Assignment 2: Graphics-Editor JDraw

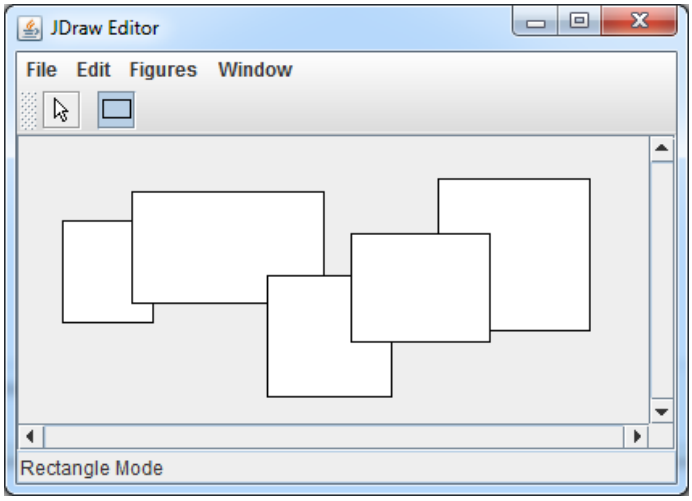
With this assignment we start the development of a simple graphics editor in order to apply the design patterns which are discussed in the course. It is not the goal to apply as many design patterns as possible in this project. Nevertheless, the editor should be as powerful and extensible as possible. Possible extensions are connectors (arrows) between figures which adapt itself if one of the connected figures is moved and the possibility to save and print figures. The design of the framework is given, but some of the interfaces might change in subsequent assignments.

In this assignment the focus is on the observer pattern. For displaying the figures the following basic structure is defined:

In an instance of *DrawView* an instance of a *DrawModel* is shown which may contain several figures. Whenever a figure is changed (for example if the position or the size of the figure changes) a notification is published on which the draw model can react. Whenever the model is changed (for example if a new figure is added or an existing figure is changed or removed) a notification is published by the model as well on which the draw view can react (it will repaint the content of its window).

The toolbar contains a draw tool for each figure type. If, as shown in the picture below, the rectangle tool is active, then new rectangles can be drawn. If the line tool is active, then new lines can be drawn, etc. With the selection tool figures can be selected in order to be moved, resized or removed.

Note: You will extend the functionality of this graphics editor in subsequent assignments. So stay ahead and do not give up!



Primarily the interfaces which define this graphics editor are given (they are defined in the Java package *jdraw.framework*). Your task is to understand the interaction between these interfaces and to implement these interfaces. In addition to these interfaces an implementation of *DrawView* is provided in class *jdraw.std.StdDrawView.*

For this assignment, your task is to implement the interface *jdraw.framework.DrawModel*. A frame for this class is provided in class *jdraw.std.StdDrawModel*. Method *getDrawCommandHandler,* which is defined in this class, is used in a later assignment, so you can take over the given implementation for now. In case that you change the name of this class (e.g. if you define it in your own package), then you have to adjust the line

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<bean id="drawModel" class="jdraw.std.StdDrawModel"/>
```

in the configuration file *jdraw-context.xml* (contained in the folder src/main/resources).

The first figure (a rectangle) is already implemented. You only have to make some adjustments in this class *Rect* -- these places are marked with a TODO note in the source code. The project jdraw-assignment also provides test classes for this assignment. You find those in the source directory *src/test/java* in the package *jdraw.test*. Execute the test class *JDrawTests* using *Run->As JUnit Test*.

Deadline: October 8, 2019