PaintBrush Documentation

# Overview

The PaintBrush project is a simple Java applet-based drawing application that allows users to create and manipulate basic shapes such as rectangles, ovals, and lines. The application provides features like selecting colors, toggling between solid and hollow shapes, and undo/redo functionality.

# Classes

1. **Shape (Abstract Class)**

* Represents a generic shape with common attributes and methods.
* **Attributes:**
  + **x1, y1, x2, y2**: Coordinates defining the shape.
  + **color**: Color of the shape.
  + **isSolid**: Boolean indicating whether the shape is filled or not.
* **Abstract Method:**
  + **draw(Graphics g)**: To be implemented by subclasses for drawing the shape.

1. **Rectangle (Subclass of Shape)**

* Represents a rectangle.
* Implements the **draw** method to draw a filled or hollow rectangle.

1. **Oval (Subclass of Shape)**

* Represents an oval.
* Implements the **draw** method to draw a filled or hollow oval.

1. **Line (Subclass of Shape)**

* Represents a line.
* Implements the **draw** method to draw a line.

1. **PaintBrush (Applet Class)**

* Main class representing the painting application.
* Implements the **MouseListener** and **MouseMotionListener** interfaces to handle mouse events.
* **Features:**
  + Selection of shapes: Rectangle, Oval, Line, Pencil, Eraser.
  + Selection of colors: Red, Green, Blue, Black.
  + Checkbox for toggling between solid and hollow shapes.
  + Buttons for Undo, Redo, and Clear All.
* **Methods:**
  + **init()**: Initializes the applet by setting up UI components.
  + **createButton(String label, int shapeType)**: Creates buttons for different shapes and adds action listeners.
  + **handleButtonClick(int shapeType)**: Handles button clicks, performs actions based on the selected shape.
  + **createColorCheckbox(String label, Color color)**: Creates checkboxes for selecting colors.
  + **mousePressed(MouseEvent e)**: Handles mouse press events.
  + **mouseDragged(MouseEvent e)**: Handles mouse drag events, allowing users to draw shapes interactively.
  + **mouseReleased(MouseEvent e)**: Handles mouse release events, finalizing the drawn shape.
  + **paint(Graphics g)**: Paints the shapes on the applet.

# Usage

1. Compile the Java files.
2. Run the applet in a Java-compatible environment (e.g., applet viewer).
3. Use the UI buttons to select the desired shape, color, and drawing mode.
4. Interact with the applet by clicking and dragging the mouse to draw shapes.
5. Utilize Undo and Redo buttons to manage the drawing history.
6. Clear All button removes all drawn shapes.

# Notes

* This project uses the AWT library for graphical user interface components.
* Shapes are stored in an ArrayList for easy management and manipulation.
* Undo and Redo functionality is implemented to provide users with a flexible drawing experience.
* The applet allows users to draw both solid and hollow shapes.
* The eraser functionality draws a white oval to simulate erasing.