Paint Canvas Test Plan

Version 1.0

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Revision History:

**Section 1: Introduction**

The Paint Canvas program is hosted on a website and will begin with an introduction animation that explains the website then and a “Get Started” button. Once the user clicks the button it will navigate to a page with a form for variables that go with an initial “experiment”. The user will enter the size of the grid, the three colors they wish to use, and a stopping criteria for the experiment. After those inputs are submitted and verified a single animation will play of the experiment with drops of paint falling onto a grid until the stopping criteria is met.

Once this has been completed the user will have the option to continue and after they click that button they will start an experiment with a series of the previous painting. They will need to specify the independent and dependent variables, the grid size, the colors used, the stopping criteria, and the number of repetitions. After those have been chosen the website will run through the inputs and once the experiment is complete it will display the results. Firstly it will display a table with the results, then it will ask users to select data points to create a graph of the data. At this point the user will be prompted to either quit or start over.

**Section 2: Items to be Tested**

The testing environment should be Google Chrome on Version 119.0.6045.159 (Official Build) (64-bit).

**2.1 Input for initial painting:** The form for inputs should be tested by first entering invalid data, numbers too low, too high, and characters other than digits. Check that appropriate error messages are given. Then enter data that should be valid and submit, check console log to see that variables were assigned properly.

**2.2 Animation:** Visually inspect after the form is submitted that the animation runs smoothly, the grid is properly sized, the correct colors are used, and the appropriate stopping criteria is used.

**2.3 Input for experiment:** The form for inputs should be tested by first entering invalid data, numbers too low, too high, and characters other than digits. Check that appropriate error messages are given. Then enter data that should be valid and submit, check console log to see that variables were assigned properly.

**2.4 Table of Results:** Check that the results are displayed correctly with the appropriate headers and data points.

**2.5 Results Chart:** Verify that all applicable options for dependent and independent variables are available. Then verify that after that form is submitted it properly draws the graph with correct labels, data points, scaling, and visual features.

**2.6 Site Continuity:** Do a complete run through of the site ensuring that each page has the background loaded correctly, links and buttons for continuing with the experiment work, and the page properly resets if the user decides to do the experiment again, including that variables from the previous experiment have been cleared out.

**Section 3: Testing Record**

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**PaintCanvas User Manual**

**Version:** 1.0  
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**1. Introduction**

Welcome to PaintCanvas, a fun and educational website that allows you to experiment with colors and explore the effects of mixing different paint drops on a grid canvas. This user manual will guide you through the website's features and help you make the most of your experiments.

**2. Getting Started**

To get started with PaintCanvas, visit our website [URL]. Upon arrival, you will be greeted with an animated introduction that explains the purpose of the website. Click the "Get Started" button to begin your color mixing adventure.

**3. Explaining the Experiment**

PaintCanvas is designed to simulate the random painting of a grid canvas using various colors. The experiment involves selecting parameters and running simulations to observe the effects of mixing paint drops. Key terms you'll encounter:

* **Independent Variable:** The factor you choose to vary in the experiment.
* **Dependent Variables:** The results you observe based on the independent variable(s).

**4. Setting Up the Experiment**

Before you start the experiment, you'll need to set up the parameters:

* **Grid Size (X, Y):** Determine the dimensions of the grid canvas.
* **Colors (C1, C2, C3):** Choose three colors from a set of eight options.
* **Stopping Criteria (S):** Select one of three stopping criteria.
* **Number of Repetitions (R):** Define how many times the experiment will be repeated.

Ensure to input appropriate values, and if an error occurs, a descriptive error message will guide you. For limits and justifications, refer to the documentation.

**5. Running the Experiment**

Follow these steps to run the experiment:

1. Select the independent variable (D, X, or R).
2. Provide a list of increasing values for the chosen independent variable.
3. Set values for the remaining variables according to your choice.
4. Click "Paint”

The website will simulate painting on the grid according to your parameters. The progress will be displayed to assure you that the computations are ongoing.

**6. Displaying Results**

Once the simulations are complete, a table of results will be presented. The table includes the independent variable, fixed values, and calculated values (A, A1, A2, A3, B, and C). Use this data to analyze the outcomes.

* A: The number of paint drops put on the canvas before the painting halts
* A1. The number of paint drops on the canvas for Color 1.
* A2. The number of paint drops on the canvas for Color 2.
* A3. The number of paint drops on the canvas for Color 3.
* B: The maximum number of paint drops on any given square when the painting halts (that is, looking at all the squares, what is the largest number of paint drops that fell on one square?)
* C: The average number of paint drops over all the squares when the painting for this canvas halts

**7. Creating Graphs**

You can visualize the data by selecting one or two dependent variables. Click "Continue" to display a graph with the independent variable on the horizontal axis and the selected dependent variable(s) on the vertical axis. Customize the graph as needed.

**8. Continuing or Starting Anew**

After viewing the graph, you have three options:

1. Make a new table/graph from the current data.
2. Abandon the current experiment and start a new one.
3. Quit the program.

Choose the desired option, and the website will respond accordingly.

**9. Conclusion**

Thank you for using PaintCanvas to explore color mixing experiments. We hope this user manual has helped you navigate the website effectively. Feel free to continue experimenting, and if you have any questions or encounter issues, please don't hesitate to reach out for assistance.