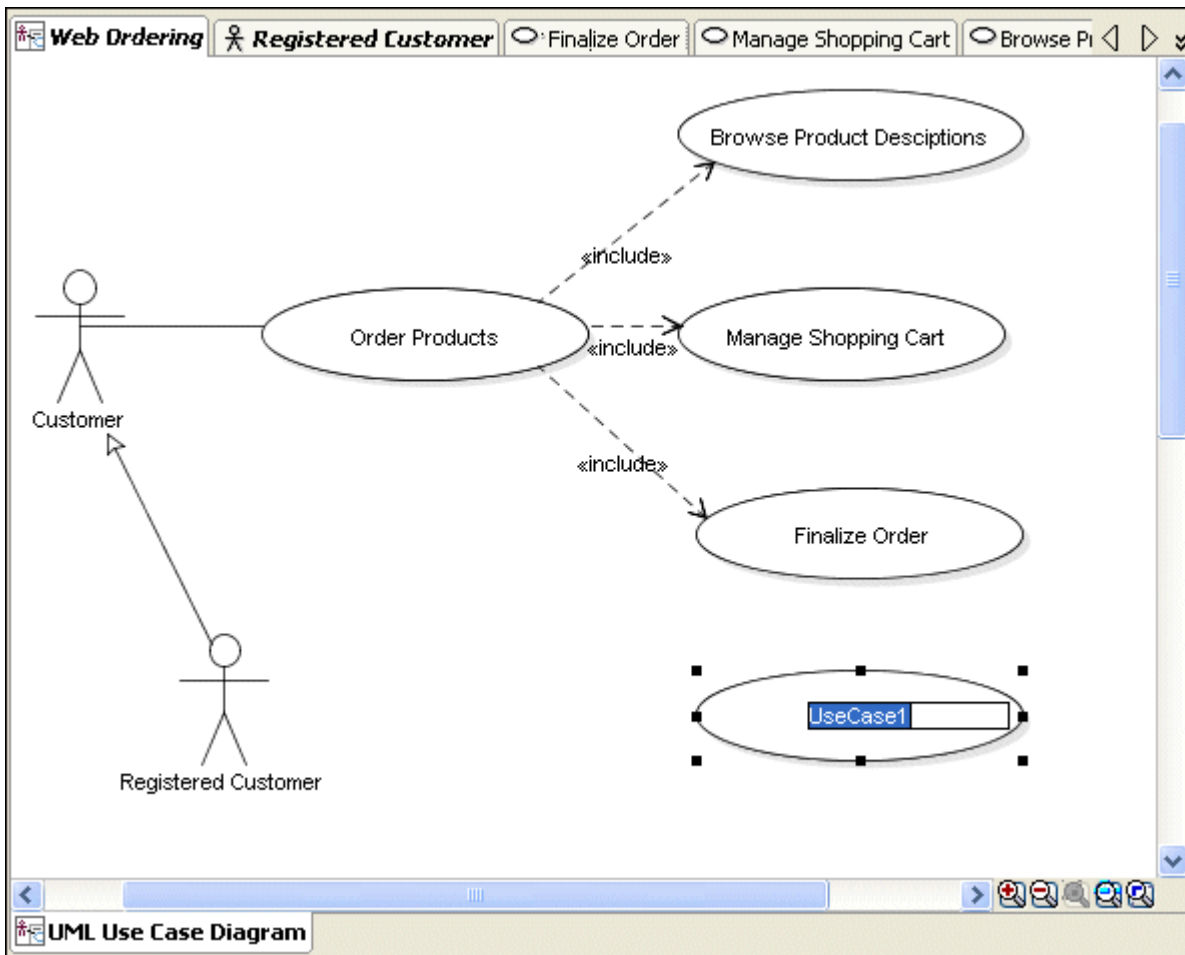
A registered customer is a customer that has previously ordered products from our site. The customer has already provided a username and password, and the system tracks of the customer's address and credit card information.
 A registered customer is eligible for a discount.



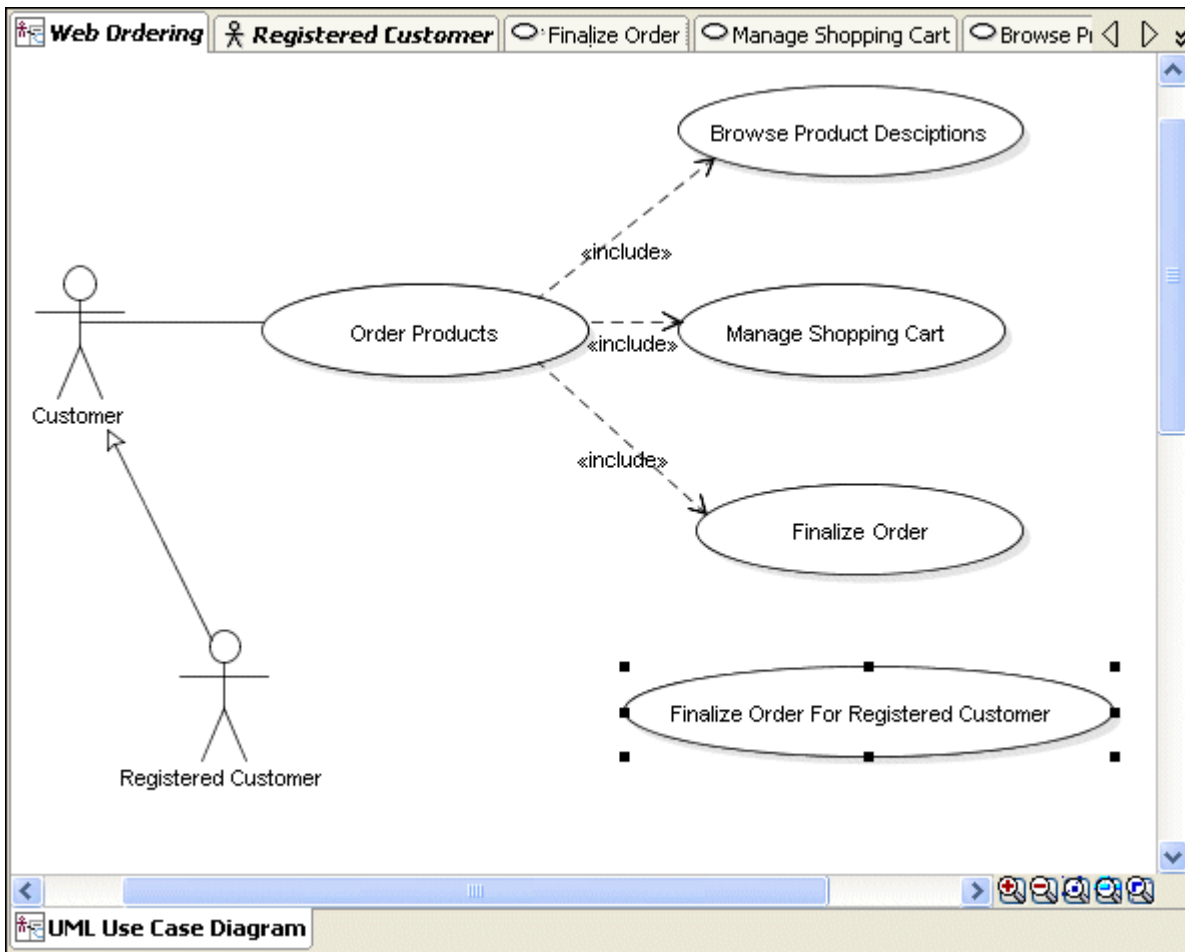
- 8. Open the **Web Ordering** diagram in the editor.

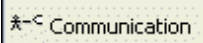


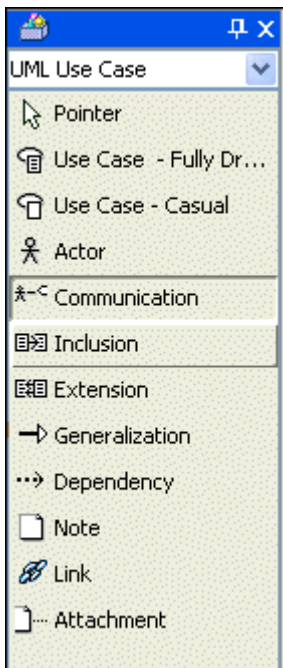
- 9. Select the **Use Case - Fully dressed** icon  from the Component Palette and click in the diagram below the **Finalize Order** Use Case.



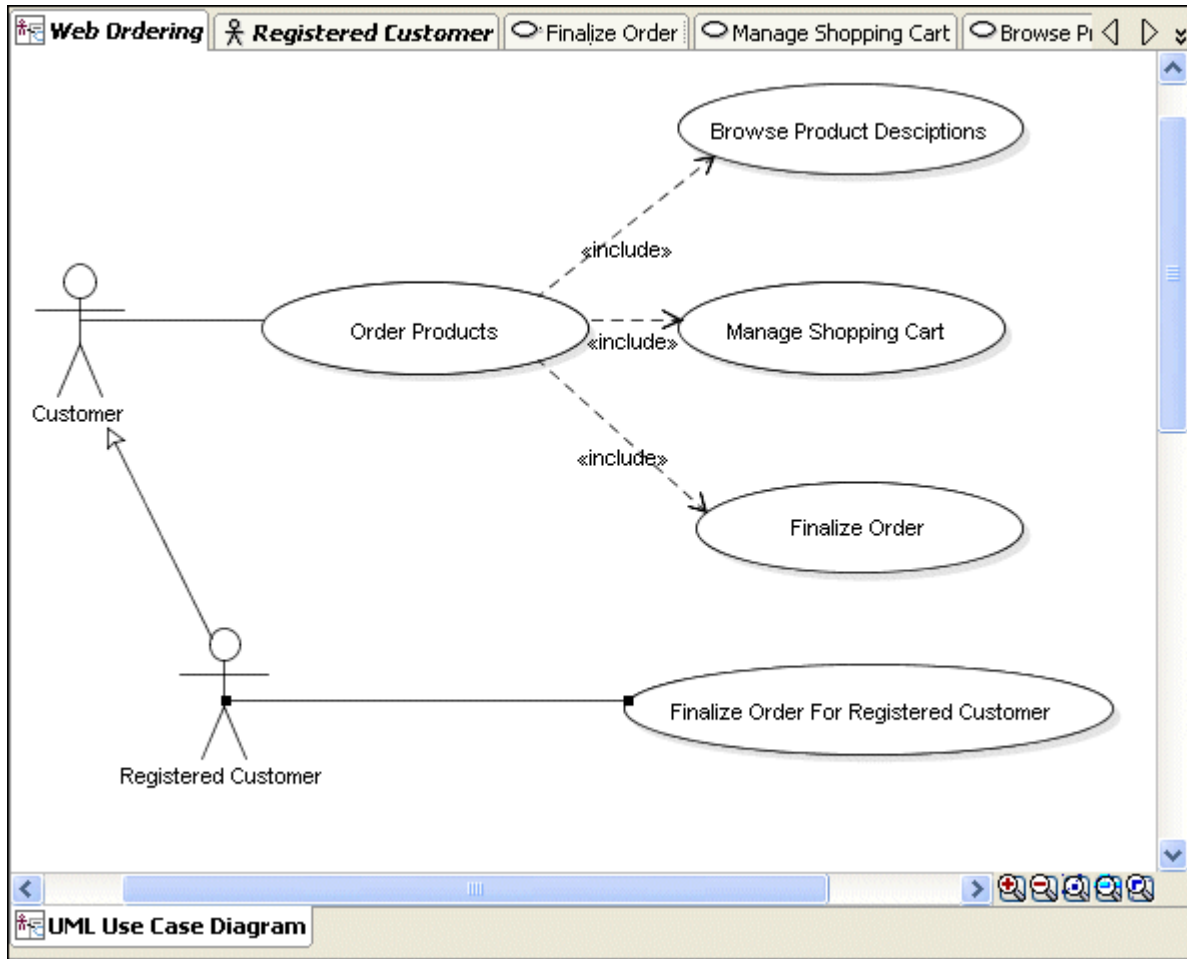
- 10 Change the **UseCase1** name to **Finalize Order For Registered Customer**.

