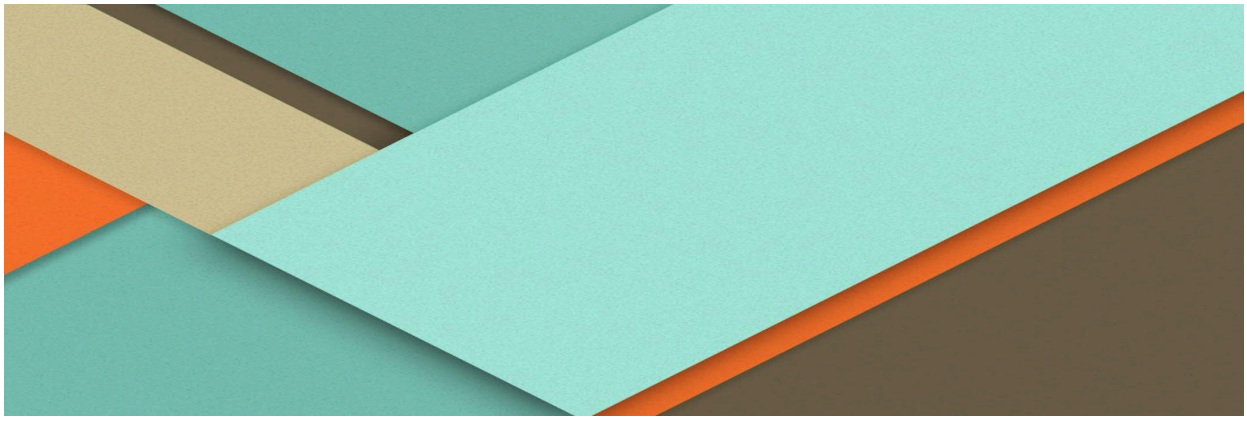


My Drawing App Report

Palette

Detailed Report

—

Roya Nikseresht

Email: rn211@student.london.ac.uk

Overview

The project is a feature-rich drawing application that combines creativity with interactive game elements to enhance user engagement. It provides a suite of drawing tools, including traditional tools (e.g., Freehand, Line, and Shape tools) and unique features like the **Spray Can**, **Sparkle Effects**, and **Editable Shapes Tool**. Additionally, the project introduces **game-like challenges** such as the **Shape Memory Game** and **Circle Draw Game**, offering users a unique blend of creativity and interactive play. The app is designed to be user-friendly, visually appealing, and accessible across devices.

Goals

1. To provide a versatile and engaging drawing platform that caters to both creative and playful users.
2. To introduce interactive games that encourage skill-building and memory challenges alongside free-form creativity.
3. To ensure smooth performance and an intuitive user interface.

Specifications

Core Features:

- Freehand, Line, Rectangle, and Ellipse drawing tools.
- Interactive tools: Spray Can, Editable Shapes Tool, Mirror Draw Tool, and Sparkle Effects.

Game Features:

- **Shape Memory Game**: Users replicate shapes after briefly viewing them.
- **Circle Draw Game**: Users attempt to draw circles as accurately as possible.

User Interface:

- Grid-based responsive layout with a sidebar for tool selection, color palette, and options.

- Light/Dark mode toggle for accessibility.

Technical Implementation:

- Complex coding techniques, including arrays of objects, nested loops, event handling, and matrix transformations.
- Seamless integration of game logic and drawing tools.

Milestones

Milestone	Description	Timeline
Milestone 1: Research & Design	Complete UI mockups, tool logic, and flow diagrams.	Week 1–2
Milestone 2: Core Tool Development	Implement Freehand, Line, Rectangle, Ellipse tools and Dark Mode.	Week 2–4
Milestone 3: Interactive Features	Develop Spray Can Tool, Editable Shapes Tool, and Sparkle Effects.	Week 5–6
Milestone 4: Game Development	Finalize Shape Memory and Circle Draw games, including logic and user interaction.	Week 6–7
Milestone 5: UI Refinement & Testing	Optimize UI design, test tool performance, and fix bugs.	Week 7–8
Milestone 6: Final Testing & Documentation	Performance optimization, user testing, and submission preparation.	Week 8–10

Project Log

Week 1–2: Research & Design	• Researched existing drawing apps for inspiration (like Paint, Adobe Illustrator, etc.). Focused on features for creativity and engagement.
	• Brainstormed game ideas (Shape Memory, Circle Draw) to combine play with drawing.
	• Created flow diagrams to map user interactions—how the games work, how users draw, and switch tools.
	• Designed basic UI wireframes:
	  ○ Sidebar with drawing tools.
	  ○ Color palette on the side.
	  ○ Save, clear buttons at the top.
	  ○ Focus on ease of use and clean design.

Week 2–4: Core Tool Development	• Integrated the **Color Palette** so users can change brush color. • **Dark Mode Feature**: Added a toggle button to switch between light and dark themes for better accessibility. Used CSS classes to dynamically update the app's background and UI colors. • **Testing**: All tools work together, but had some issues with shapes being hard to select at smaller sizes.
Week 5–6: Interactive Features	• **Sparkle Effect**: Used randomness in particle opacity and position to simulate sparkling effect (like fireflies). Implemented with p5.js's random() function. • **Color Palette (Rainbow Attempt)**: I wanted to make the color palette look like a smooth range of colors, resembling a rainbow gradient, to make color selection more visually appealing. However, I faced difficulties implementing the gradient effect within the palette. The challenge involved rendering smooth

	transitions between colors dynamically on the interface. **I plan to revisit this feature in future iterations for better usability.**
Week 6–7: Game Development	**Shape Memory Game**: • Display random shapes briefly, then ask the user to draw them. • Used `get()` and `set()` to compare the user's drawing to the target shape. Added success/fail feedback. • Problem: Matching shapes exactly is tricky—working on improving accuracy detection (size, color, position). **Circle Draw Game**: • Random circles appear, users must draw circles close to the target. • Used `dist()` to check radius and center point. • Timer added, user gets points for accuracy.

