

Drawing and Painting Application

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Description:

Drawing and painting applications are very popular and have a huge user base. They generally offer a big number of features that includes but is not limited to: Drawing, Coloring, and Resizing. They also include a number of built in, and possibly extensible set of geometric shapes, and classically, they allow the user to undo or redo any instructions so as to make the application more usable.

Design Overview:

When you open the application you can find a window at the right of your white paper, this window carry the drawn shapes in that white layer, at the top of the application you can find a tool bar which contains:

- 1- Compo box (contains all supported shapes).
- 2- Fill color button (to choose the fill color of the shape).
- 3- Frame color button (to choose the color of the frame of the shape).
- 4- Refresh button.
- 5- Import shapes button.
- 6- Undo & Redo buttons.
- 7- Save & Load buttons.
- 8- Delete, Copy & Resize Buttons.

Assumptions:

- 1- All new shapes jars should be beside the program executable jar.
- 2- Only 20 undo and redo actions are allowed.
- 3- Mouse is used for built in shapes.
- 4- Keyboard is used to move shapes.
- 5- When the user save the painting, it is saved in Xml & JsOn.

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Data Structures:

- 1- Arrays.
- 2- Array lists.
- 3- Stacks.
- 4- Hash maps.

Features:

- 1- Using regex to load from JsOn & Xml files.
- 2- Coloring several shapes in one click.
- 3- Moving shapes is by keyboard arrows.

User guide:

- 1- To draw a shape:
 - Choose the frame color.
 - Choose the fill color.
 - Click on the combo box of shapes.
 - Choose the shape you want to draw.
 - If your shape is not in the combo box just click on Import shapes button then you will find your shape in the combo box.
- 2- For undo & redo you will find the buttons at the top left corner.
- 3- To save a file:
 - Click on the save button.
 - Choose a destination to save your file.
 - Click on save button.
- 4- To load a saved file:
 - Click on the load button.
 - Choose the file destination.
 - Click on the file.
 - Click on choose file.
- 5- To delete a shape:
 - Select the shape from the shapes list.

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- Last drawn shape is at the bottom of the list.
 - Click on delete button.
- 6- To copy a shape:
- Select the shape from the shapes list.
 - Last drawn shape is at the bottom of the list.
 - Click on copy button.
- 7- To resize a shape:
- Select the shape from the shapes list.
 - Last drawn shape is at the bottom of the list.
 - Click on resize button.
 - Fill the cells of the selected shape properties by the new values.
 - Fill the other cells by zero.
 - Click on “OK” button.
 - Every resized shape is drawn at the bottom of the shapes list and the other shapes become above it in the order of drawing in descending order.
- 8- To move a shape:
- Select the shape from the shapes list.
 - Use arrows in the keyboard to move the shape.
- 9- If you open any other program while using the application your shapes will disappear to reappear them just click on the refresh button.