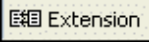


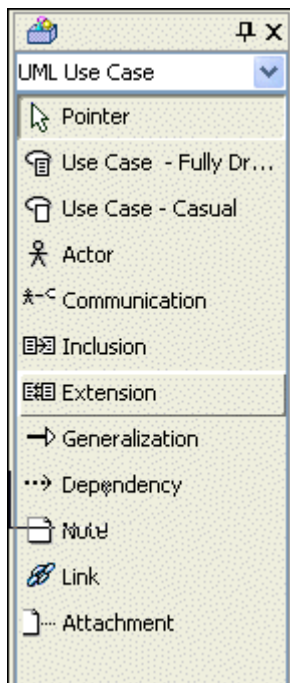
11. Select the **Communication** icon  in the Component Palette



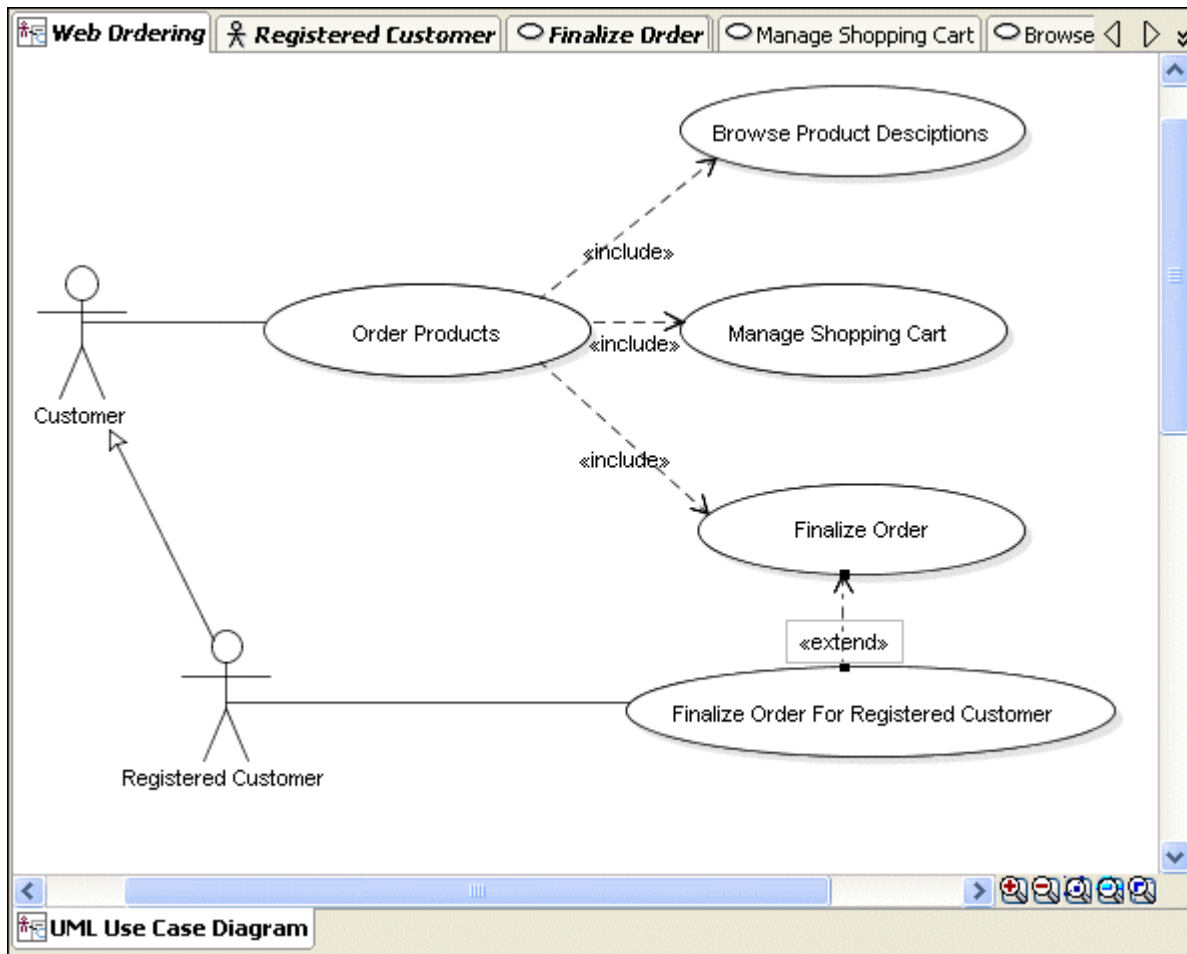
- Click in the **Registered Customer** silhouette as the source and draw a **communication** line toward **Finalize Order For Registered Customer**.
- 12.



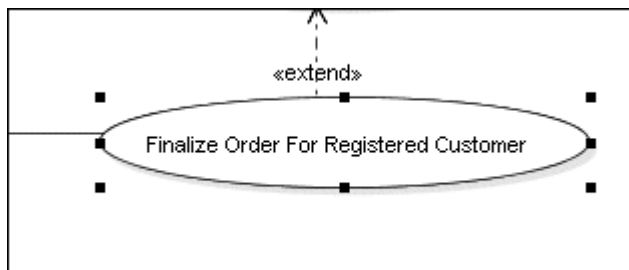
- Select the **Extension** icon  in the Component Palette.
- 13.



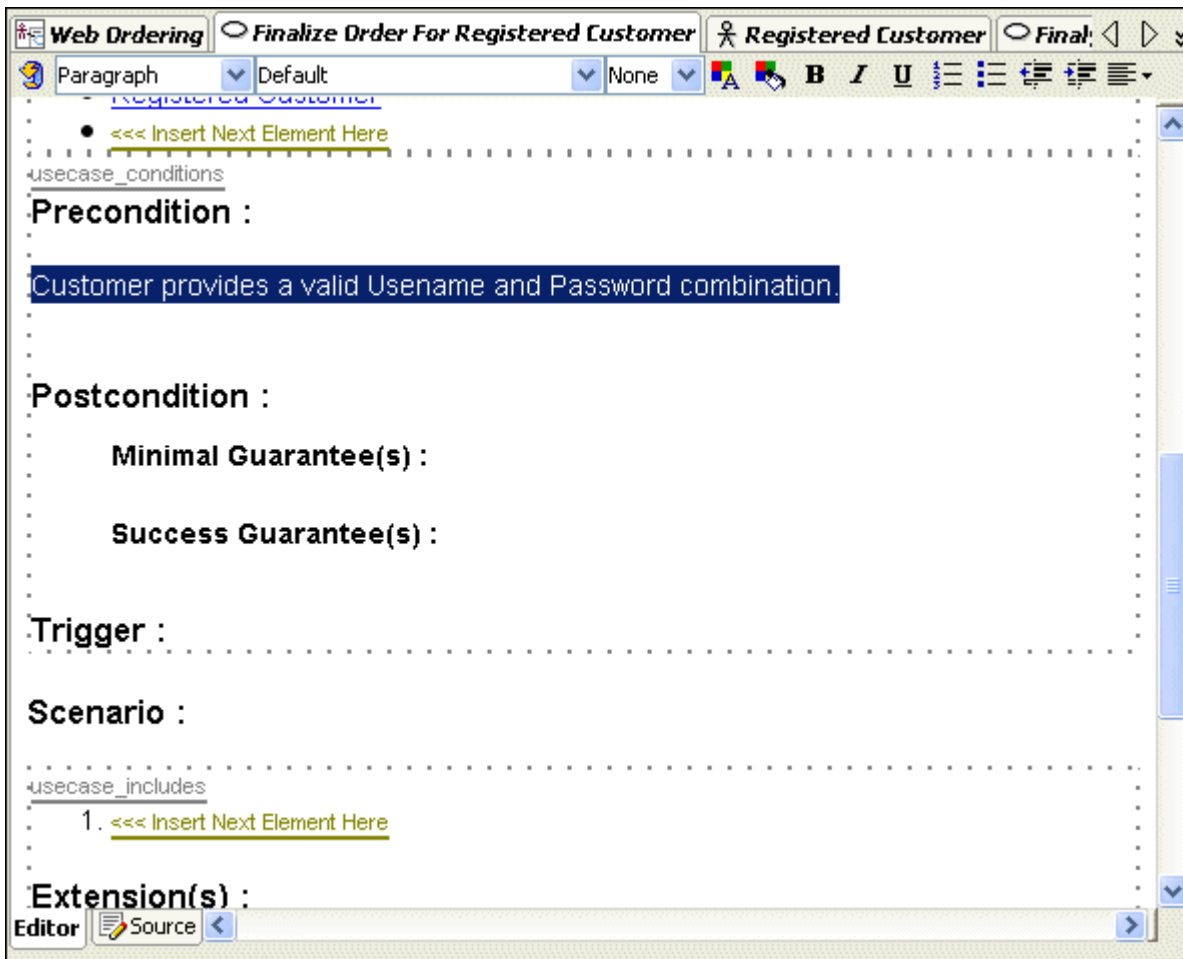
- 14. Click in the **Finalize Order For Registered Customer** Use Case and draw an **Extension** line toward the **Finalize Order** Use Case. (Hint: the arrow head of the extension should be pointing to “ finalize order”, not “ Finalize Order For Registered Customer”).



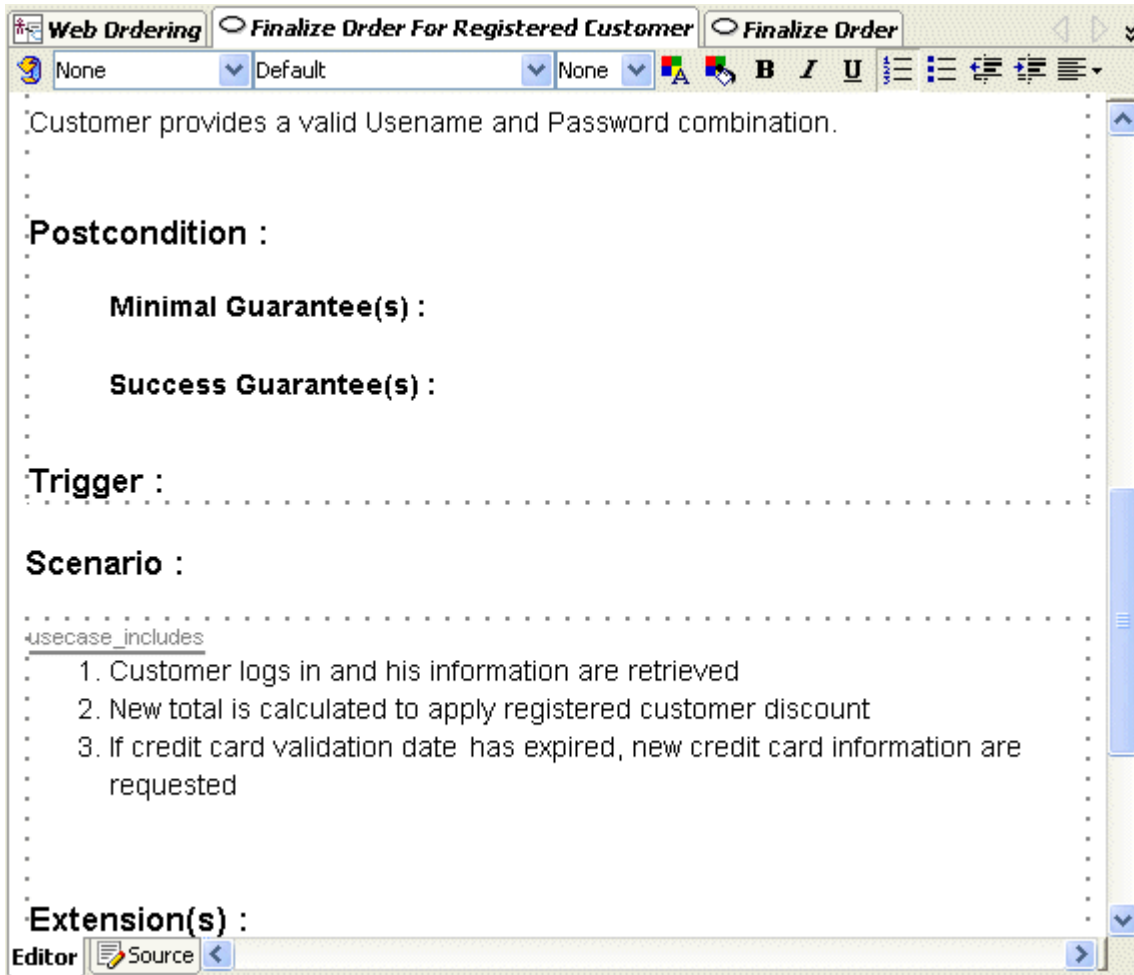
- 15. Double click the **Finalize Order For Registered Customer** Use Case to display its properties.



