



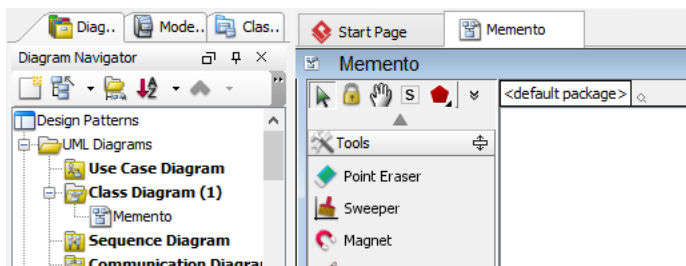
Memento Pattern Tutorial

Written Date : October 21, 2009

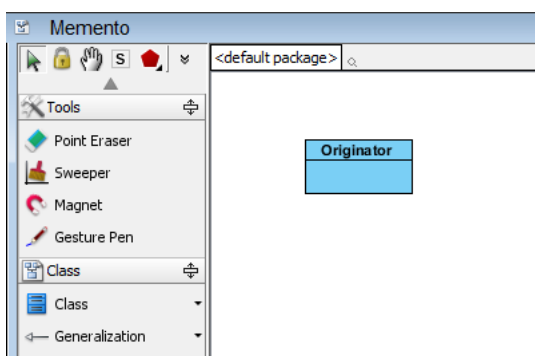
This tutorial is aimed to guide the definition and application of [Gang of Four \(GoF\)](#) memento [design pattern](#). By reading this tutorial, you will know how to develop a model for the memento pattern, and how to apply it in practice.

Modeling Design Pattern with Class Diagram

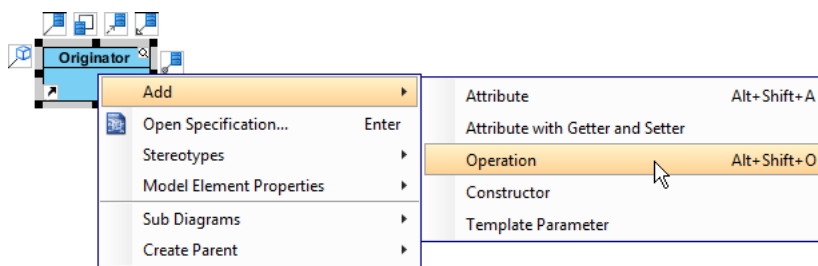
1. Create a new project *Design Patterns*.
2. Create a class diagram *Memento*.



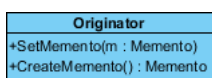
3. Select **Class** from diagram toolbar. Click on diagram to create a class. Name it as *Originator*.



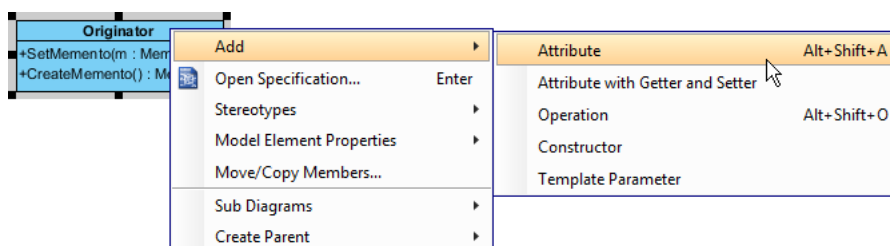
- Right-click on the *Originator* class, and select **Add > Operation** from the popup menu.



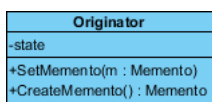
- Name the operation *SetMemento(m : Memento)*.
- Repeat steps 4 and 5 to create operation *CreateMemento() : Memento*.



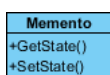
- Right-click on the *Originator* class, and select **Add > Attribute** from the popup menu.



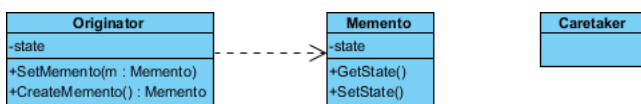
- Name the attribute state.



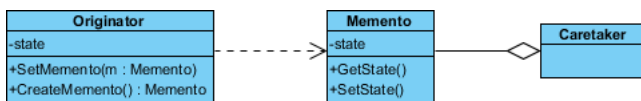
- Move the mouse cursor over the *Originator* class, and drag out **Dependency > Class** to create a dependent class *Memento*.
- Create two operations in class *Memento*: *GetState()* and *SetState()*.
- Create attribute state in class *Memento*.



