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Lab Title:	Vector Based Drawing Application
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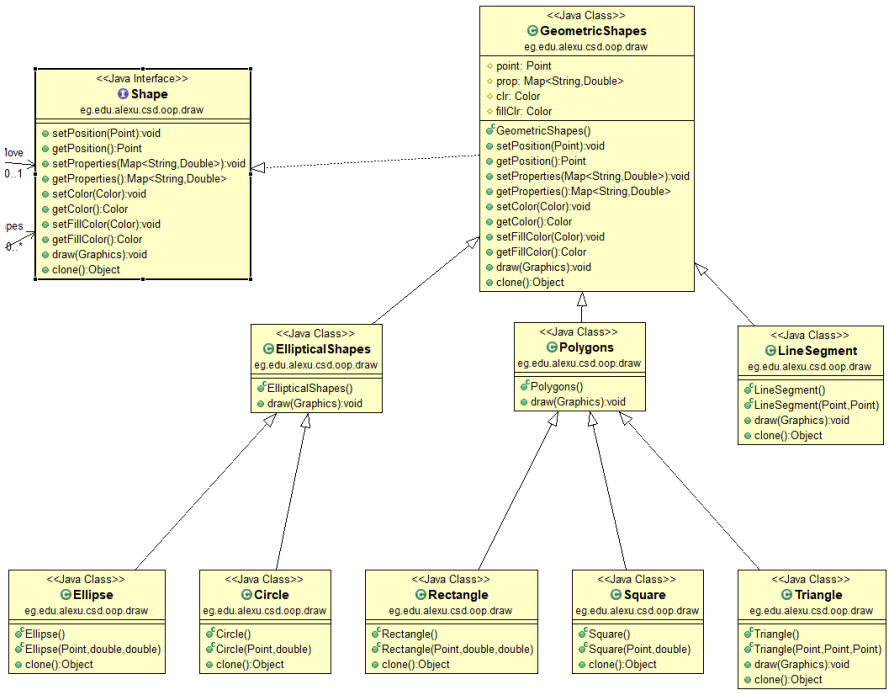
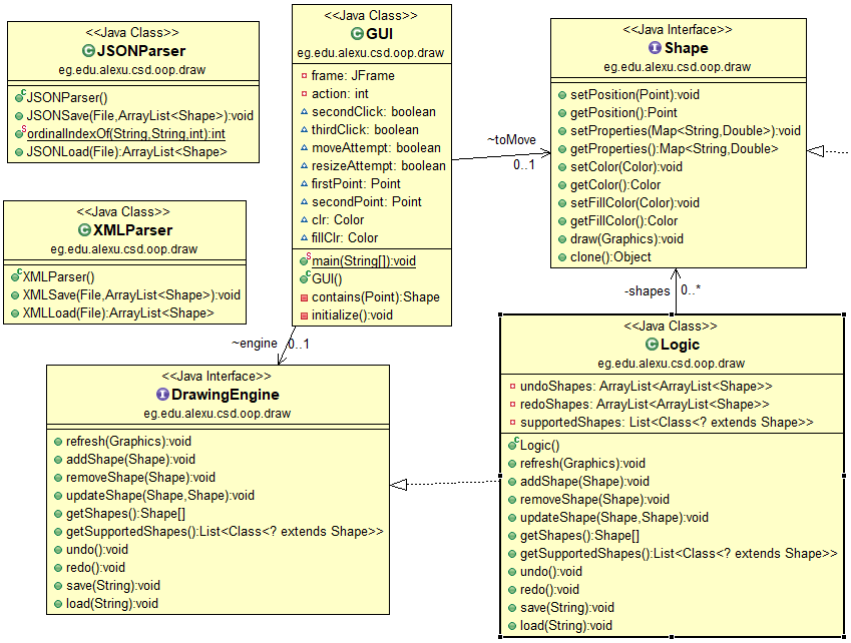
1 Objectives

1. Design an object oriented model for geometric shapes
2. Draw a UML class diagram that represents your model
3. Apply the OOP concepts of inheritance and polymorphism to your design
4. Create an advanced GUI with 2D Graphics capabilities
5. Enable dynamic extensions to your applications