- 16. In the **Precondition** enter the following text and set the block format to "paragraph":
Customer provides a valid Username and Password combination.

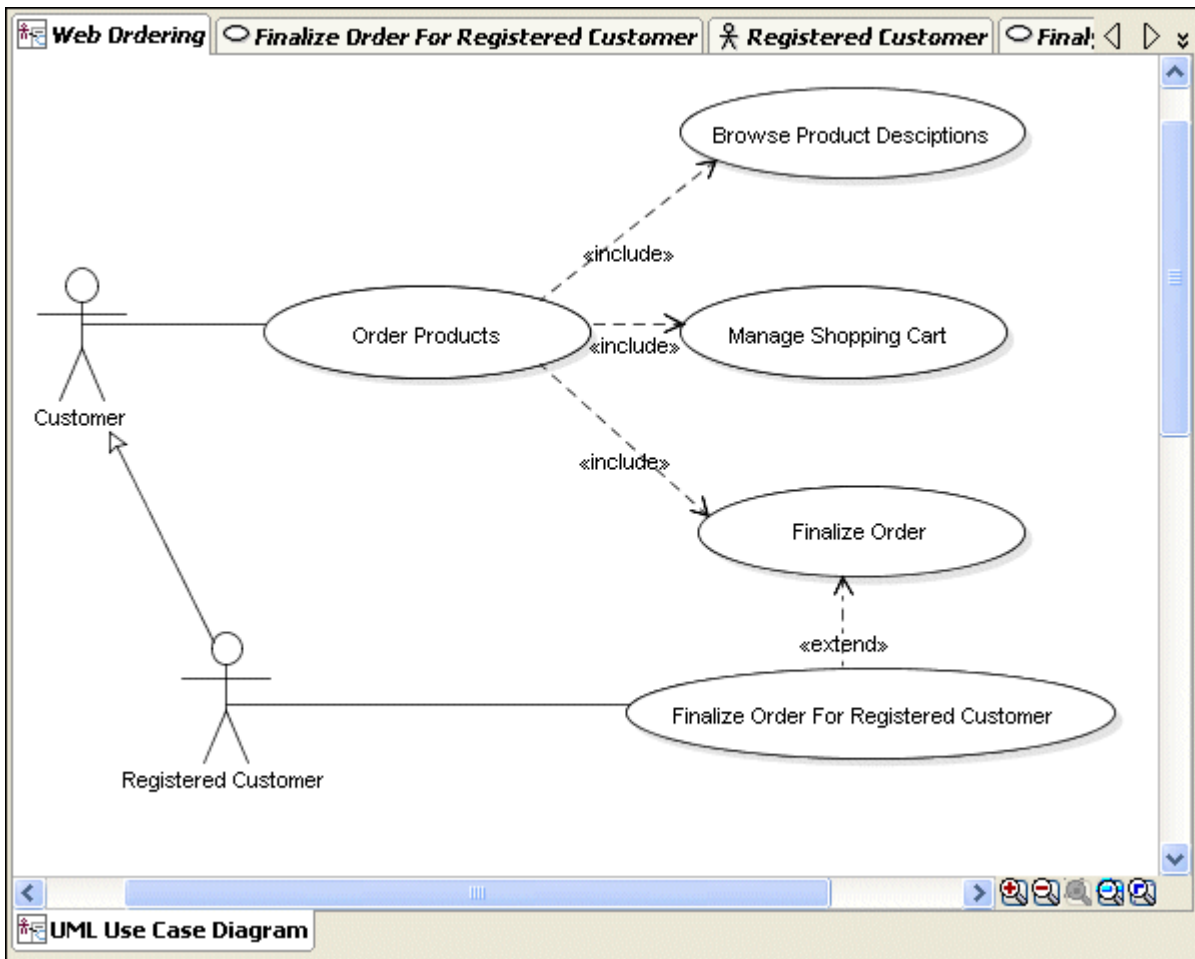



- In the **Scenario** section, select the <<< **Insert Next Element Here** message, delete it and add the following text:
- 17.
1. **Customer logs in and his information are retrieved**
 2. **New total is calculated to apply registered customer discount**
 3. **If credit card validation date has expired, new credit card information is requested**

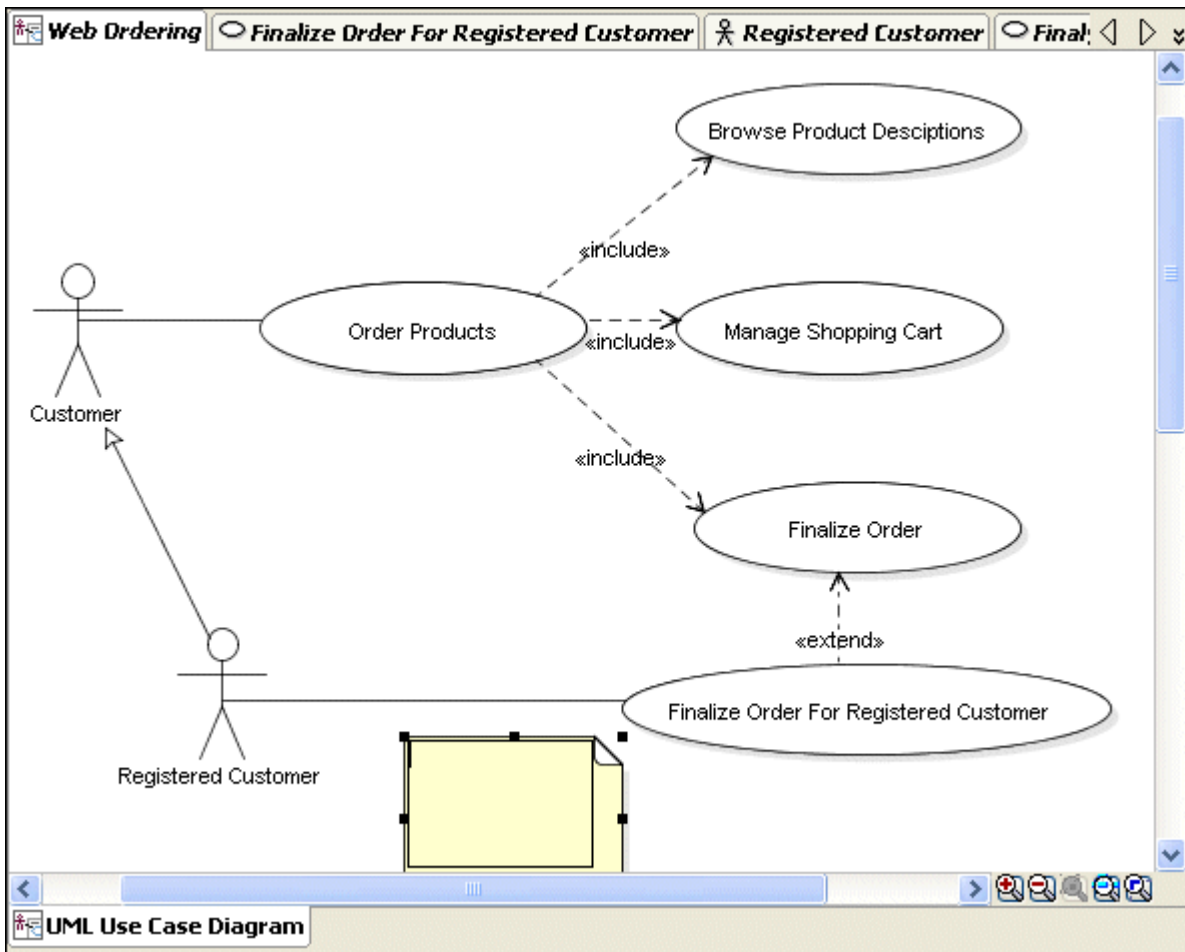


- Open the **Web Ordering** diagram in the editor.

18.

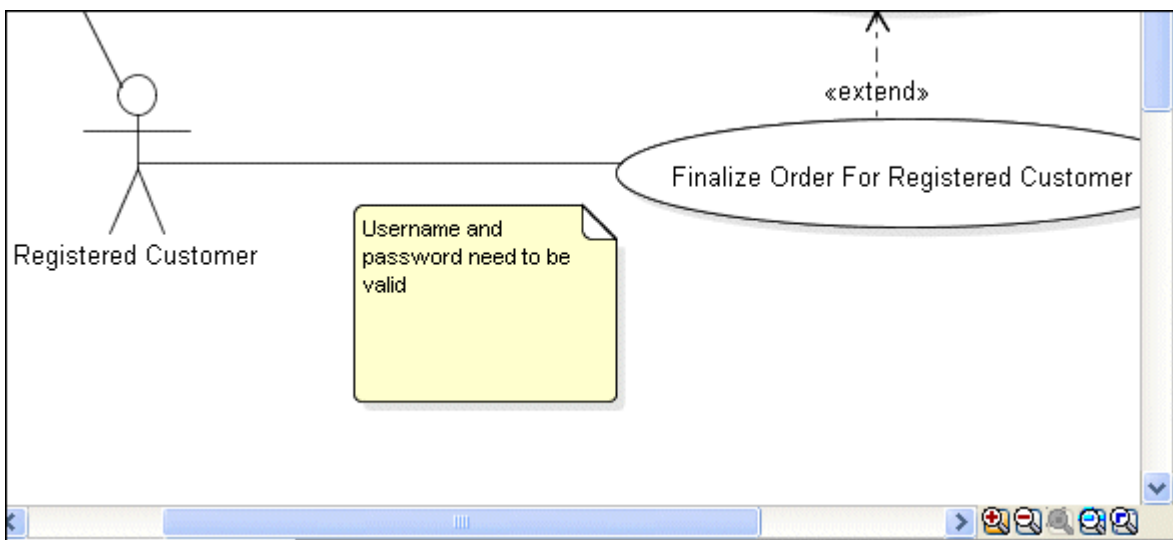



19. Select the **Note** icon  and click on the diagram below the **Registered Customer**.

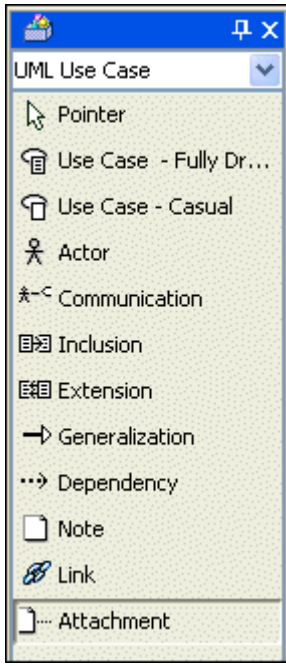


- In the text area enter the following text:

20. **Username and password need to be valid.**

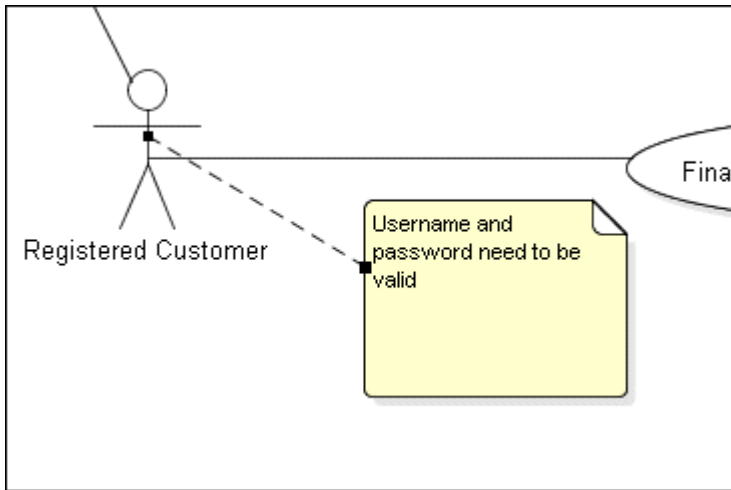


- Select the **Attachment** icon  in the Component Palette.