12. Create a class *Caretaker* near class *Memento*.

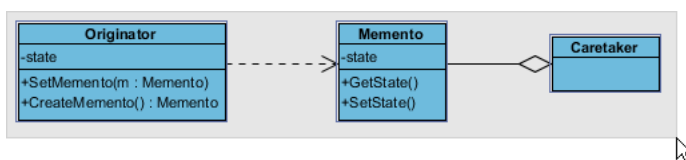


13. Move the mouse cursor over the *Caretaker* class, and drag out **Aggregation > Class** to connect to *Memento*.

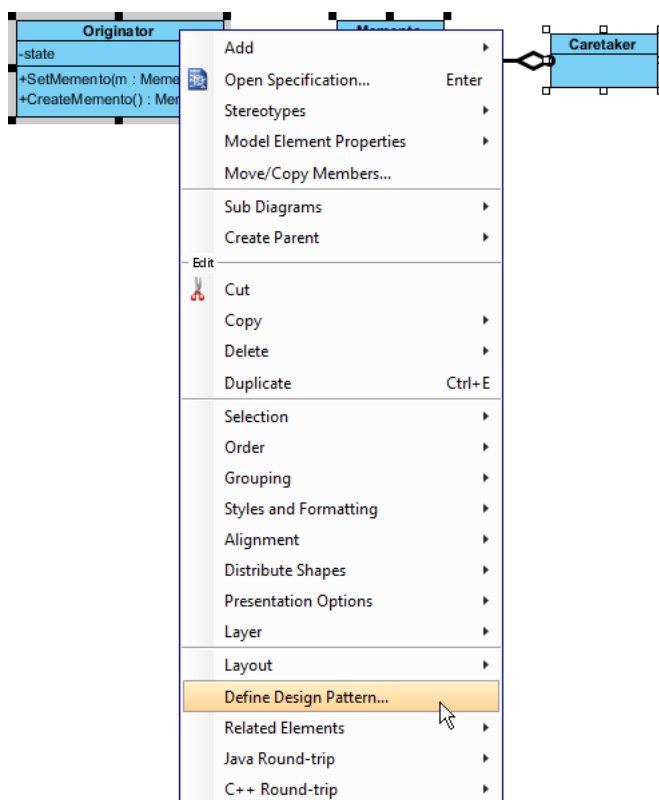


Defining Pattern

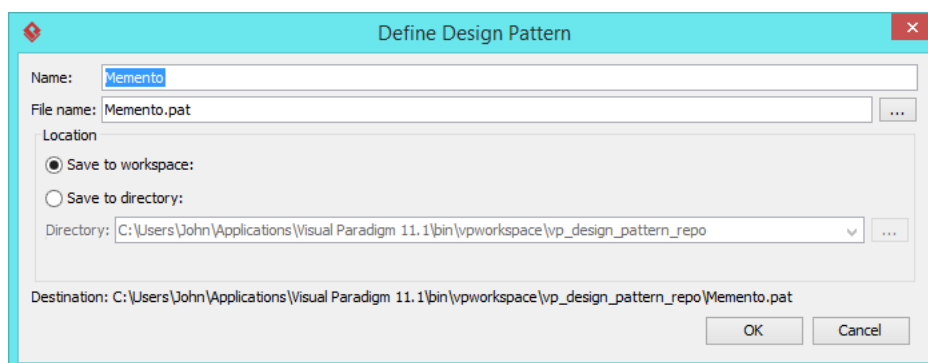
1. Select all classes on the class diagram.



- Right-click on the selection and select **Define Design Pattern...** from the popup menu.



- In the **Define Design Pattern** dialog box, specify the pattern name *Memento*. Keep the file name as is. Click **OK** to proceed.

