How to Organize Domain and Implementation Model?
Written Date: May 04, 2016

This tutorial is aimed to introduce the concept of organizing project with the use of model. By reading this tutorial, you will learn how to create domain model, how to transcribe it into implementation model, and eventually compare their differences.

Creating domain class model
1. Create a new project by selecting Project > New from the application toolbar. In the New Project window, enter Order Processing as project name and click Create Blank Project.
2. Open the Project Browser by selecting View > Project Browser from the application toolbar.
3. Open the Model Structure page.
4. On the left hand side, keep the project node selected in the list and then click New Model.
5. In the **Model Specification** window, enter *Domain Model* as model name. Click **OK** to confirm.

6. Keep **Domain Model** selected in the list. Then, click **Add New Diagram**.

7. In the **New Diagram** window, select **Class Diagram** and then click **Next** to continue.
8. Keep the diagram name unchanged and then click **OK** to create the diagram.

9. Draw a domain model class diagram like this:

```
Customer
- name : String

Order
- id : int
- quantity : int
- discount : double

Order line
- id : int
- quantity : int
- discount : double

Product
- id : int
- name : String
- category : String

Inventory
- location : String
- code : String

Manufacturer
- id : int
- name : String
- address : String
- telephone : String
- contactPerson : String

Staff
- name : String
- salary : double
- employmentDate : Date
- address : String
```

**Creating implementation class model**

Having completed the domain model, we are going to transcribe it into implementation model.

1. Right click on the diagram background and select **Utilities > Transit to New Diagram...** from the popup menu.
2. In the **Select Parent Model of New Diagram** window, select the project root node.

![Select Parent Model of New Diagram](image)

3. Click **New Model** at the top right of window.

4. In the **Model Specification** window, enter *Implementation Model* as model name. Click **OK** to confirm.

![Model Specification](image)

5. Keep *Implementation Model* selected, click **OK** to confirm. This forms a new diagram with name *Implementation Model*, which looks the same as *Domain Model*. What we are going to do is to refine the design to make it become an implementation model.

6. Delete the class Customer by selecting it, and hit the delete key.

7. Rename class *Order line* to *OrderLine*.

8. Create a class *OrderController*.

9. Add an operation `createOrder() : Order` into *OrderController*.
10. Right click on the operation `createOrder() : Order`, select **Show Dependencies** from the popup menu.

Up to now, the implementation model should look like this:

**Using Model Transistor**
Let's refresh our memory on what we have changed for the class **OrderLine**.
1. Move your mouse pointer over the class **OrderLine**.
2. Click on the **Model Transitor** resource icon at the bottom right of the class shape and then select **Transit From > Domain Model.Order line** from the popup menu.

![Diagram of class shape with Model Transitor resource icon highlighted.](image)

This populates the domain model, with former version of class `OrderLine` selected, which was named `Order line`.

**Comparing models with Visual Diff**

In order to identify all the refinements made in implementation model, we need to make use of the Visual Diff tool.

1. Open Visual Diff by selecting **Modeling > Visual Diff** from the application toolbar.

2. In the **Visual Diff** window, select **Transitor** as **Strategy**.

![Visual Diff interface with Transitor selected as Strategy.](image)

3. We wanted to know the changes of model element details rather than view details such as shape coordinate. Therefore, next to **Strategy** we select **Model Element** to **Compare**.

![Visual Diff interface with Model Element selected to Compare.](image)
4. For the diagram pane on the right, keep **Use Working Project** selected, and pick up **Implementation Model** for the diagram to compare.

5. Now, we have obtained the differences between domain (left hand side) and implementation (right hand side) model, at the bottom pane. Click on the node **OrderController (New)**. From the tag (New), and from the diagram, we know that it is newly added in the implementation model.
6. Select and expand the node **Order line (Modified)**. We know that it is renamed.

7. Select the node **Customer (Deleted)**. We can see that it does not exist anymore in the implementation model.