2 UML Diagram





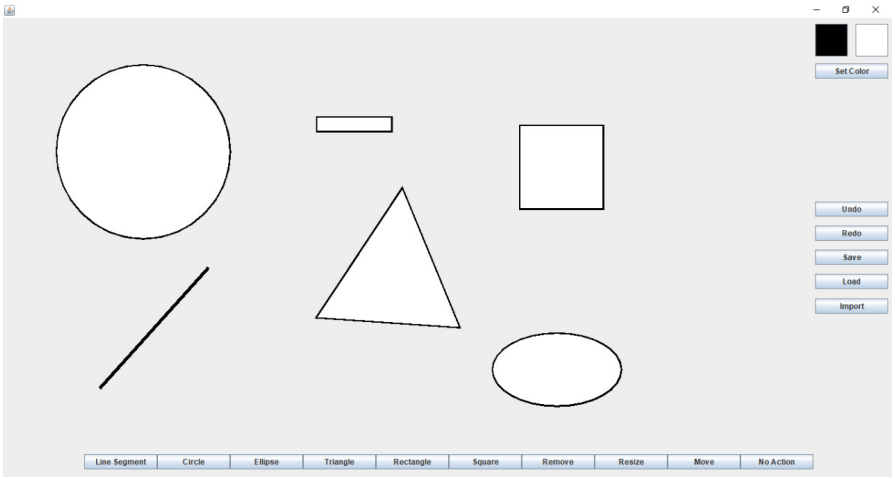
3 Design Description

3.1 Two Clicks Do All the Job

Most of the functions of our application require the user to click once on the shape then another click to perform the action.

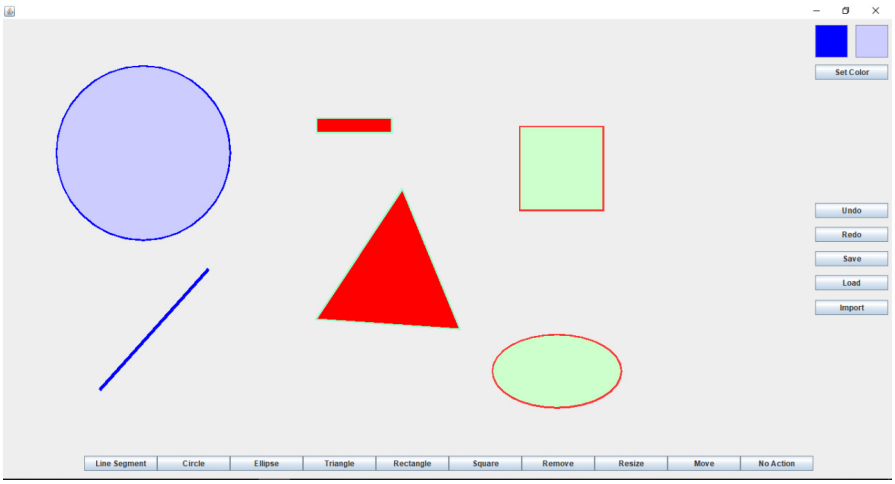
3.2 Choose the Shape you want and Draw

All shapes are drawn by clicking once on the first point you want to start from and then another click to specify length(line segment) or radius(circle) or diagonal(rectangle & square).
Triangle is drawn by specifying the three vertices.
Ellipse requires three clicks to draw it one for the center, the other for major axis and the third for minor axis.