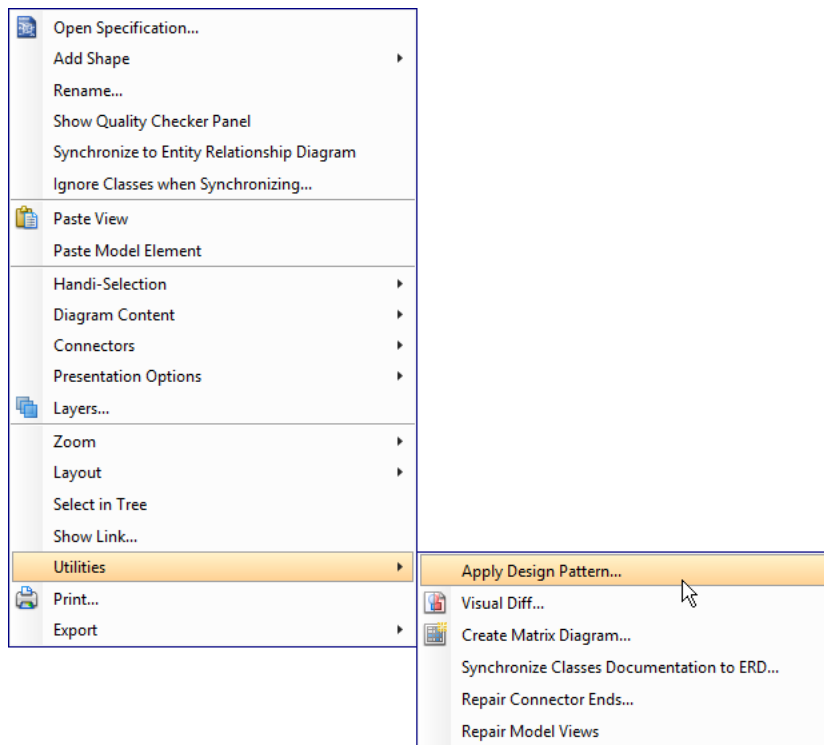


Applying Design Pattern on Class Diagram

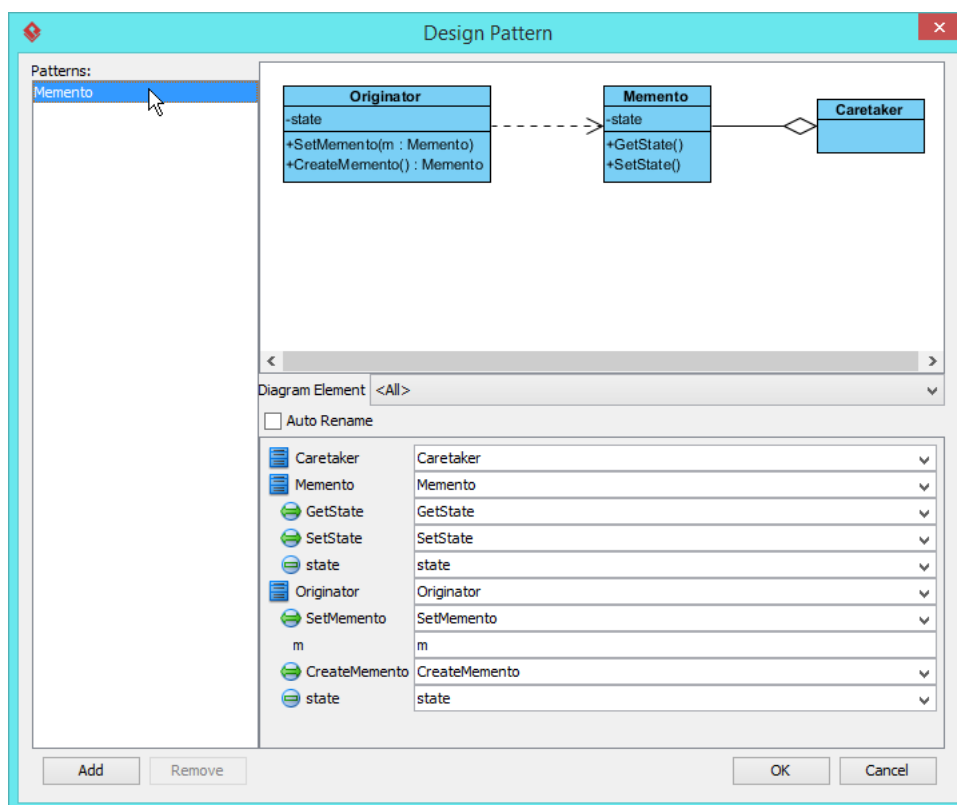
In this section, we will try to make use of the memento pattern to model a part of a sales ordering system, with regards to the state of sales order.

- Create a new project *Order Processing System*.
- Create a class diagram *Domain Model*.

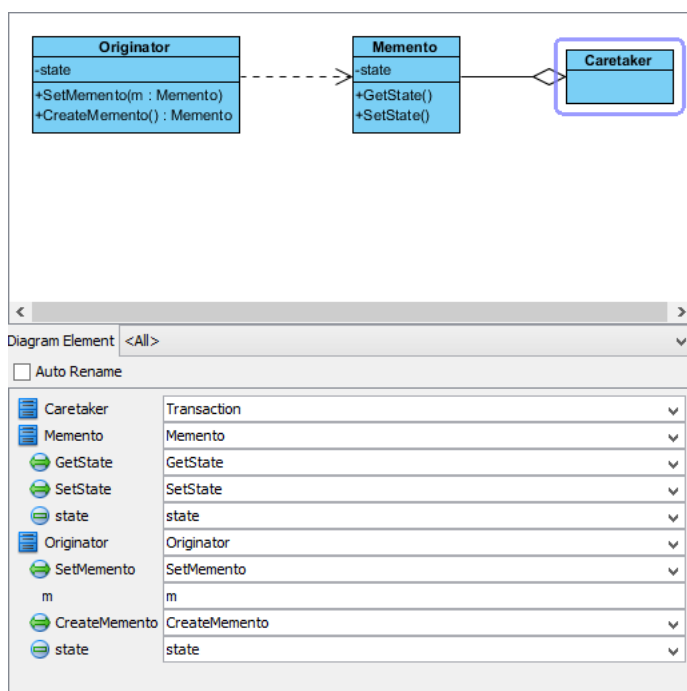
3. Right-click on the class diagram and select **Utilities > Apply Design Pattern...** from the popup menu.



- In the **Design Pattern** dialog box, select *Memento* from the list of patterns.



- At the bottom of pane, rename *Originator* and *Caretaker* to *Order* and *Transaction*.



- Click **OK** to confirm editing and apply the pattern to diagram.

7. Tidy up the diagram. It should become:



Resources

1. [Design Patterns.vpp](#)
2. [Memento.pat](#)

Related Links

- [Full set of UML tools and UML diagrams](#)



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

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