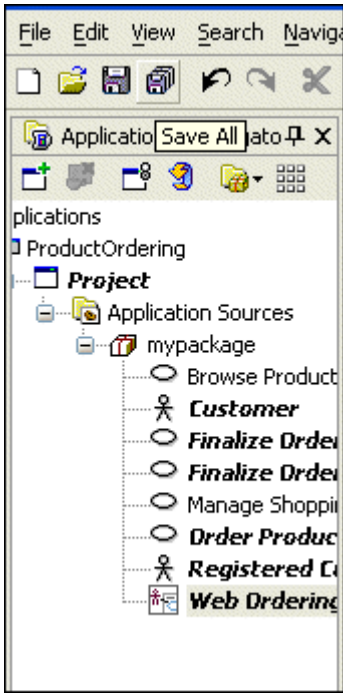
- Draw a line from the note to **Registered Customer**.

22.



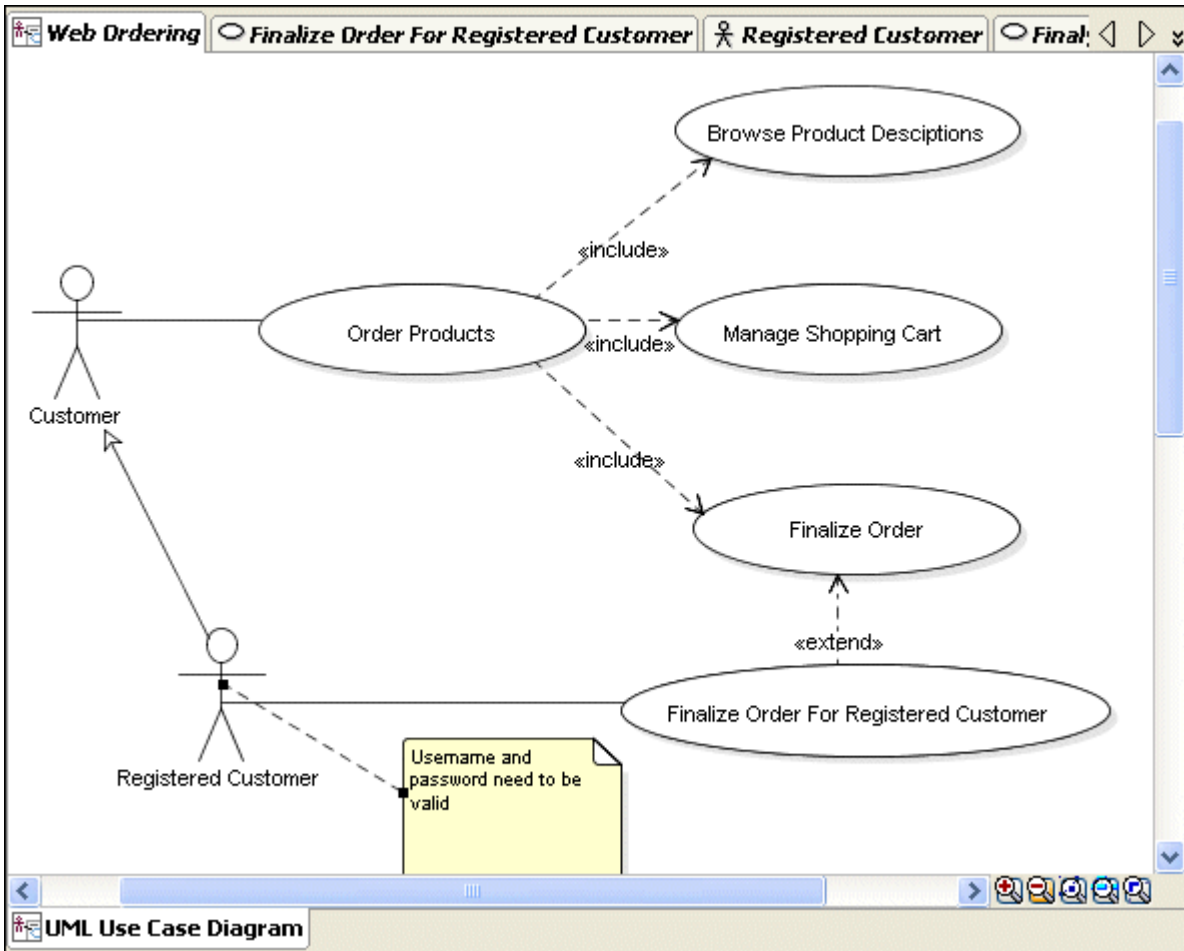
- Choose **File | Save All** to save all your work thus far.

23.



□ Your diagram should now look like this:

24.



Step 5 - Generate Java Doc for the Use Case

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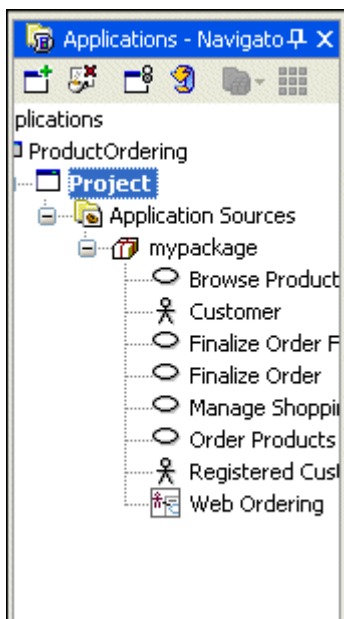
In the following steps, you generate the documentation for the use case.

- [Generate documentation and display it in JDeveloper](#)
- [Display documentation in a browser](#)

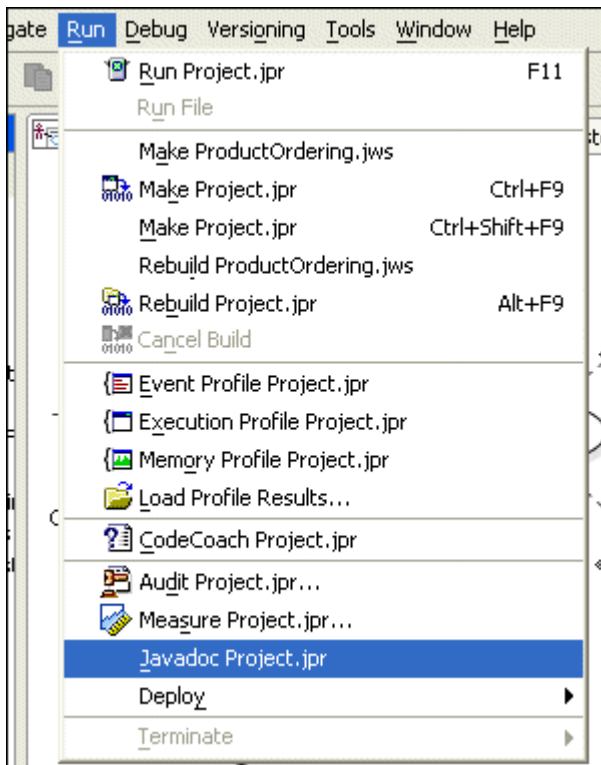
Generate documentation and display it in JDeveloper

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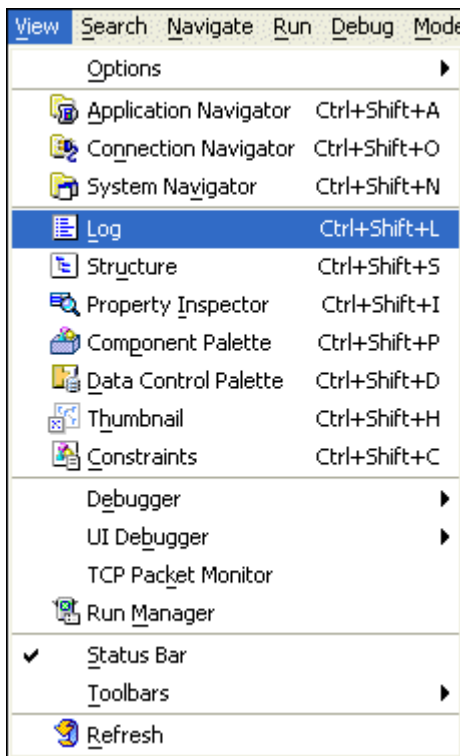
1. In the Applications Navigator, select the **Project** node.



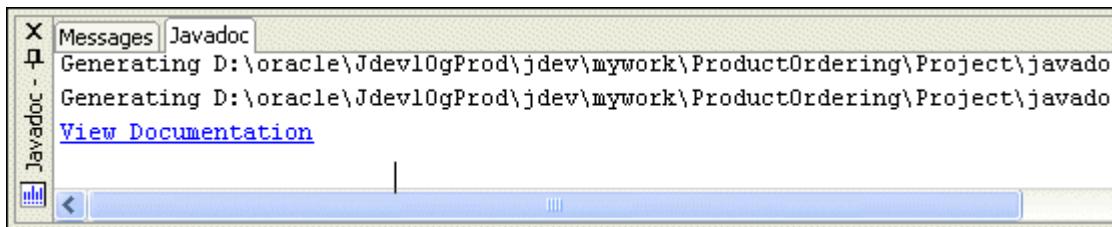
2. From the menu, select **Run | Javadoc Project.jpr** option.