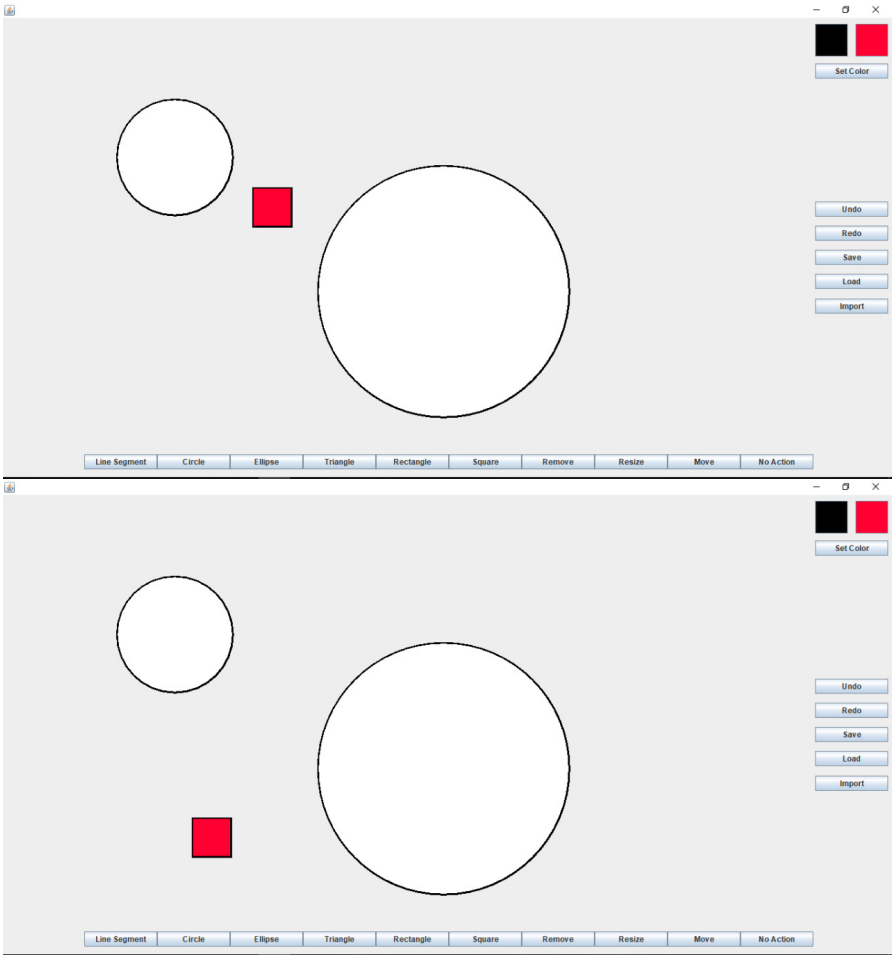
3.3 Coloring as It Should

You can specify the fill color of your shapes as you want in addition to the border color(stroke color) in RGB, HSL, HSV and others.



