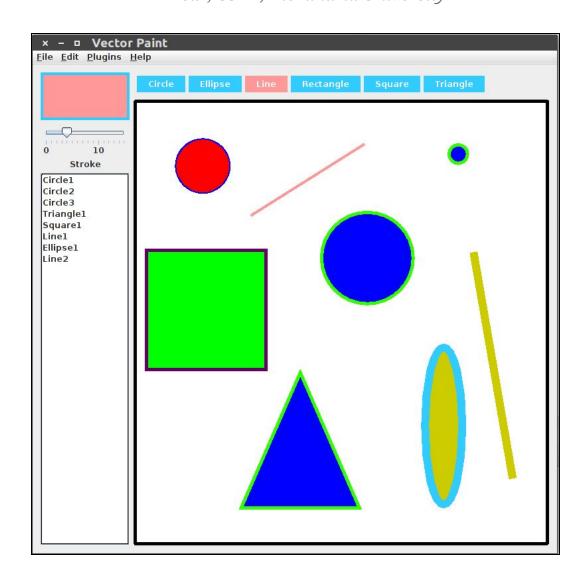
# **PAINT REPORT**

Assignment 2: Vector-Based Drawing Application 2<sup>nd</sup> Year, CSED, Alexandria University



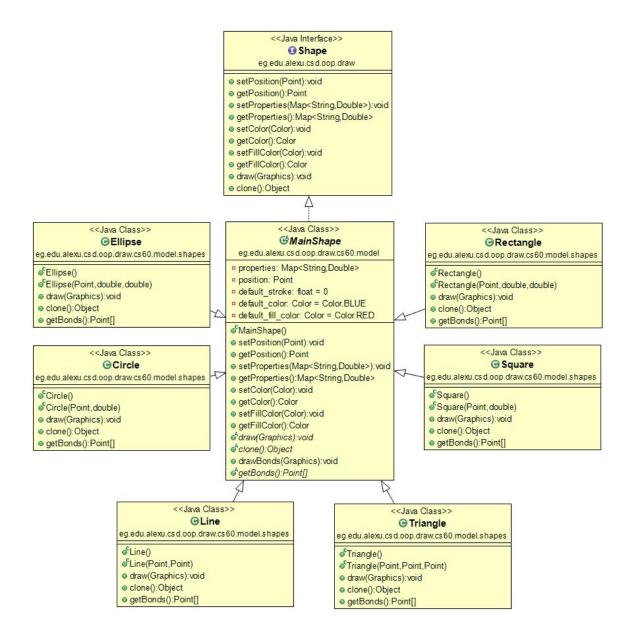
**Mohamed Mashaal (60)** 

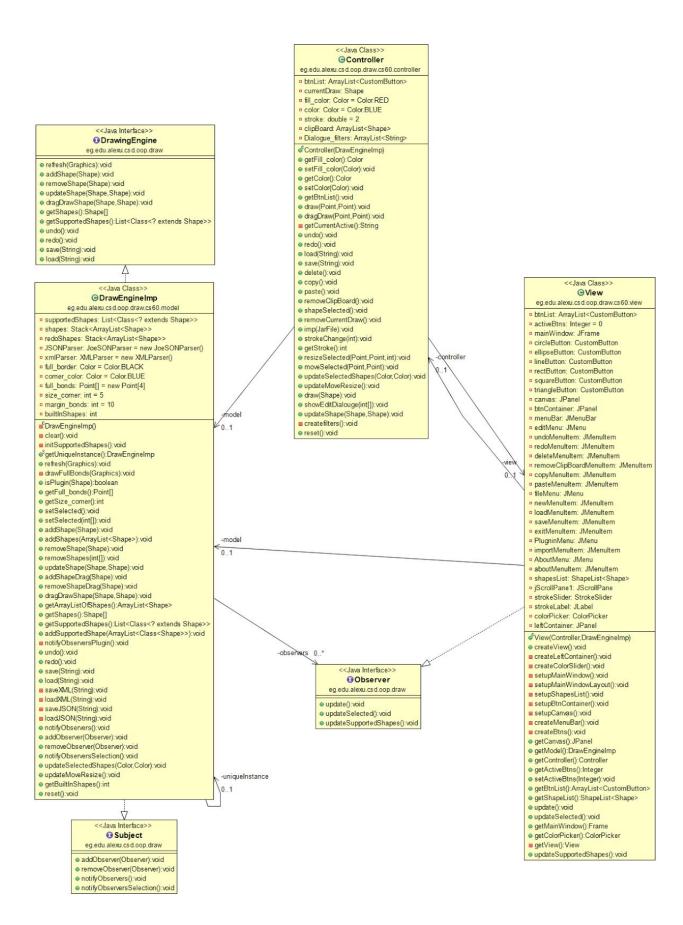
Youssef Ali (73)

## INTRODUCTION

A desktop application for drawing geometric shapes with many features such as coloring, resizing, moving, copying and pasting, saving and loading and ability to add extensions at runtime. It was implemented in Java using Swing framework for the GUI.