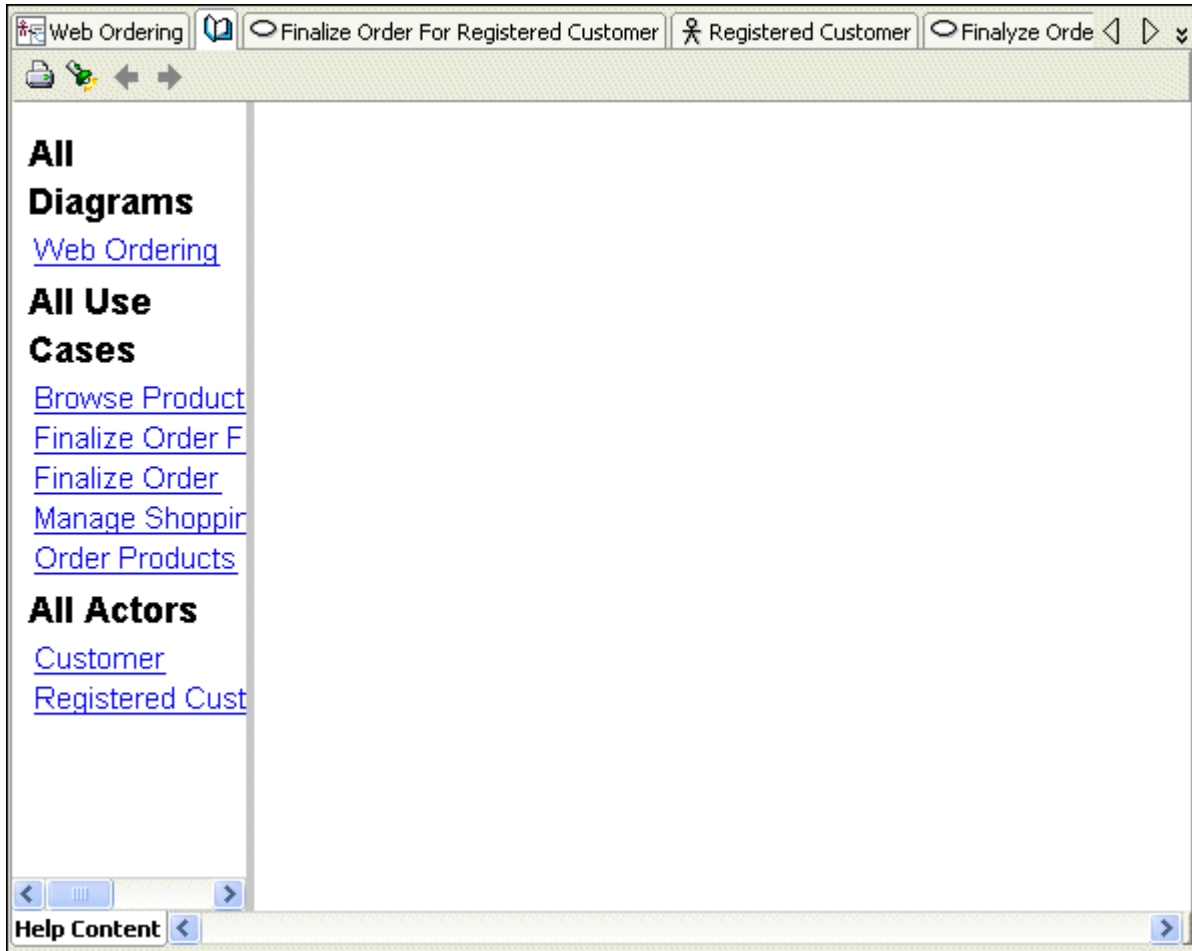
- 3. Open the log window **View | Log**.



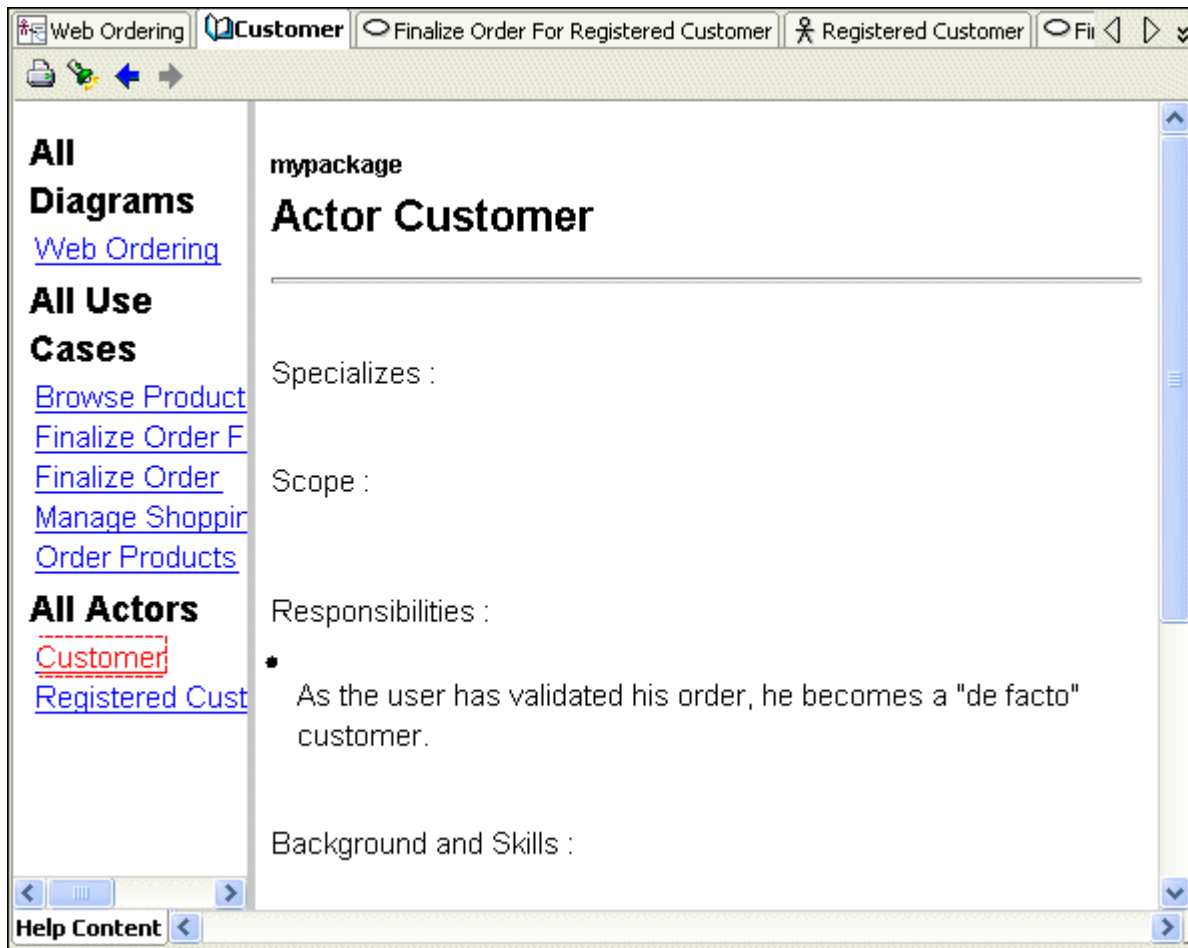
- 4. Select the **Javadoc** tab in the Log window and Click on the **View Documentation** hyperlink.



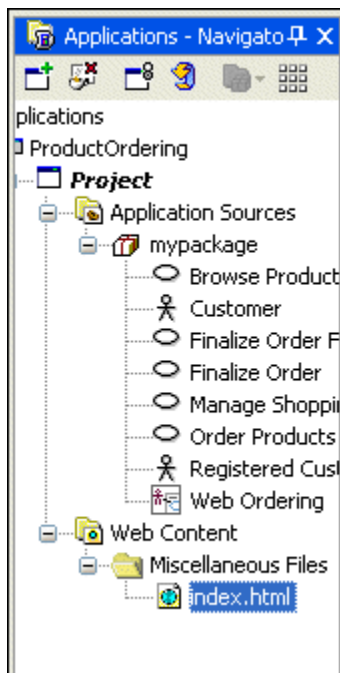
- 5. The editor window has navigation links generated for each component in the diagram sorted by categories.



- 6. Click on the various links to display the full properties of a component.



- 7. Notice that a new file named index.html has been generated and appears in the Applications Navigator.

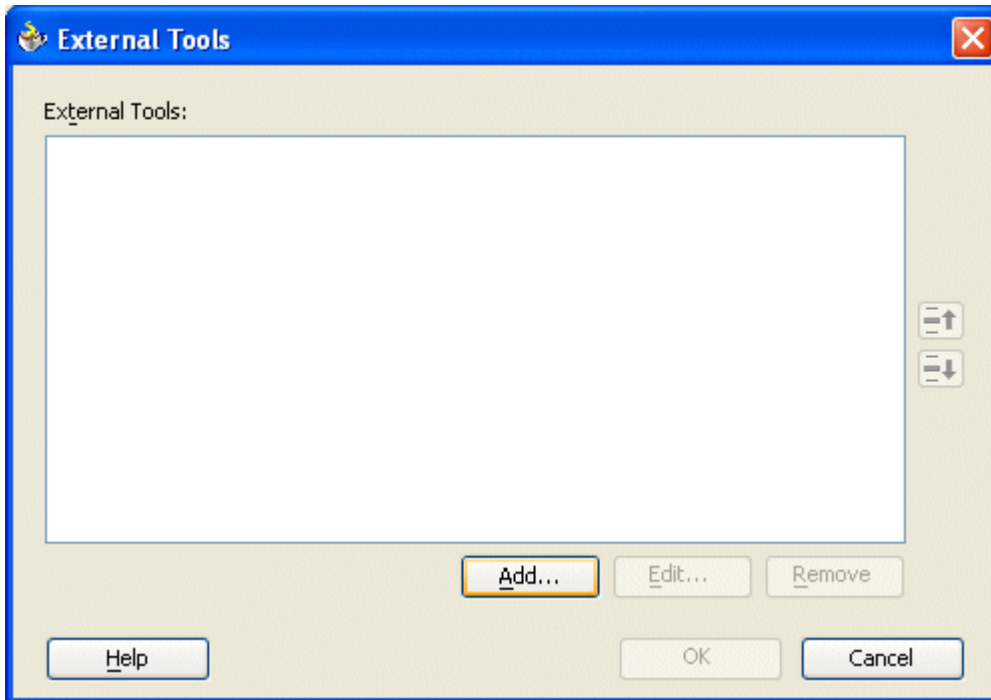


Display Use Case documentation in a Browser

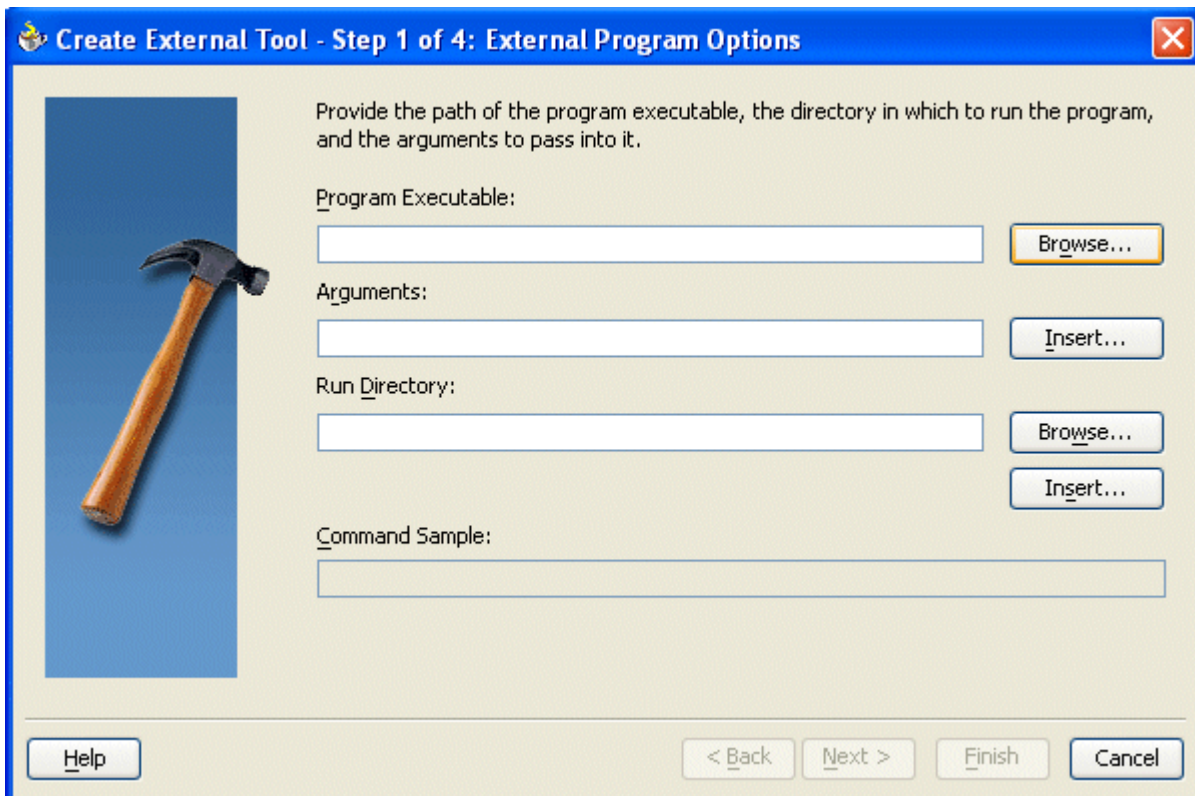
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To complete the following steps, you need to add your browser as a plug in to your JDeveloper environment. The following example illustrates the use of Internet Explorer as the Browser tool.