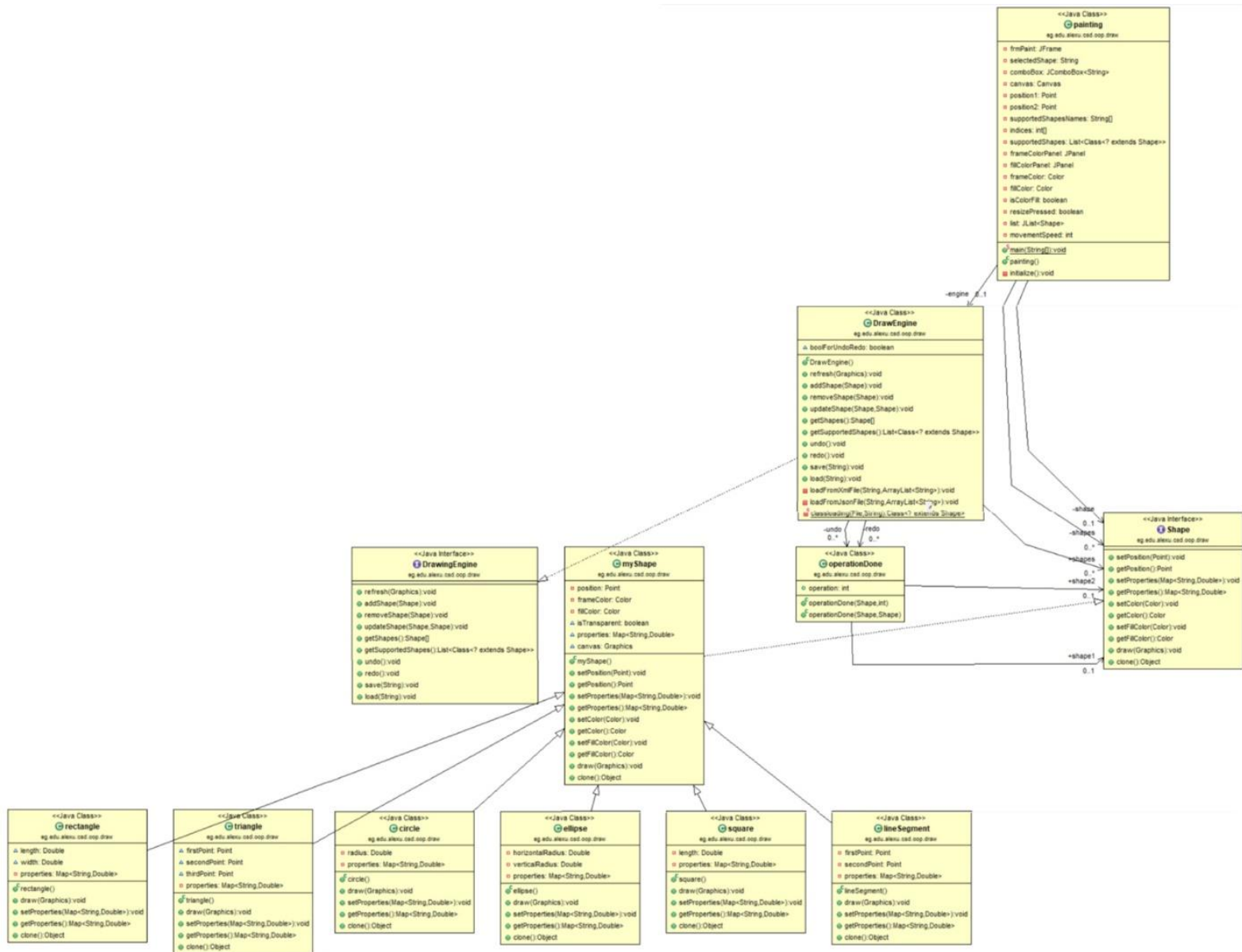
Hope you enjoy drawing 😊

References:

- 1- <https://stackoverflow.com/>
- 2- <https://www.tutorialspoint.com/>

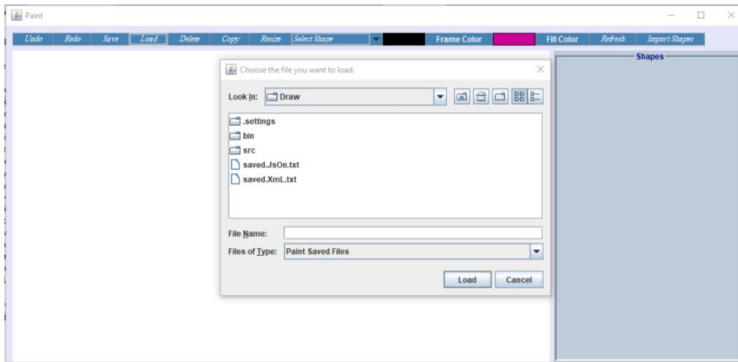
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UML Design:

