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10.31.2023

TERM PROJECT PROPOSAL

Project Proposal:

Sketch Paint App

Project Overview:

The “Sketch Paint App” is a Java-based graphical application that allows users to draw on a digital canvas using various colors. The application provides an interactive and user-friendly graphical user interface (GUI) powered by Swing. Users can select colors, clear the canvas, and undo the last drawn shape.

Project Purpose:

The project aims to deliver a creative and engaging platform for users to express themselves through digital art.

Input and Output:

The primary input to the Sketch Paint App is user interaction through the GUI by selecting colors from a dropdown menu, drawing shapes by clicking and dragging the mouse, clearing the canvas by using the “Clear” button, and undo the last drawing using the “Undo” button.

Sample Dialogue:

- User selects “Blue” from the color dropdown
- User draws a blue line on the canvas
- User clicks “Undo” to remove the last line drawn
- User selects “Purple” and continues drawing

Main Algorithms and Data Structures:

The core algorithm of the application involves tracking the user’s mouse events to create and store paths representing the drawn shapes. The data structure primarily used is the `ArrayList`.

Flowchart:

1. Start Application.
2. Initialize canvas and default color (Black).

3. Await interactions.
4. On mouse press, create new path and set the starting point.
5. On mouse drag, extend the path to the current mouse position.
6. On mouse release, save the path along with the selected color.
7. Allow users to select colors, clear the canvas, or undo drawings.
8. Repeat steps 3-7 based on user interactions.
9. Exit application.

Template Classes and Methods:

Sketch Main Class

- Entry point of the application, responsible for starting the GUI
- Configures the graphical user interface (GUI) window
- Sets up the canvas and control panel

DrawingPanel Class

- Method: Set current drawing color based on selection or default
- Method: Clear the canvas, removing all drawn shapes
- Method: Undo last drawn shape

CustomShape Class

- Method: Renders shape on canvas

Error Handling:

If user attempts to “Clear” or “Undo” a blank canvas then the appropriate error message and confirmation dialogue box appears to prevent application from malfunctioning due to invalid input.