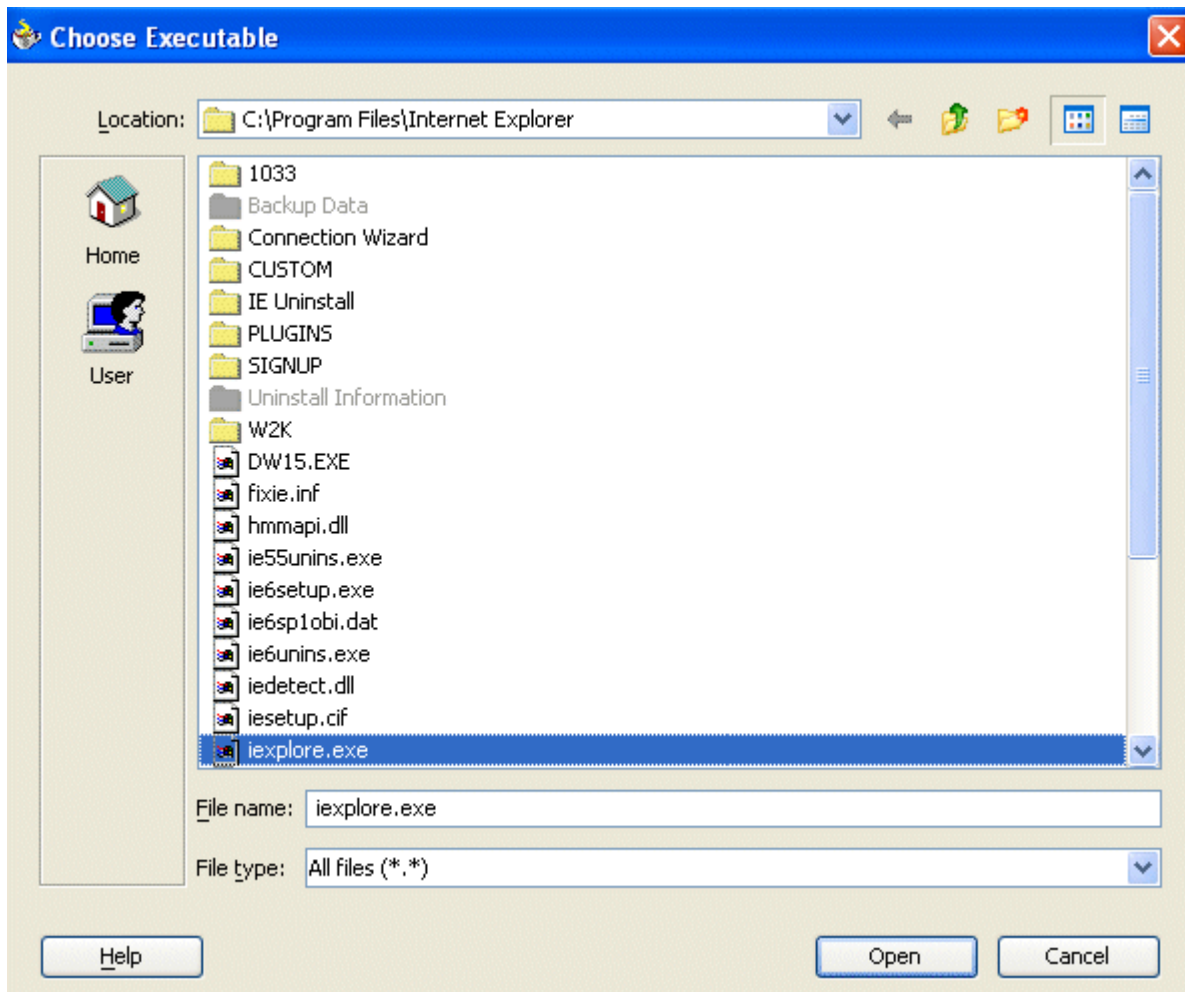
- 1. In the menu select **Tools | External tools...**, and click **Add** in the dialog.



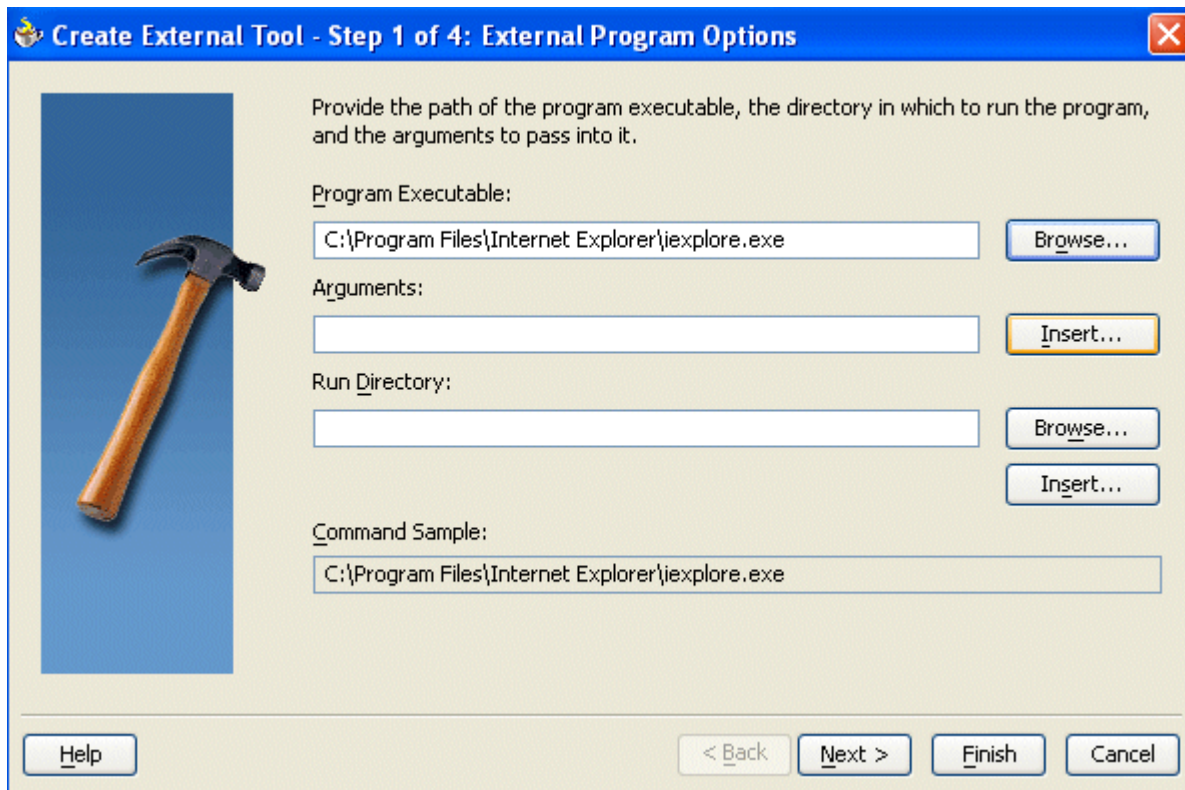
- 2. In the Create External Tools dialog click **Browse** next to the **Program Executable** field.



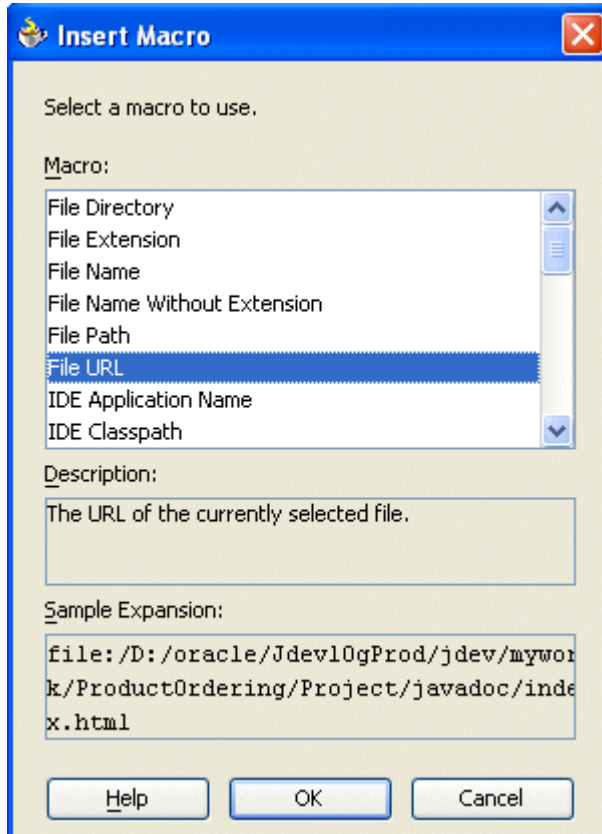
- 3. Locate the browser executable in your directory structure, and click **Open**.



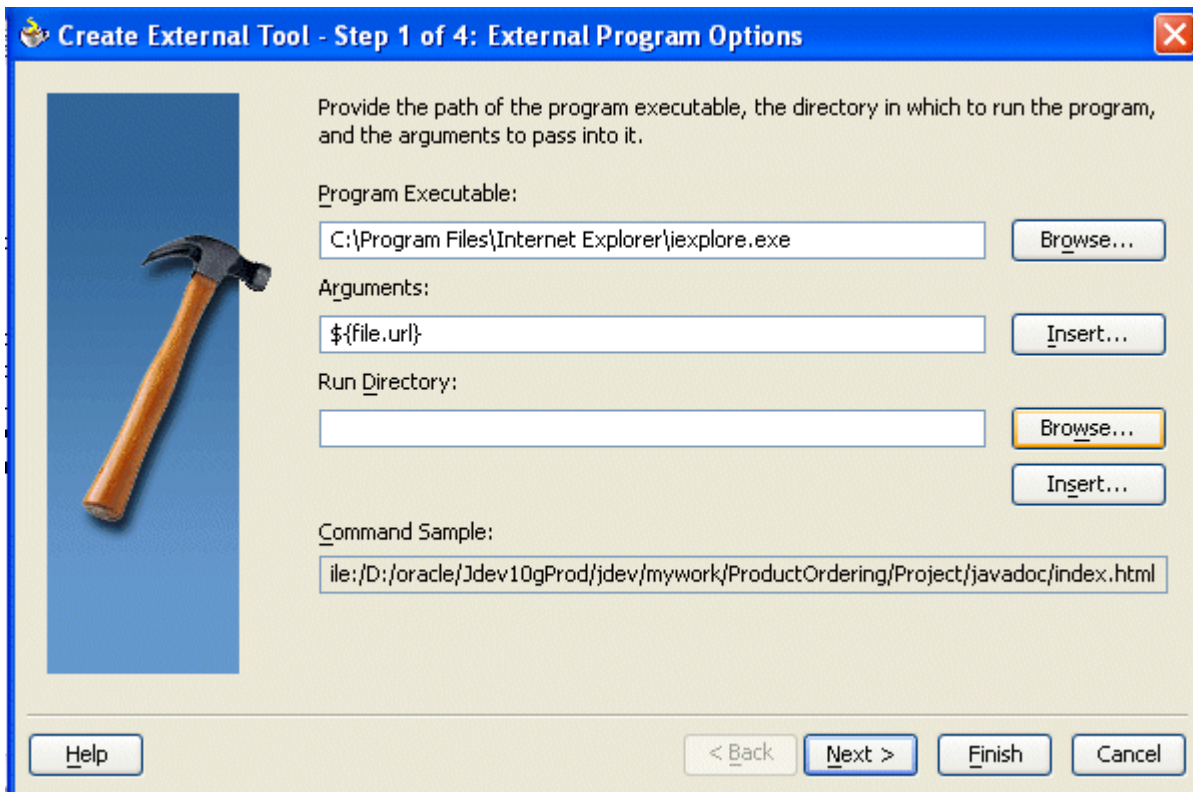
- 4. Click **Insert** next to the **Arguments** field.