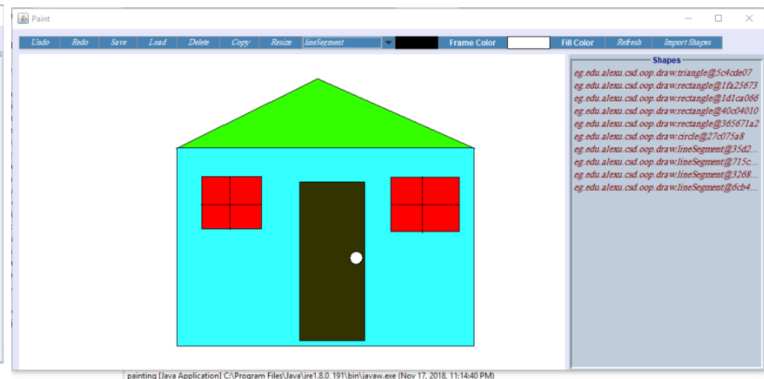


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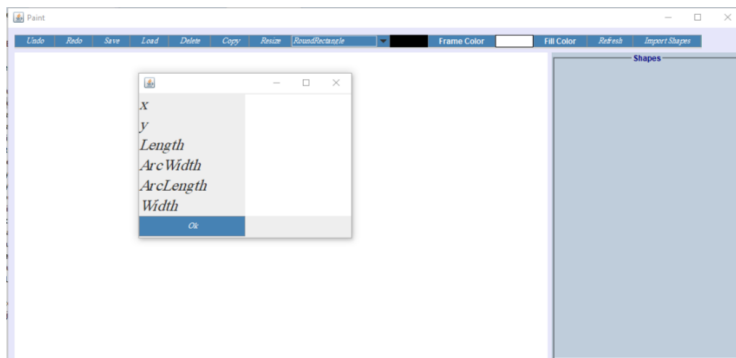
Sample runs:



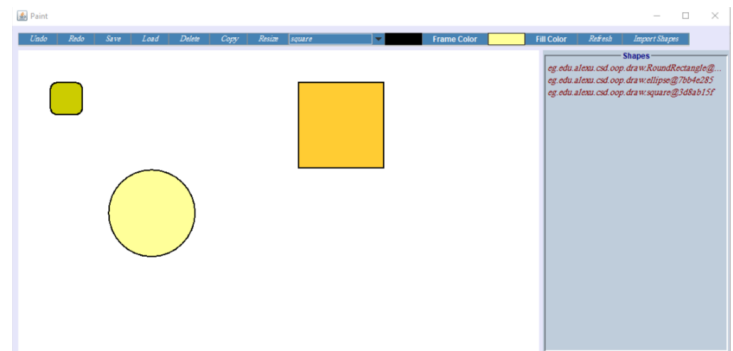
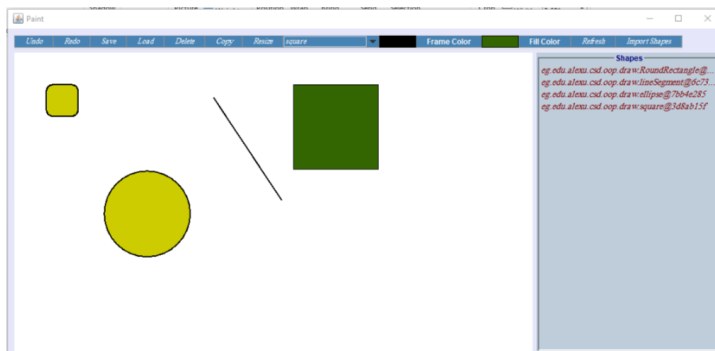
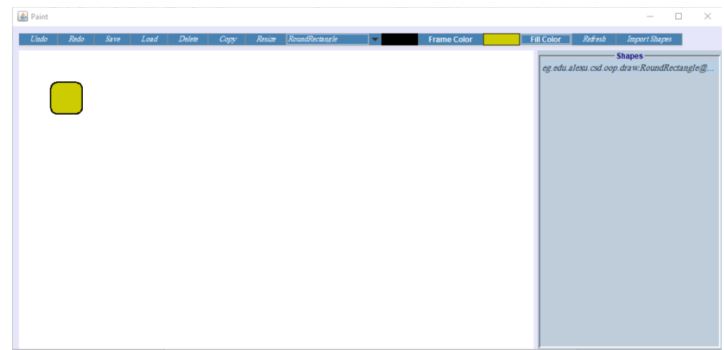
Before load



After load



Drawing round rectangle



Repainting and deleting shapes