Alexandria University
Faculty of Engineering

Computer and Communication Engineering
Specialized Scientific Programs

CC272

Programming II
Fall 2024/2025

Lab 8 (Mini Paint 2)

Overview

Drawing and painting applications are widely used and valued for their broad feature sets, including creating, modifying, and managing geometric shapes.

In this lab, we will develop Mini Paint Part 2, a continuation of our simplified painting application.

This version includes enhanced functionality, allowing the user to move, resize shapes, and save, load shapes to/from a file.

The supported shapes are circle, rectangle, square, and line segment.

Tasks

1. Design the UML Class Diagram
   Create a UML class diagram for the system. It should include, but is not limited to, classes representing shapes.

   The design must incorporate Object-Oriented Programming (OOP) concepts such as inheritance and polymorphism.

2. Design and Implement a GUI that allows users to perform the following tasks:
   - Move shapes to different positions.
   - Resize shapes by adjusting their dimensions.
   - Save and load shapes to/from a file.

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3. Simplified Input for Shape Properties
   - Cursor-based drawing is not required.
   - Provide buttons to select shapes.
   - Upon selection, a dialog box should appear for entering properties such as position, radius, or length.

4. Shape Management
   The GUI should include a drop-down menu listing all drawn shapes with unique names (e.g., "circle01," "square04").
   This menu enables users to select a shape and apply the desired operation (e.g., move, resize).