## **UML DIAGRAMS**





## **OUR DESIGN**

The Program Consists Primarily of 3 Parts, Model, View and Controller, According to MVC architectural pattern.

Different Design Patterns such as Factory, Singleton and Observer were used.

#### View

View was designed almost as separate modules such as

- *CustomButton*: an Extension to the *JButton* that has two 2 States, active and non\_active, for allowing user to draw different shapes.
- **ShapeList**: an Extension to the *JList* that allowed multiple selection, dynamic changing elements according to the model and interacting with different shapes drawn.
- *ColorPicker*: an Extension to the *JButton* that works as a preview for the current used Colors and allows for changing color through a colorchooser.
- *CreateDialogue*: an Extension to the *JDialogue* that get constructed dynamically to allow dynamic drawing for different shapes according to their properties.
- *Canvas*: an Extension to the *JPanel* that is used as a drawing area for shapes.
- **Save, Load and Plugin Choosers**: an Extension to the *JFileChooser* that allowed file fetching in the importing plugin or loading and path fetching in case of saving.
- **StrokeSlider**: an Extension to the *JSlider* that allows the user to change stroke level.

Different view components are dynamically changing based on the model Thanks to Observer Design pattern and MVC.

#### Controller

**Controller** is the MiddleMan between the View and Model in our case the *DrawingEngineImp* as updating the Model whenever the view is affecting as well as changing the view in several situations.

#### Model

**Model** in our case is Representing by the *DrawingEngine* Implementation, it is responsible about dealing with the different Shapes updating, removing and adding different shapes.

