

Drawing and Painting Application

Team members:

Abanoub Ashraf Ezzat (ID.1)

Kirellos Malak Habib (ID.33)

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.

Drawing and Painting Application

Data Structures:

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

Features:

- 1- Using regex to load from JsOn & Xml files.
- 2- Moving shapes is by keyboard arrows.
- 3- You can load any unsupported shape if you have its jar file.
- 4- You can recolor the shape after drawing it.
- 5- Help button will remind you to use the application.

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 and choose the jar file support your shape then you will find your shape in the combo box.
- 2- For undo & redo you will find the buttons at the top left corner there is only 20 steps allowed to undo.
- 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.

Drawing and Painting Application

- Click on the file.
 - Click on load button.
- 5- To delete a shape:
- Select the shape from the shapes list.
 - Click on delete button.
- 6- To copy a shape:
- Select the shape from the shapes list.
 - Click on copy button.
- 7- To resize a shape:
- Select the shape from the shapes list.
 - Click on resize button.
 - Fill the cells of the selected shape properties by the new values.
 - Click on “OK” button.
- 8- To move a shape:
- Select the shape from the shapes list.
 - Then click on the painting area.
 - 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 restore them just click on the refresh button.

Hope you enjoy drawing 😊

References:

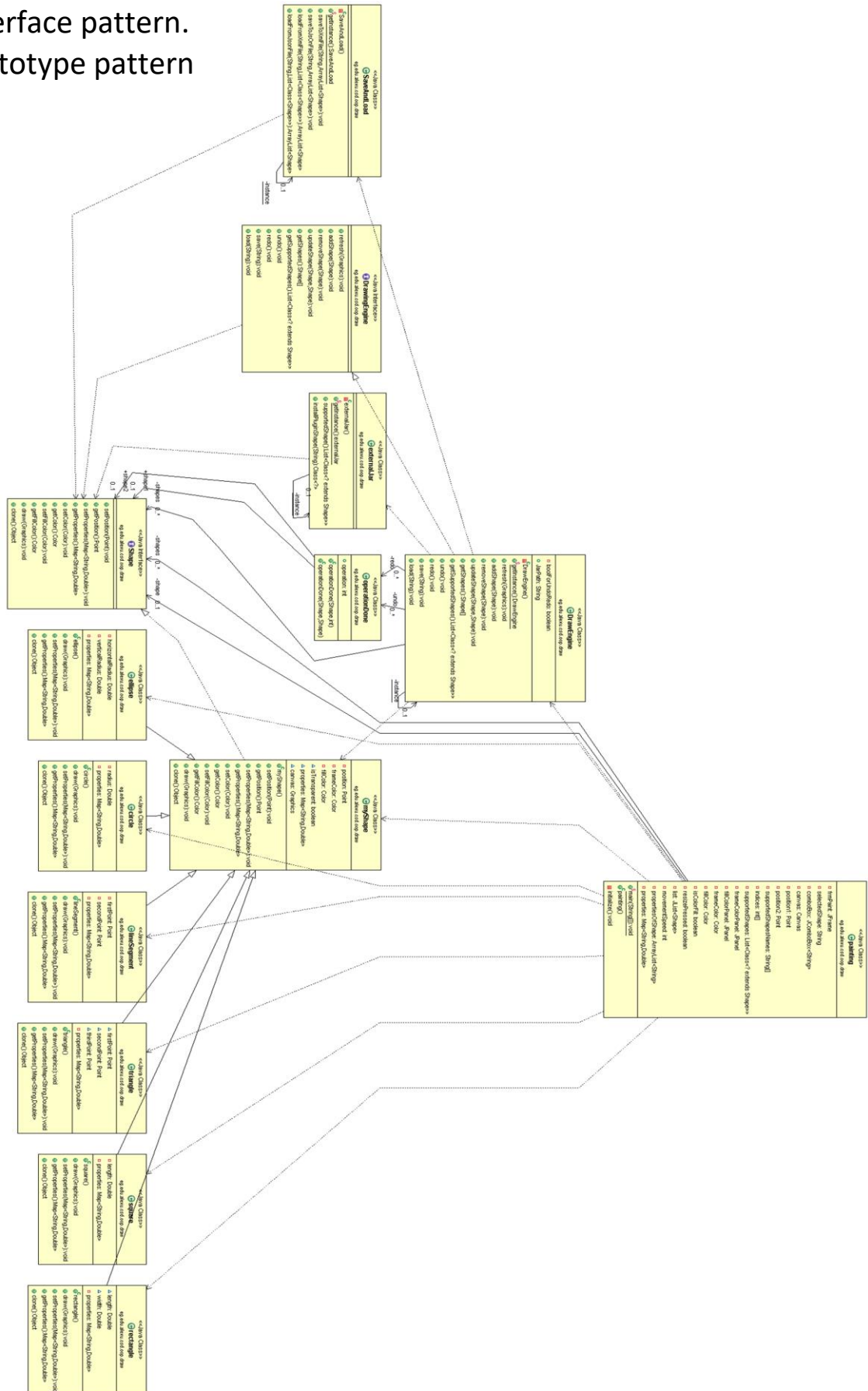
- 1- <https://stackoverflow.com/>
- 2- <https://www.tutorialspoint.com/>

Patterns:

- 1- Singleton pattern.
 - DrawEngine.
 - SavedAndLoad.
 - externalJar.

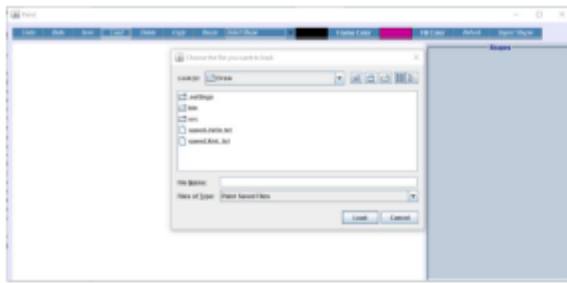
- 2- Interface pattern.
3- Prototype pattern

UML:



Drawing and Painting Application

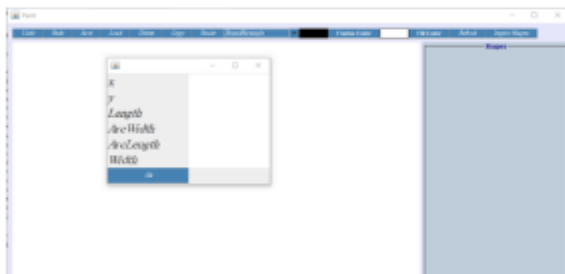
Sample runs:



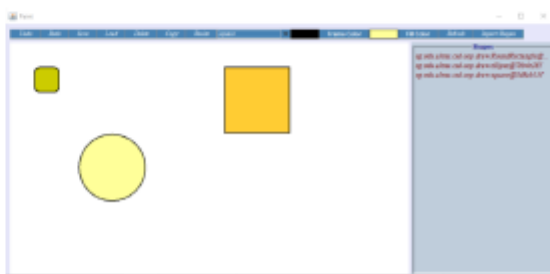
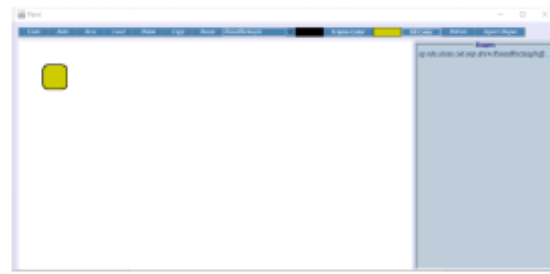
Before load



After load



Drawing round rectangle



Repainting and deleting shapes