Week 7–8: UI Refinement & Testing	• **Polished UI**: Cleaned up button spacing, made sure all tools are easily accessible.
	• **Dark Mode Testing**: Ensured all UI elements (buttons, canvas, toolbars) adapted properly in both light and dark themes. Fixed minor bugs with text visibility and button hover states.
	• Added tooltips for each button to clarify what they do (Circle Draw, Memory Game, etc.).
	• **Testing phase**:
	  ○ Fixed bugs with shape tools (rectangles weren't appearing at all).
	  ○ Game logic: Fixed bug where the user's drawing wasn't resetting after the game ends.

Week 8–10: Final Testing & Documentation	**Optimized code**: Improved performance on canvas when there are many shapes (no lag).

	Used efficient loops and cleared unused objects. **User testing**: Asked friends to try it. Found some UI issues and fixed them as much as I could. **Documented everything**: Added comments to the code. Wrote the final project overview for submission.

User Interface Design

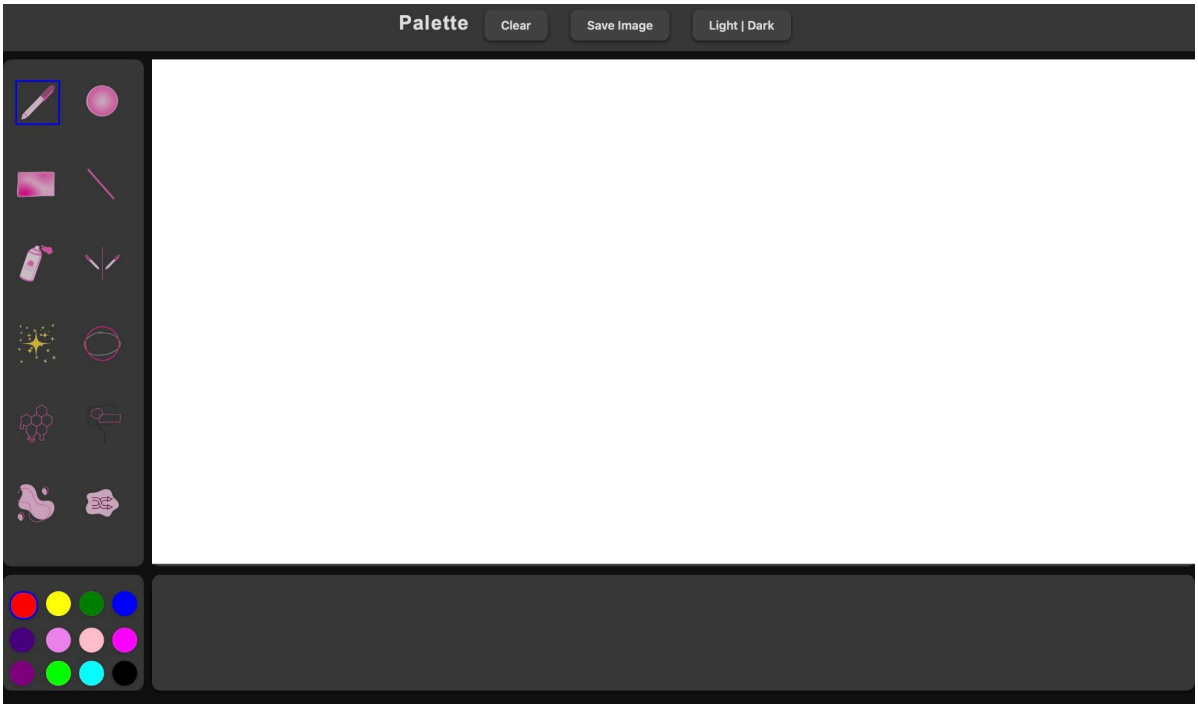
1. Main Drawing Canvas and Tool Selection

- The main drawing area is central, with easy-to-use tools on the left sidebar.
- Tools include freehand, shapes, games and challenges, and interactive effects.

2. **Color Palette**

    - The color palette is designed for versatility, allowing users to select colors easily. [**Note: The intended rainbow gradient palette was planned but not implemented due to the difficulty of this feature.**

3. **Dark Mode Button**



    - Dark Mode was added to improve user comfort during extended drawing sessions.

4. **Game Integration**

    - Both the **Shape Memory Game** and **Circle Draw Game** are seamlessly integrated into the app, providing a fun and challenging way to engage with the drawing tools.

My Future Plans For This Project

Looking ahead, I have several ideas to further improve and expand the drawing app. These enhancements focus on increasing functionality, user engagement, and accessibility:

1. **Implementing the Rainbow Color Palette**:
   I plan to revisit the rainbow gradient color palette, ensuring a smooth and visually appealing range of colors. This will provide users with a dynamic and intuitive way to choose colors, enhancing the artistic experience.

2. **Advanced Game Features**:

   New Games: Introduce additional game modes, such as a timed drawing challenge or a creative freestyle competition with scoring systems.

3. **Enhanced Tools**:

   Brush Customization: Expand the freehand tool with options like different brush textures, thickness controls, and opacity settings.

4. **Cross-Platform Support**:

   Explore the possibility of making the app available on mobile devices and tablets, as touchscreens offer a natural interface for drawing.