Pixel Edit

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# Overview:

The aim of this application is to allow the user to create or edit already existing sprites.

I am aiming to allow the user to be able to even make gifs with overlay functionality and grid display.

# Context:

The problem with applications such as photoshop, paint and other image editing software such as gimp is they offer a minimal amount of pixel art support with none of them allowing you to create gifs without having to mess around with layers and other time-consuming gimmicks, my goal for my application is to allow the user to create smooth and detailed pixel animations with ease.

Goals: **Graphic user interface:**

Create a productive and simple user interface so that the user does not have to undergo a learning curve and can just start creating amazing art from the moment they open the application.

**Edit Image:**

Allow the user to create new pixels or edit already existing ones on an image with user friendly tools such as:

* **Pencil**

Draws a square, Size \* Size.

* **Brush**

Draws a circle, Diameter = Size.

* **Bucket**

Changes all pixel neighbors with the same colour to a selected colour.

* **Line**

Draws a line from point 1 to point 2, Point 1 = mouse pressed, Point 2 = mouse released.

* **Square**

Draws a square with opposite edges being Point 1 and Point 2, Point 1 = mouse pressed, Point 2 = mouse released.

**Over Lay:**

Displaying previous frame or image over the top of the frame you are working on.

**Grid:**

Allow the user to display a grid overlay that will have customizable grid spacing and sizing to help line up pixels.

**Drag and Drop:**

Allow the user to be able to simply drop their art into the application instead of having to open a finder and selecting their art.

**Sprite Sheet:**

The ability to turn a gif or series of images in to one sheet with all images in order for the user to use in other applications such as game engines.

**GIF Creator:**

Allow the ability to create gifs from multiple images and can over lay the previous frame to help the user know what pixels to edit making allowing them to create gifs faster.

This feature will have a live preview of their gifs playing and a section of the application will display the frames of the current gif in descending frame order.

**Cellular Automata:**

This will allow the user the ability to try simple artificial intelligence to improve their work. Examples of possible functions:

* **Auto-Outline**

Finds a pixel that is next to 3 of more empty pixels and makes pixel equal selected colour.

* **Auto-Shade**

Finds pixels to the direction selected from selected colour and darkens or brightens them.

* **Auto-Delete Excessive Pixels**

Finds pixels with selected colour and removes them if neighboring pixels with same colour is more than the selected amount.

**Multi-User Edit: (Possible feature)**

Create the ability for the user to allow another user to edit their image as they work on it, this could allow the user to create more abstract artwork and will make the application more appealing to non-art people to use.

# **Diagrams:**

**Lay Out:**

**Tool Bar**

**Work Area**

**Window Menu**

**GIF Live View**

**GIF Frames**

**Work Area:**

This is a panel where the user can view and edit their image using the tools from the tool bar.

**Tool Bar:**

This area is where the user can select what tool they would like to use on their image.

**GIF Live View:**

This is where the user can view the current GIF or pixel art they are working on.

There is a start and stop button for the user to use to stop or play a GIF they are currently working on. (Updates when user saves)

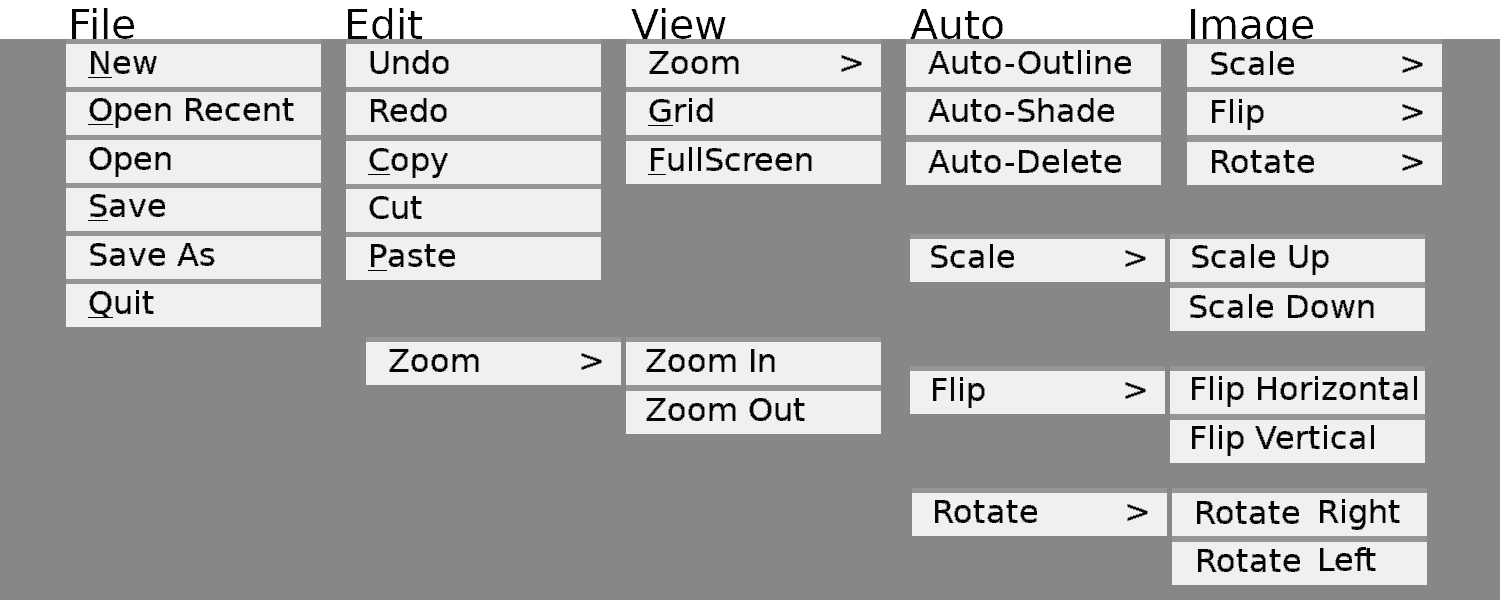
**GIF Frames:**

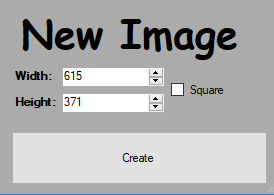
This is where the user can view all the frames of a gif and select what frame they would like to edit.