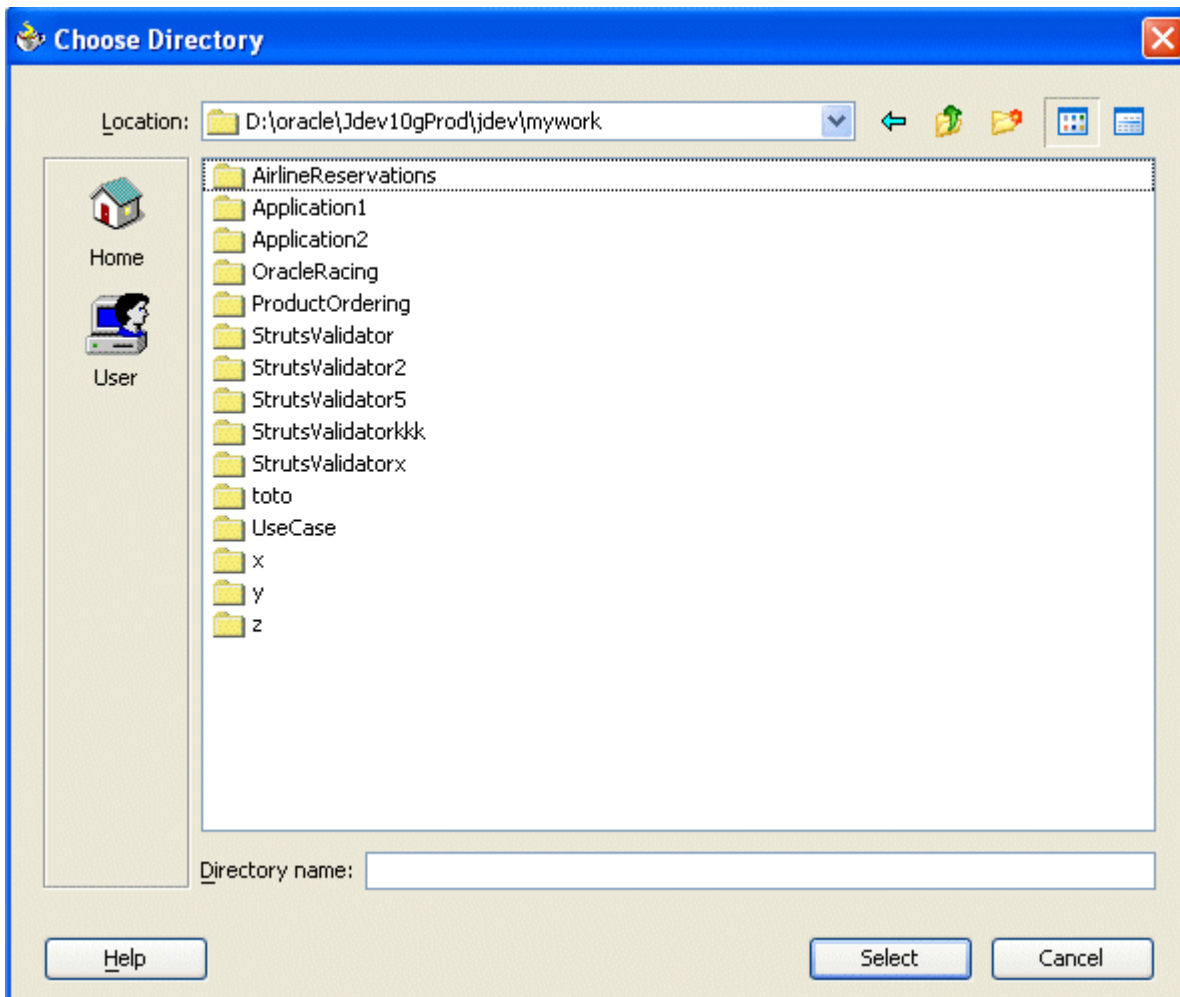
- 5. Select **File URL** from the list, and click **OK**.



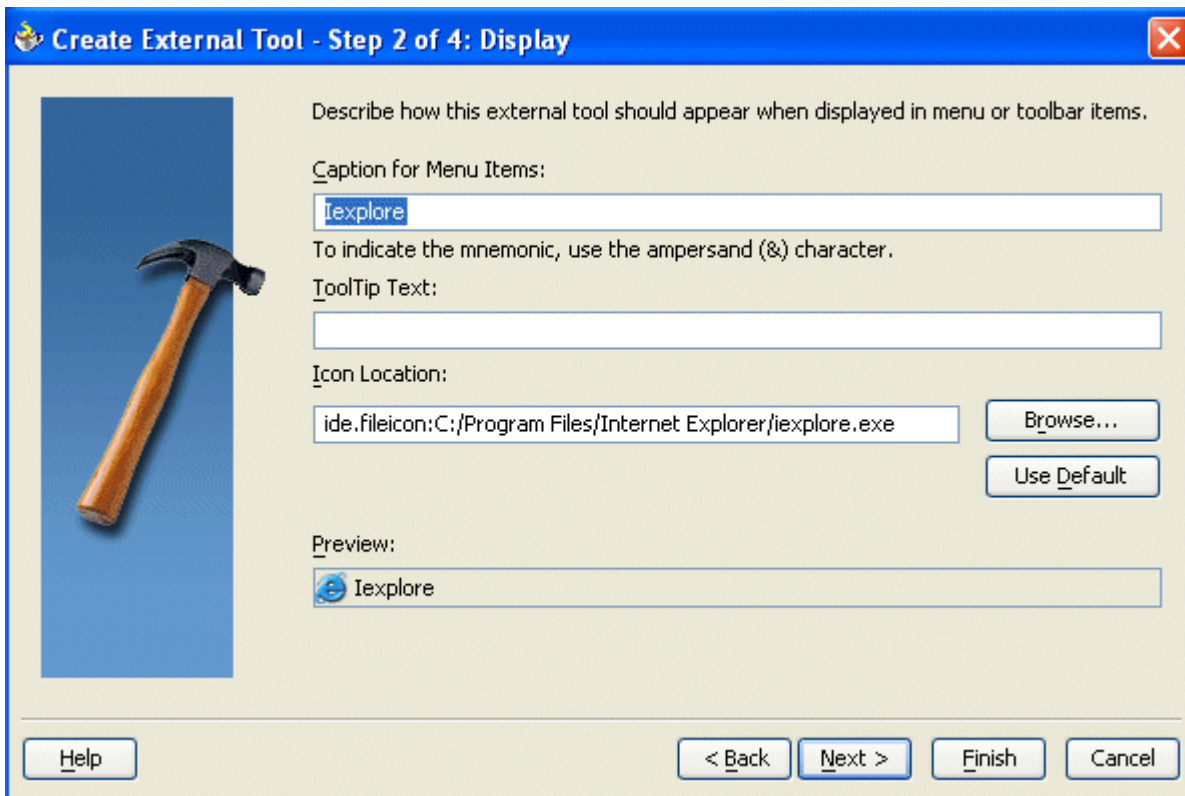
- 6. Click **Browse** button next to the **Run Directory** field.



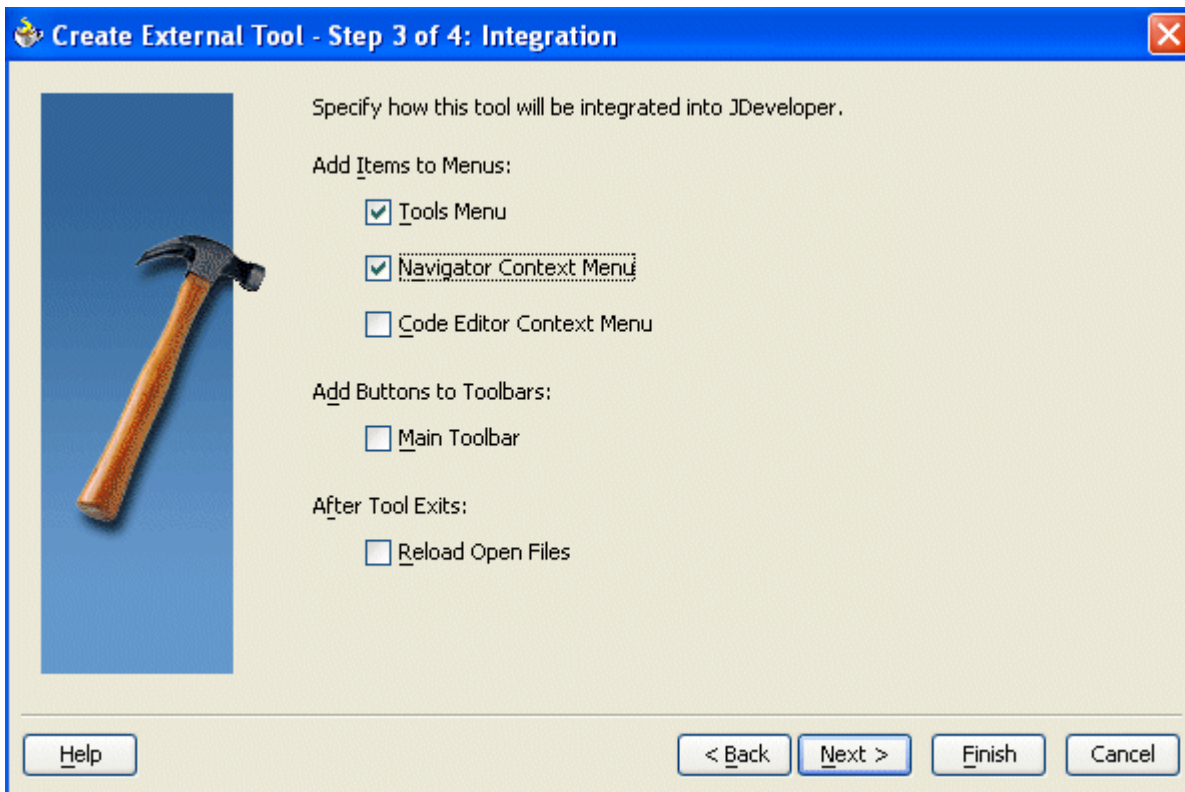
- 7. In the **Choose directory** dialog, select { **jdev_home** } \ **jdev\mywork** and click **Select**.



- 8. Click **Next** to display **Step 2** of the wizard. This step doesn't require any change. Click **Next** again.