5. Implement your design in Java and use Swing graphics library.

6. You can modify the interface of the shape to suit your requirements.

7. Your Code must be clean, commented and well documented.

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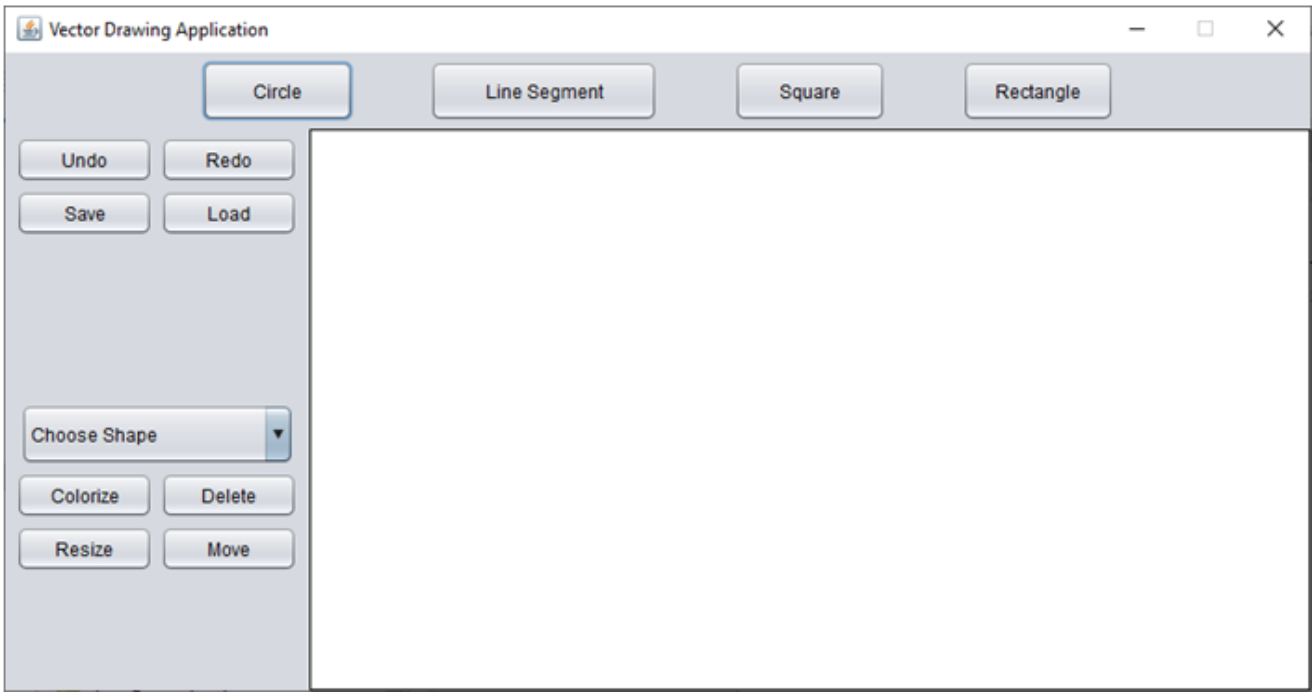
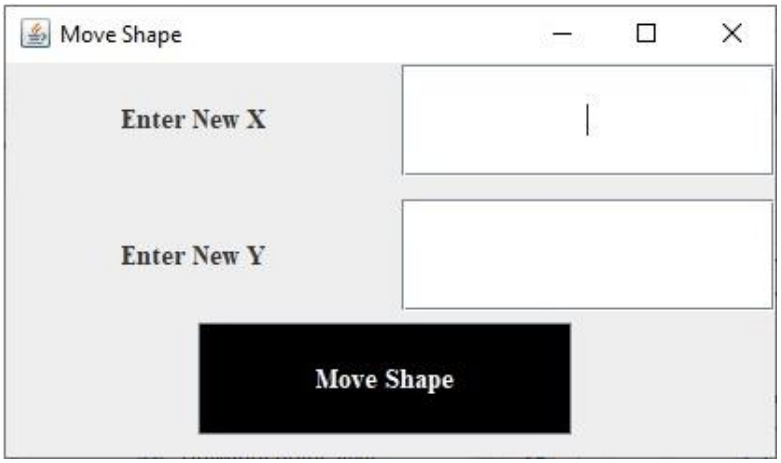
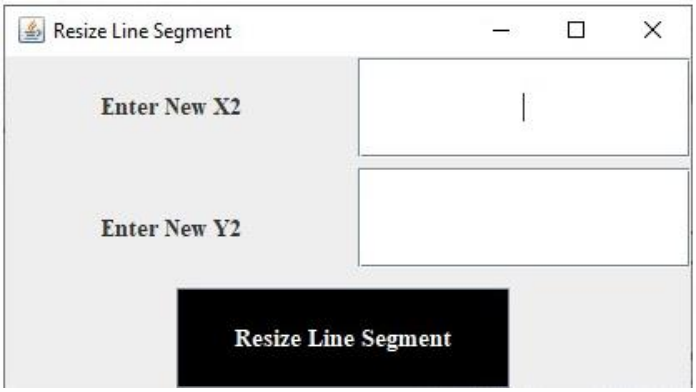
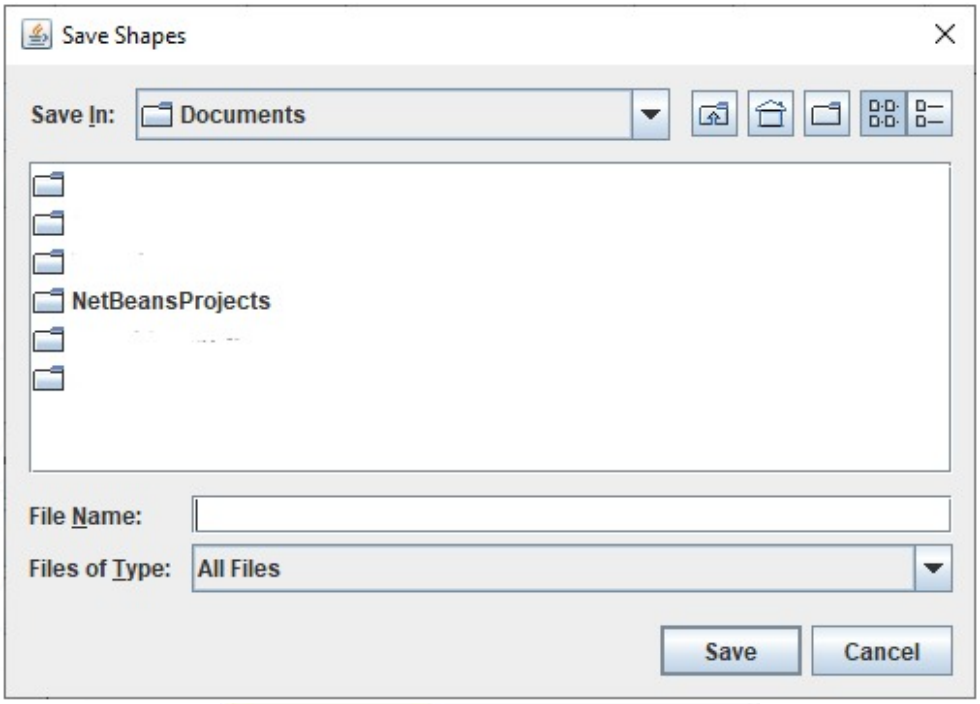
8. The main window might look like the example shown in the following figure:









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Required

- You are required to complete the tasks and submit a zipped file containing the Java files and the UML Diagram online through a Google form that will be available for you in next few days.
- The deadline for delivery is **Friday, November 29, 2024, at 11:59 PM.**
- A discussion is made with you at your lab time next week on what you have delivered.

Policy

- You must work individually (Continue your work in Phase1).
- Submitting copied work will result in zero in this lab and another penalty. It is better to submit no work than to submit duplicated work.
- Late submission is not allowed.

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