**Window Menu:**

This is the drop-down menu that contains many functions such as Save, Load, New, Toggle GIF Frames, Zoom, Cellular Automata etc.

**Windows Menu:**

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**File:**

**- New**

Creates a new Canvas and prompts you to enter canvas colour and size.

**- Open Recent**

Opens recent canvas.

**- Open**

Prompts the user to select an image from their PC.

**- Save**

Saves the canvas to the user’s PC in the selected format. (Will override if already saved)

**- Save As**

Saves the canvas to the user’s PC in the selected format.

(Will always prompt user to select a spot to save and name)

**- Quit**

Exits the application.

**Edit:**

**- Undo**

Undoes users’ previous action.

**- Redo**

Undoes recent undo.

**- Copy**

Copy's what the user has selected. (Keeping what is selected)

**- Cut**

Cuts what the user has selected. (Deleting what is selected)

**- Paste**

Prints what the user most recently copied or cut.

**View:**

**- Zoom**

Zooms the canvas in or out.

**- Grid**

Toggles grid on or off.

**- Full Screen**

Maximizes window.

**Auto:**

**- Auto-Outline**

Creates an array of all the pixels on the canvas thenfinds each pixel that is next to 3 of more empty pixels and makes that pixels colour equal to the currently selected colour.

**- Auto-Shade**

Creates an array of all the pixels on the canvas thenfinds pixels to the direction selected from selected colour and darkens or brightens them.

**- Auto-Delete**

Creates an array of all the pixels on the canvas then finds pixels with selected colour and removes them if neighboring pixels with same colour is more than the selected amount.

**Image:**

**- Scale**

Scales the image up or down using the selected interpolation.

**- Flip**

Flips the image Horizontally or Vertically.

**- Rotate**

Rotates the image right or left.

**Tool Bar:**

This is the section of the application where the user can decide how they would like to edit the current canvas.

**Colour Picker:**

**Size picker and indicator**

**Colour Picker**

Allows the user to select a primary and secondary colour to use.

**Size Picker and Indicator:**

**Brush**

**Pencil**

Allows the user to change the size of a tool and has a pixel

displayed under slider to show the user the current size selected.

**Line Tool**

**Paint Bucket**

**Overlay Tool**

**Grid Tool**

**Square Tool**

**Ellipse Tool**

**Pencil:**

Draws a square on the canvas every update.

**Brush:**

Draws a circle on the canvas every update.

**Paint Bucket:**

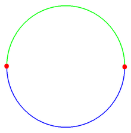
Changes all pixel neighbors with the same colour to the selected

colour.

**Line Tool:**

Draws a line from point A the point B.

(point A = Mouse Down Pos, Point B = Mouse Up Pos)

**Ellipse Tool:**

Draws an Ellipse with the first antipodal point being point A and the second being point B.

(point A = Mouse Down Pos, Point B = Mouse Up Pos)

**Square Tool:**

Draws a Square from point A being the first edge and point B being the opposite one.

(point A = Mouse Down Pos, Point B = Mouse Up Pos)

**Grid Tool:**

Toggles on the grid.

**Overlay Tool:**

Displays previous frame over current canvas.

**Work Area:**

This is the main area that will contain multiple panels with one displaying the current canvas, one displaying the grid and one displaying the overlay.

Only the main canvas will be checking for mouse interaction from the user as it is the only one that is required to do so in order to allow the user to edit the current image.

**Canvas:**

This is where the image that the user is currently editing will appear, this panel will get the users current tool and mouse status to determine where the image is to be altered.

**Grid:**

This is a panel that is over laid on top of the current canvas which will display a grid with the users specified spacing.

**Image Over-Lay:**

This is a panel that will over lay the previous frame or image over the top of the current canvas.  
 The user will have the ability to toggle this on or off and to be able to change the opacity of it.

**GIF live view and GIF frames:**

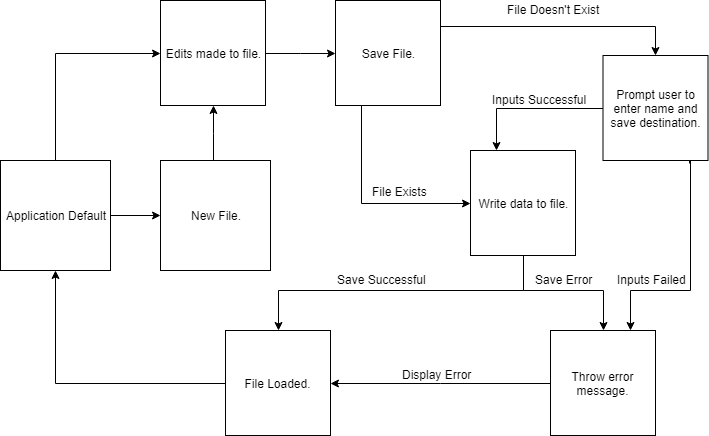
**GIF live view:**

This is a panel that will play the current GIF you are working on and will be updated every time you save.

This can be toggled to play or stop.

**GIF Frames:**

This is an array of panels that will display all frames of the current GIF in order and could also allow the user to select what frame they would like to edit.

**State diagram:**

**Current Mockup Design:**