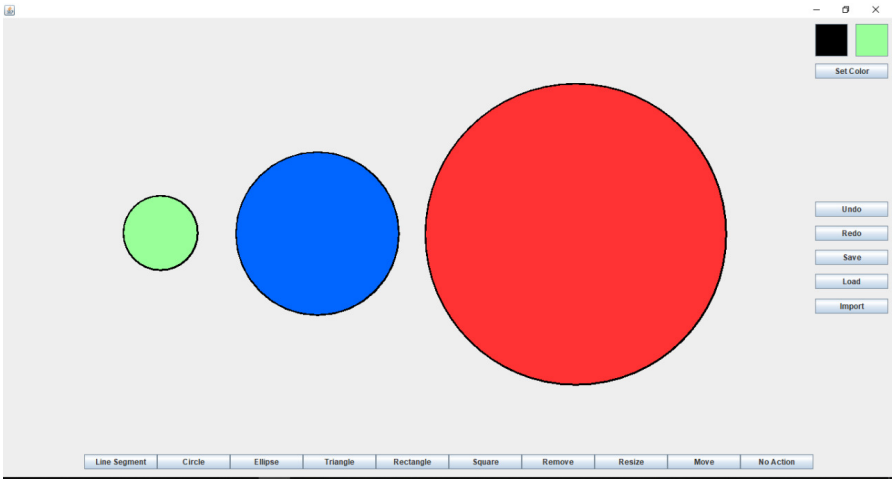
3.4 Moving by Just Dragging Mouse Click

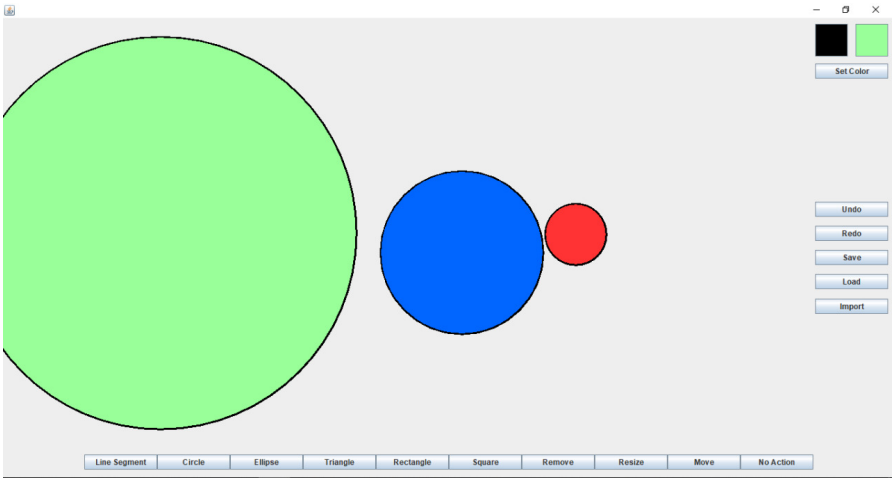
After clicking on moving button you can easily move any shape by dragging it to the new position.



3.5 The Simplest Resizing

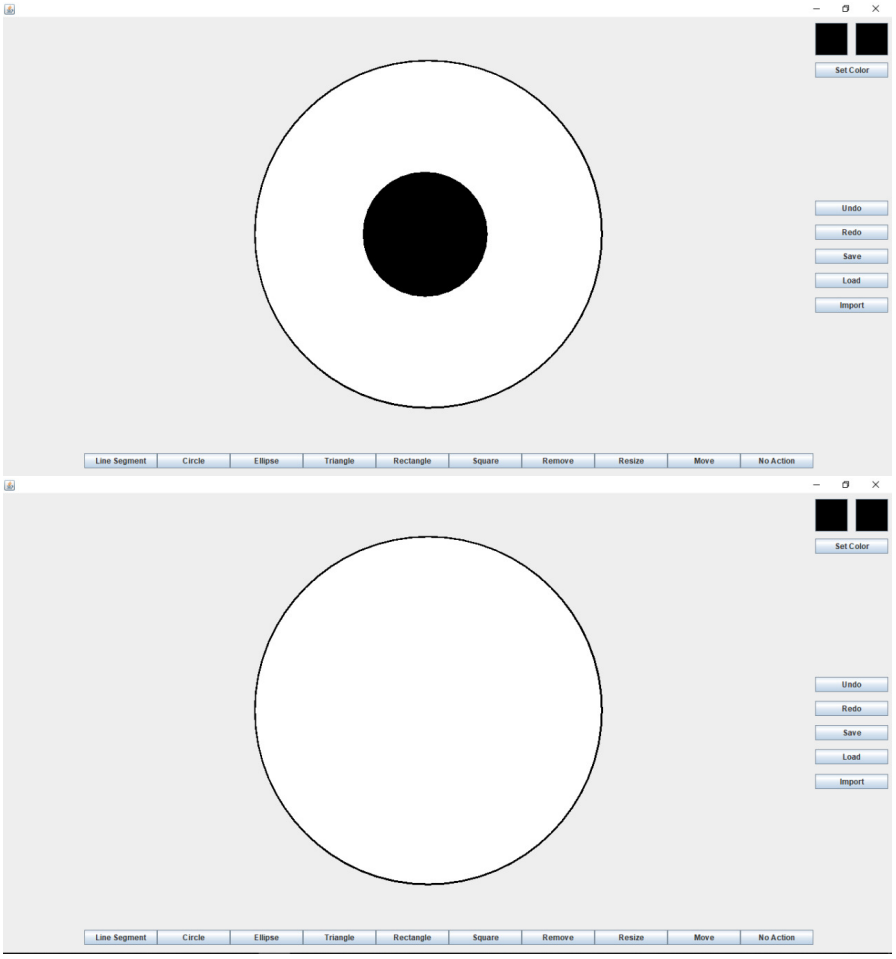
Drag the shape so it resizes as you want.