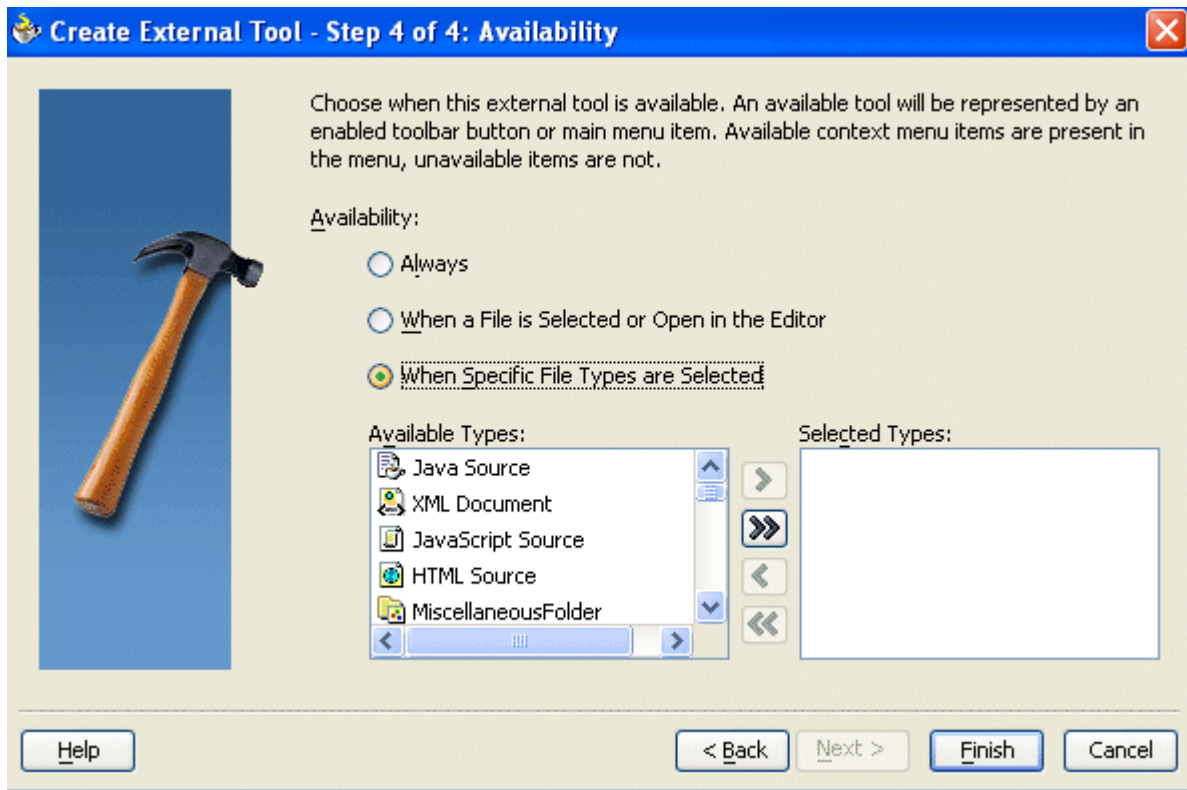
- 9. In Step 3 of the wizard, select **Navigator Context Menu**.



Click **Next**.

- In Step 4 of the wizard, select the **When Specific File types are Selected** option.

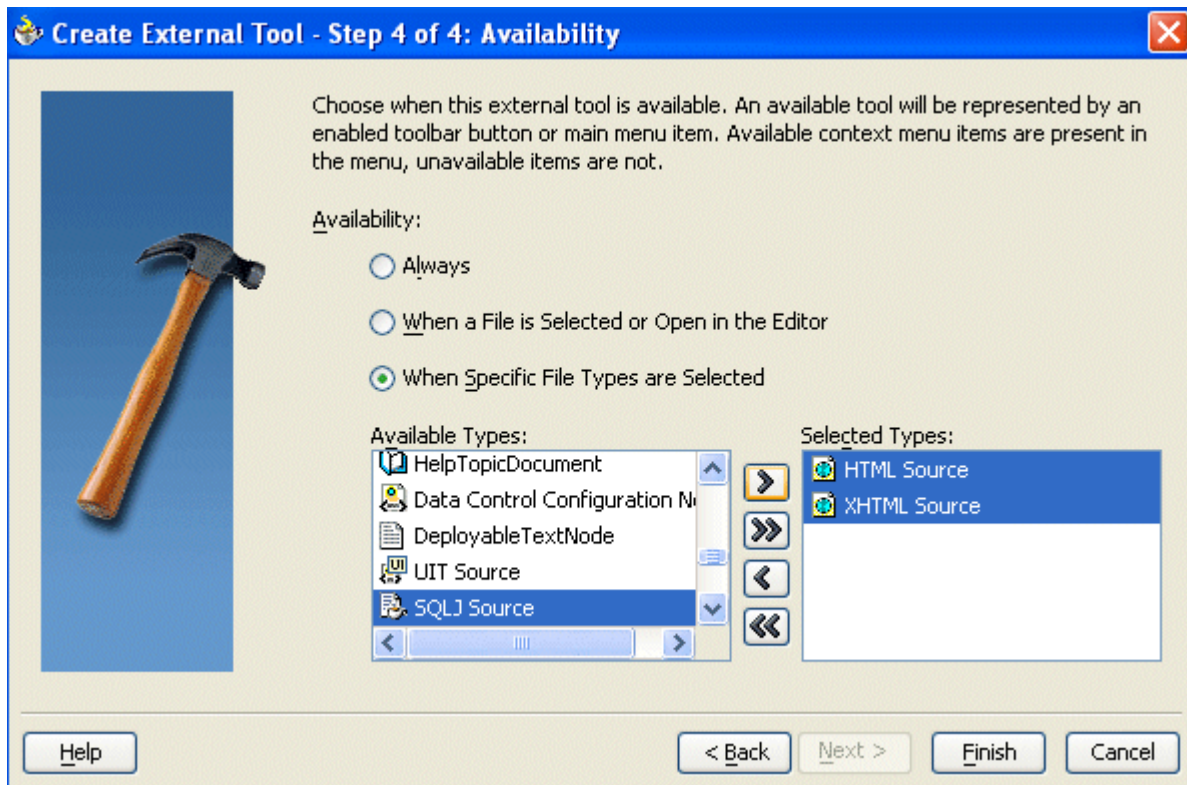
10.



- In the Available types list, select **HTML Source** and **XHTML Source** and use the Move

11.

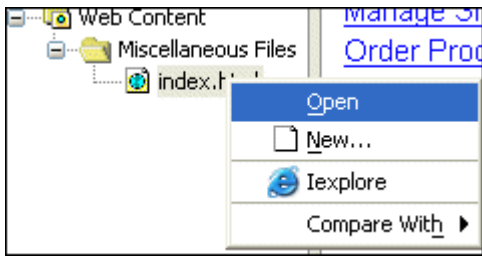
button  to move them in the **Selected Types** list , Click **Finish**.



Click **OK** to exit the wizard.

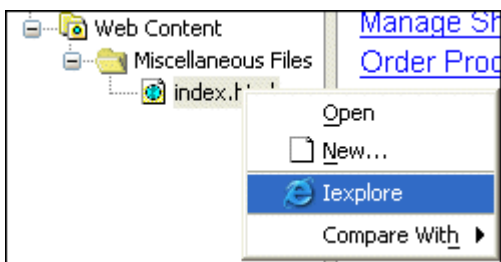
- In the Applications Navigator, right click **index.HTML**.

12.



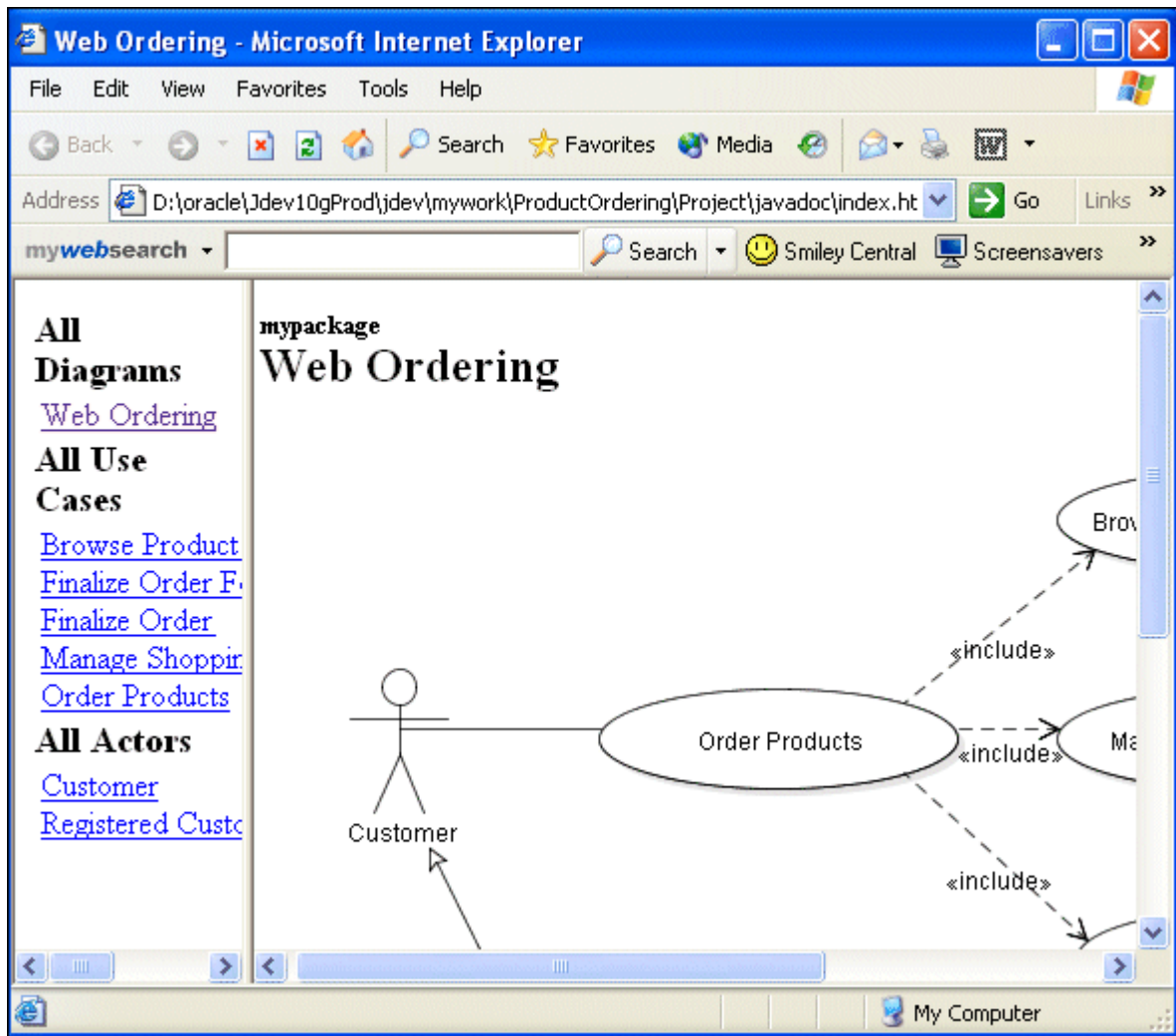
- You should now see in the context menu a new option for **Internet Explorer**. Select it.

13.



- A browser opens, allowing you to browse the Use Case documentation using the links on the left frame of the page.

14.



Summary

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In this tutorial you've learned how to:

- ❑ Create a new application workspace
- ❑ Create a Use Case diagram
- ❑ Add details to diagram components
- ❑ Refine a Use Case diagram
- ❑ Generate Java Doc for a Use Case

Related topics

N/A



Move your mouse over this icon to hide all screenshots