## **SNAPSHOTS**



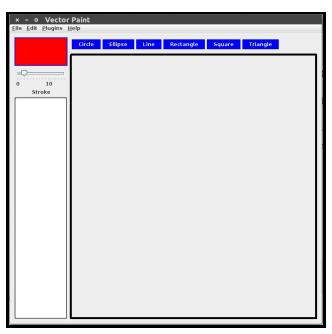


Fig.2: Drawing Example

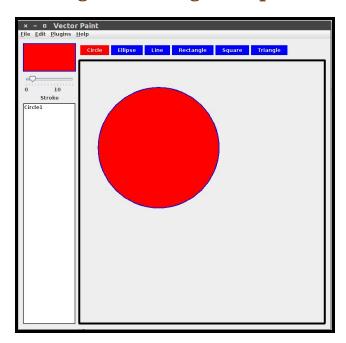


Fig.3: Selecting Feature

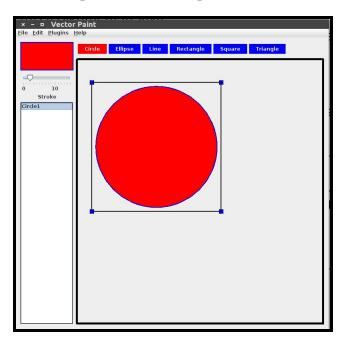


Fig.4: Moving Feature

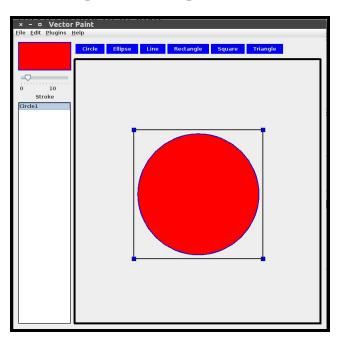


Fig.5: Resizing Feature

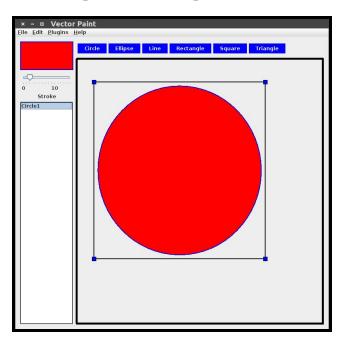


Fig.6: Copy & Paste Feature

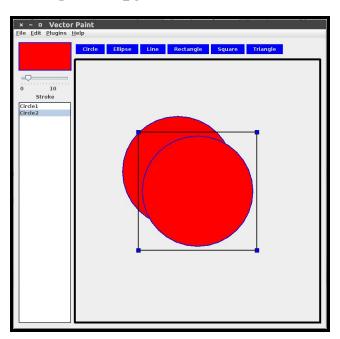


Fig.7: Save File Chooser

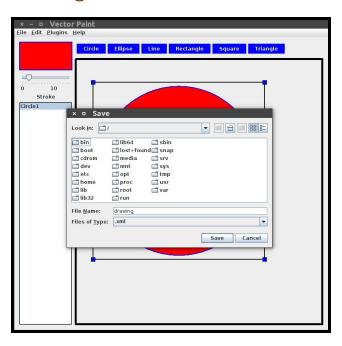


Fig.8: Load File Chooser

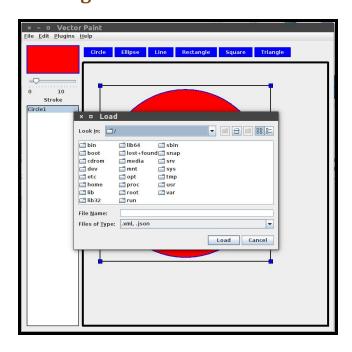


Fig.9 : Plugin File Chooser

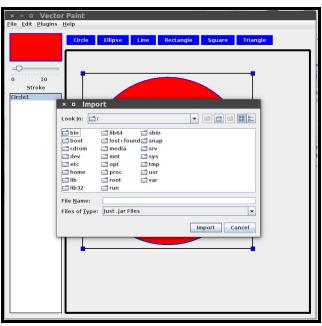
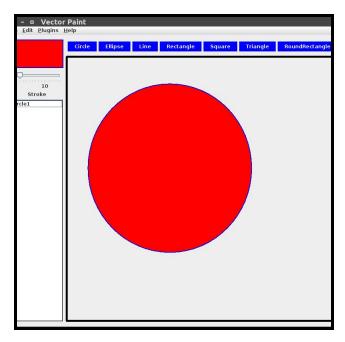
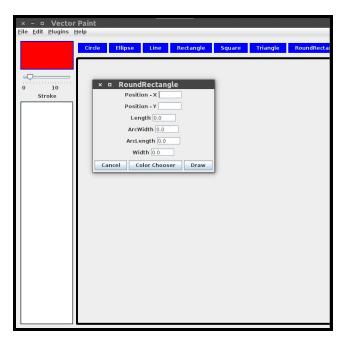


Fig.10: Plugin Button Added







## **USER GUIDE**

- How to draw:
  - 1. Select a shape type from the shape types list.
  - 2. Press and drag your mouse inside the drawing area.
  - 3. Release your mouse and the shape is drawn as in Fig. 2.
- How to move:
  - 1. Deselect the selected shape type if any.
  - 2. Select any shape(s) from the shape list in the right as in Fig. 3.
  - 3. Move by dragging the mouse as in Fig. 4.
- How to resize:
  - 1. Deselect the selected shape type if any.
  - 2. Select any shape(s) from the shape list in the right as in Fig. 3.
  - 3. Resize using the four corners that appears as in Fig. 5.
- How to undo:
  - 1. From the menu bar open Edit menu and select Undo or just click CTRL+Z.
- How to redo:
  - 1. From the menu bar open Edit menu and select Redo or just click CTRL+Y.

## How to Copy:

- 1. Select any shape(s) from the shape list in the right as in Fig. 3.
- 2. From the menu bar open File menu and select Copy Shape(s) or just click SHIFT+C.

#### How to Paste:

- 1. From the menu bar open File menu and select Paste Shape(s) or just click SHIFT+V.
- 2. The pasted shape(s) is/are added to the shape list as in Fig. 6.

## How to Save:

- 1. From the menu bar open File menu and select Save or just click CTRL+S.
- 2. From the window that appears select path of the file to be saved as in Fig. 7.
- 3. Select the file type. You can save it in XML or JSON format.
- 4. Hit the save button.

#### How to Load:

- 1. From the menu bar open File menu and select Load.
- 2. From the window that appears select the file to be loaded as in Fig. 8.
- 3. You can load just XML or JSON files that was have been already saved by the application.
- 4. Hit the load button.

### How to import a plugin shape:

- 1. From the menu bar open Plugins menu and select Import or just click CTRL+I.
- 2. From the window that appears select the JAR file to be loaded as in Fig. 9.
- 3. You can import just JAR files that contain a shape class(es).
- 4. Hit the import button.

#### How to draw a loaded plugin shape:

- 1. After importing a plugin shape, it is added to the shape types list as in Fig. 10.
- 2. Select it from shape types list.
- 3. Fill in the dialog box that appears as in Fig. 11.
- 4. Set color by hitting the color chooser button.
- 5. Hit the draw button.

## How to change the drawing color:

- 1. Click on the color chooser button on the upper left corner.
- 2. To Set a filling color, choose any color and hit select color button.
- 3. To Set a border color, choose any color and hit select border button.

#### How to change the drawing stroke thickness:

- 1. Choose the desired stroke by controlling the slider in the up left.
- 2. You can see the current chosen stroke applied on the color chooser button above of the slider.

## How to change the color of a drawn shape:

- 1. Select any shape(s) from the shape list in the right as in Fig. 3.
- 2. Right Click on them or click F from the keyboard.

- 3. A color picker window appears.
- 4. To Set a filling color, choose any color and hit select color button.
- 5. To Set a border color, choose any color and hit select border button.
- How to change the properties of a drawn shape:
  - 1. Select any shape(s) from the shape list in the right as in Fig. 3.
  - 2. Click D from the keyboard.
  - 3. A dialog box appears to set the properties of every selected shape.