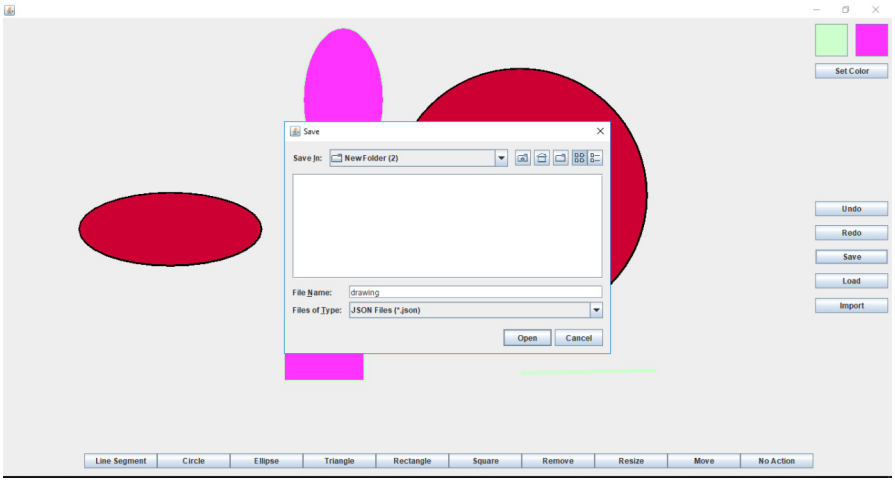
3.6 One Click Remove

Just click on the shape you want and it disappears.



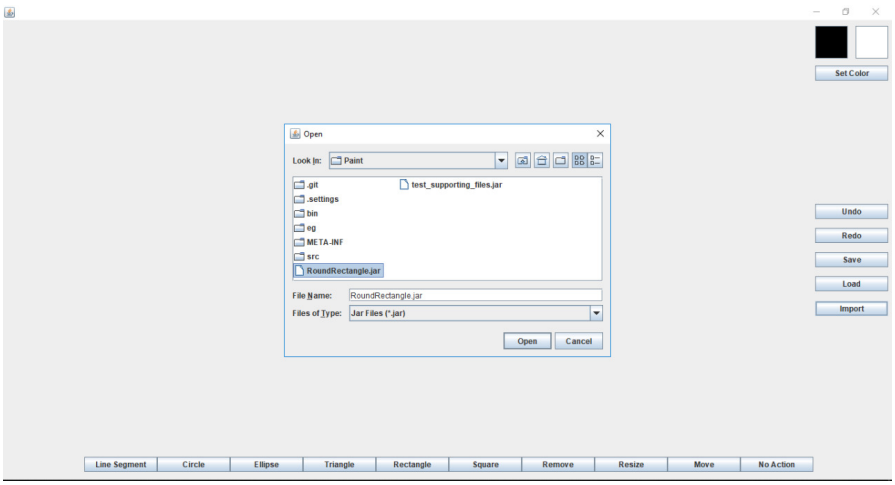
3.7 Saving and Opening for XML & JSON Files

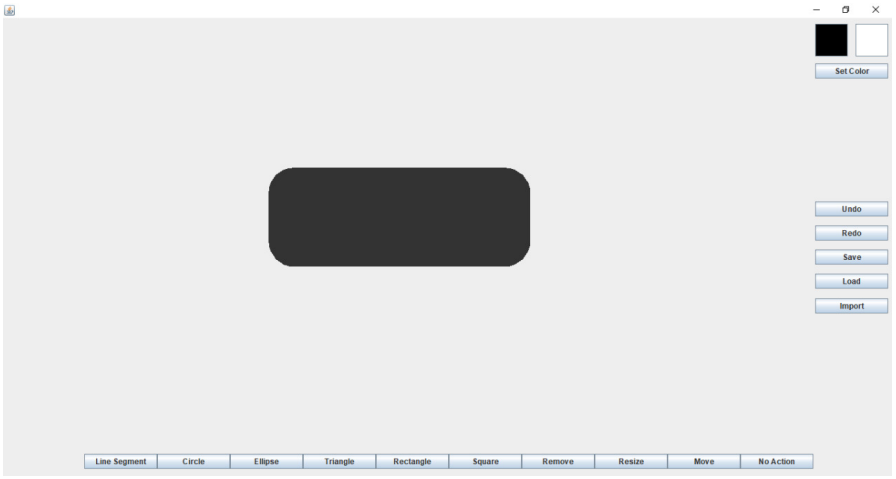
Click on the save or open button and choose where you want to save or open the file.



3.8 Importing External Plugins as JAR Files

You can import external plugins to the application so they can be added to your shapes.





4 Design Decisions

4.1 Assumption for Supported Shapes

Jar files can be imported from anywhere inside the program but in order to check if it is supported using getSupportedShapes it must be inside the Shape package.