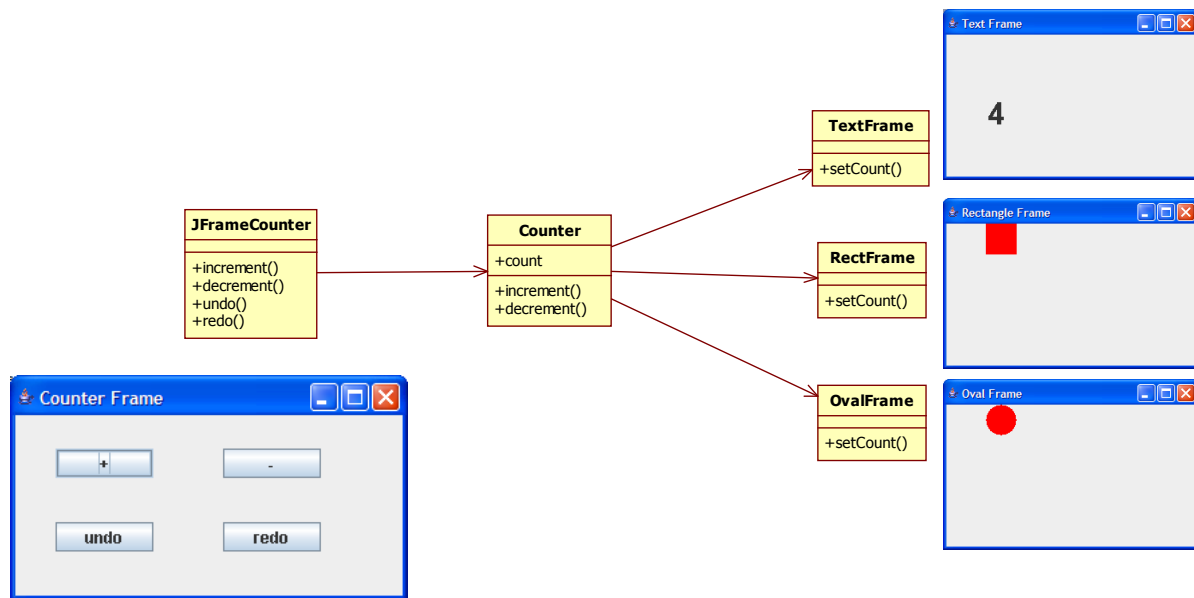


Command pattern

Suppose the following application is given:



If you click the + button, the count value in the Counter is incremented (from 4 to 5), and the TextFrame shows the value 5, the RectFrame shows a rectangle of 5 by 5, and the OvalFrame shows a circle with diameter 5. If you click the - button, the count value in the Counter is decremented (from 5 to 4), etc.

We want to add Undo/Redo functionality to this small counter application. So we add an Undo and a Redo button.

- Draw the class diagram with the Command pattern that makes it possible to implement undo/redo functionality to this application. Draw a sequence diagram that shows how the command pattern works (first click +, then -, then undo, then undo)
- In the given example, the Counter knows the 3 Frame classes(Text, Rectangle, Oval). With the Observer pattern we learned that in this case it is better to make the 3 Frames (Text, Rectangle, Oval) observe the Counter class. Draw the class diagram with the Command pattern together with the Observer pattern that makes it possible to implement undo/redo functionality to this application. Draw a sequence diagram that shows how the command pattern works (first click +, then -, then undo, then undo) together with the Observer pattern.