**Applied Maths and Graphics Functional Checklist for your Graphics Application**

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Please place an “x” in the **Exists**? column if the feature is included in your submission. If accessing the feature is not completely obvious, please add comments in the **Access Tips** column. Please do not edit the Mark category, Features or Conf columns

Works on final application

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| --- | --- | --- | --- | --- |
| Mark Category | Feature category: Images | Exists? | Access Tips | Conf |
| 3rd- Mid 2.2 | Load and save image from/to file using basic Processing | x | Press Load on top bar and select image from file dialog, then draw the image using the “image” radio button. Once changes have been committed to the image you will see them when you save the image using the save button located next to load button. |  |
| 3rd- Mid 2.2 | Basic RGB manipulation of image – e.g. convert a colour image to a black-and-white or greyscale versions of the image | x | Once image has been loaded then drawn and then selected using selection tool, go to top bar and select the drop down menu titled “Photo filter”. Then from that drop down menu click “greyscale” |  |
| Mid 2.2-High 2.1 | Implement Point Functions such as brighten/contrast/invert to manipulate image | x | Once image is drawn and selected the image can be edited with the hue, saturation and brightness bar. These can all be used together but if you want to use contrast or the filter but still want the changes you made with these sliders you will need to commit the changes first. For adjusting contrast press the toggle button under contrast slider (make sure to commit any other changes first otherwise they will not be affected by the contrast) then you will be able to change the contrast and the contrast alone. Commit the changes then unselect the contrast toggle button. |  |
| Mid 2.2-High 2.1 | Implement convolution filter to blur, sharpen and find edges | x | Once Image is loaded and selected you use the “photo filter” drop down menu again and all the sharpening, blur etc filters are there. Just click them and they will work. Only can use one at a time but if you commit your changes between applying each filter you can have all three on the image. |  |
| Mid 2.2- High 2.1 | Implement “Undo” feature, to return image to its original state without a re-load | x | Once the image is loaded and image is selected, **if the image has been changed and committed to** then the undo button on the top bar will remove these changes. If no changes have been committed the undo button will simply reset the active sliders or filters on the image. |  |
| 1st | Implement image as a “live” object (Can have multiple images, each can be selected for process, moved and deleted) | X (but no movement) | Once image is loaded, press “image” radio button and then draw the image as you would a normal shape. You can continually draw images, and select the images and make changes to the individual images if you select one image at a time. Otherwise you can make changes to all selected images. Any image selected once delete button Is pressed located under select button will be deleted. |  |
|  | Feature category: Drawing Shapes |  |  |  |
| 3rd- Mid 2.2 | Drawing “dead” shapes (which cannot be further manipulated) via a single mouse click to place the shape. More marks for drag to size shape. | x | Once program has started click from any of the shape radio buttons on the side bar, you can click and drag the shape to size. |  |
| Mid 2.2-High 2.1 | Implementing a “Drawing List” to show many shapes simultaneously.  I.e. Achieve “live shapes” | x | Just keep drawing shapes |  |
| Mid 2.2-High 2.1 | “Live shapes” – 3 or more different shapes (line, rect, ellipse +++) | x | All shapes can be drawn at the same time, 4 shapes (not including image) are provided. |  |
| Mid 2.2-High 2.1 | “Live shapes” – Selecting and Deleting | x | Use the select radio button and click on a shape. You should see a border box around the shape. Any shape selected once delete button Is pressed (located under select button) will be deleted. |  |
| Mid 2.2-High 2.1 | “Live shapes” - Set Fill colour, line colour and/or line-weight | x | Once shape is selected use any of the sliders on the side of the screen. Red, green, and blue for shape fill and the lines are done by the ones below. Note you will need to increase the stroke slider to see the lines. Once you are happy with the changes press update to bind the changes to the selected shape/s.  Please note that changes you make with the sliders will be visible before you bind them (the changes have not been made to the actual shape until you press update), but if the selection box is still around the shape, then the shape is still selected. Even when you press update the selection box stays, you have to unselect the shape and you will see the changes have been made. |  |
| 1st | Moving a previously drawn shape with the mouse |  |  |  |
| 1st | Draw open polyline with mouse |  |  |  |
| 1st | Draw and close a polyline with mouse, which then becomes a polygon that can be filled |  |  |  |
| 1st | Drawing Curves  of any type | x | Selected the arc radio button and draw. |  |
|  | Feature category: User Interface |  |  |  |
| 3rd- Mid 2.2 | Basic use of Graphical User Interface buttons to do various actions (process image, load file), mainly adapted from the given examples. | x | Used range of plain buttons, toggle buttons, radio buttons and sliders. |  |
| Mid 2.2-High 2.1 | Loading and saving image via user interface and file dialogues. | x | Located in the top bar |  |
| Mid 2.2-1st | Good use of User Interface Elements showing independent design beyond those of the given examples. Ease of use taken into consideration | x | Program when fully understood is simple to use. |  |
| 1st | Use of sliders to alter image “live” | x | All the sliders work live(you can see what the image will look like as you are changing the sliders) as long as the shape or image is selected. |  |
| 1st | Use of own colour picker to set line and fill colour of shapes. | x | Sort of, as use sliders to pick the colour of the image. But in terms of a traditional colour picker no. |  |
|  | Stretch Goals  These are examples… add your own if you think they are sufficiently advanced features |  |  |  |
| 1st+ | Change Hue, Saturation of image using own RGB-HSV conversion | x | Used in updateImage() function located in the DrawingList page. Takes in input from sliders and changes image, hue, saturation and brightness. |  |
| 1st+ | The use of “handles” on shapes to scale |  |  |  |
| 1st + | Linking curves together to form longer curves |  |  |  |
| Others?  You suggest them. | Using a selection box around the selected shape. (shows shape is selected). | x | When shape is selected selection box is show  (not perfect as box sometimes doesn’t cover entire shape or can not cover the shape at all). |  |

**Additional note: When adding filters to the image, none of the other image functions will work, to re enable them you need to either press commit on the top bar which will add the changes to the image or on the “photo filters” drop down box you need to select “no filter” and all other image processing functions will work.**

**Contrast works in the same sort of way. You cannot adjust the contrast till the “EnableCon” toggle button is toggled but all other image functions should work. Once the toggle button is clicked you will only be able to change contrast and no other image function, to fix this you will need to click the toggle button once again to deactivate it. You will need to deactivate it even if you “commit” your contrast changes to the image or if you “undo”. None of the other functions deactivate the contrast feature, only the toggle button will.**

**Please also note you can only increase the image brightness, saturation, hue and contrast of the original image. You can obviously decrease any of these if you have previously increased it while the changes have not been committed and you still are using the slider, but you cannot decrease any of these after a commit has been made. So for example for saturation it will not go to black and white. The only way to remove any changes you have made is to press “undo”.**

**Also, another note when selecting multiple shapes or images or both sometimes it may not select straight away, it could be my computer. Click all over the shape (maybe multiple times ) and it will eventually select. It’s the same with delete, maybe unselect a shape then press delete and it should work then just delete the one you unselected. Very inconsistent with tests so may work straight away or may need a few more clicks.**

**Overall mark:**

**Feedback Comments:**