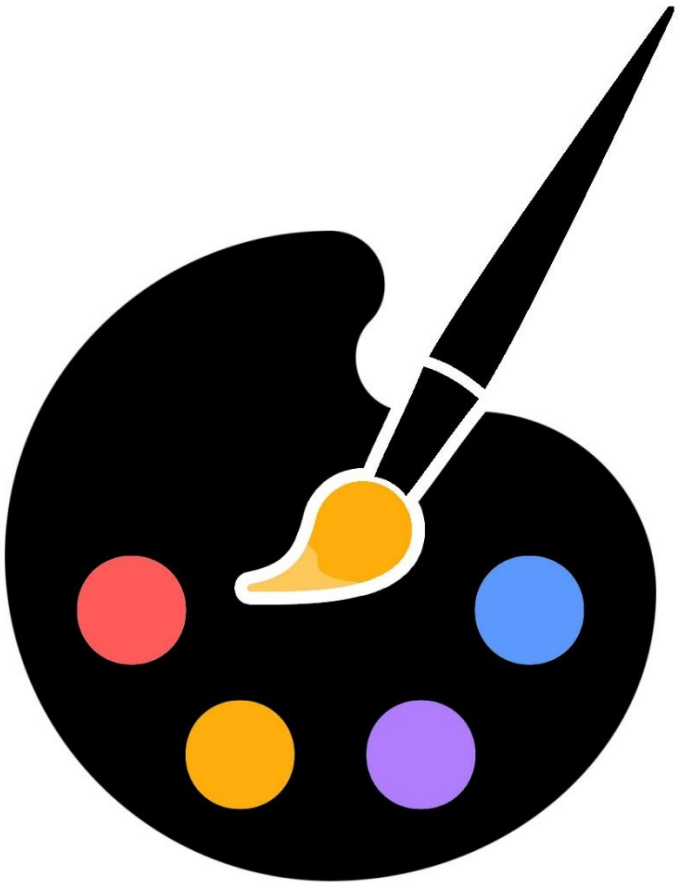
VECTOR DESIGN TOOL



USER GUIDE

User Guide

The following user guide outlines all key features and functions within the CAB302 Vector Design tool software, to assist you in producing your beautiful 2D vector graphics!

Main Screen

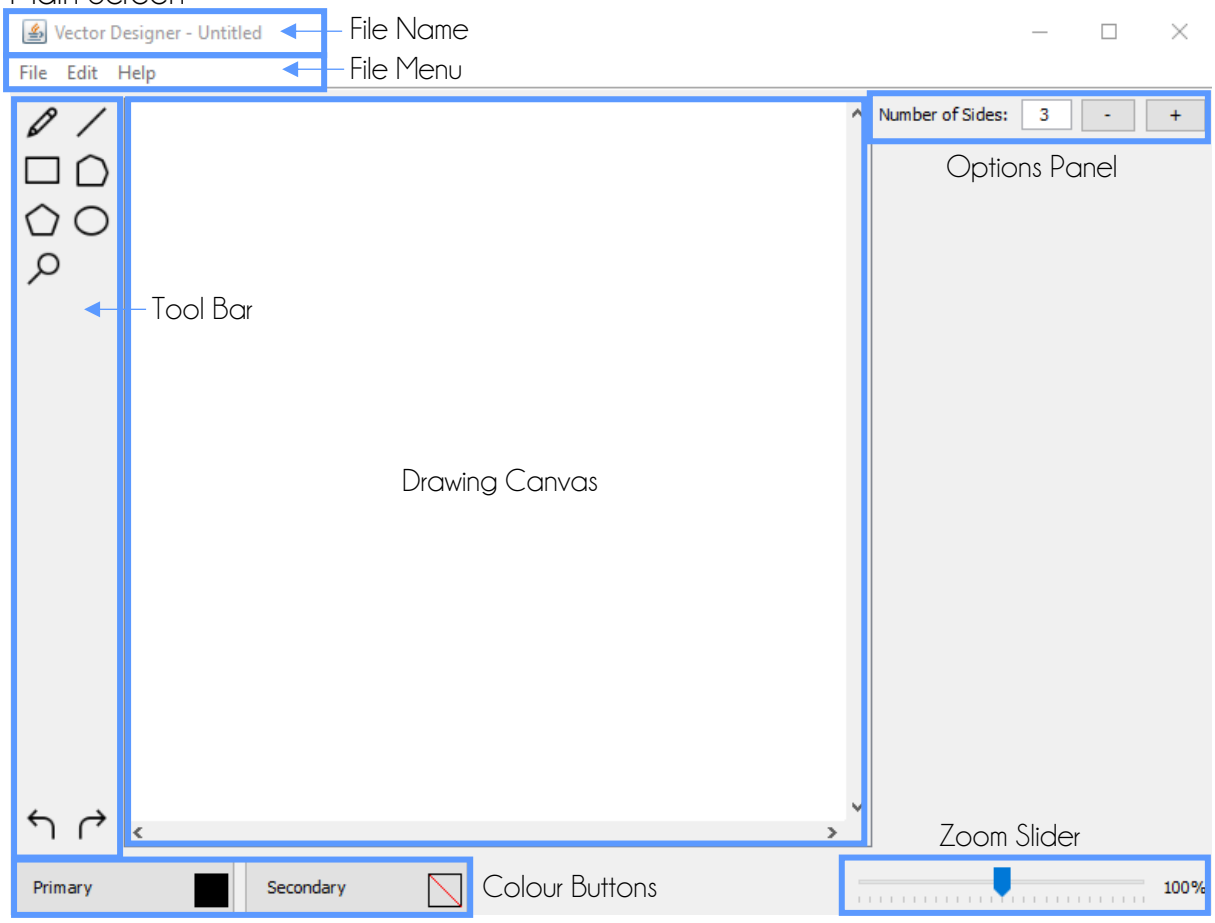
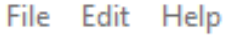


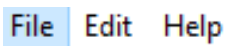
Figure 1: Main Window

Here we can observe the main program screen, with each important function highlighted. From this screen, we can select our drawing tool, colours for our tool, and any additional options that tool may provide to us. We can also set the zoom level on the canvas before we begin drawing our shapes. The current file we are working on is displayed in the top left, and our drop-down file menus appear just below this. If we have not yet saved our file, its name will be listed as 'Untitled'.

Menu Bar



The menu bar provides three sub menus, *File, Edit* and *Help.* When mousing over these menus, they will highlight blue, to indicate you are ready to select them. When clicked on, each of these menus exhibit different behaviours. The file and edit sub-menus will produce a drop-down list of further operations, while the help sub-menu will open this user guide for further assistance if required.



File

The file submenu is comprised of a number of various functions, each of which behaviours slightly differently. We can see these functions and their associated keyboard shortcuts below

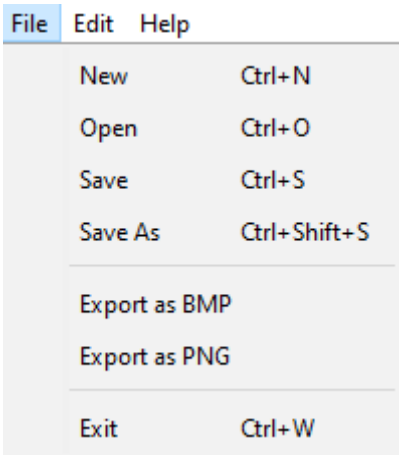


Figure 2: File Submenu

The *New* function simply creates a new, untitled file, and initiates the file with an empty canvas. This command will not change the currently selected tool or tool colours.

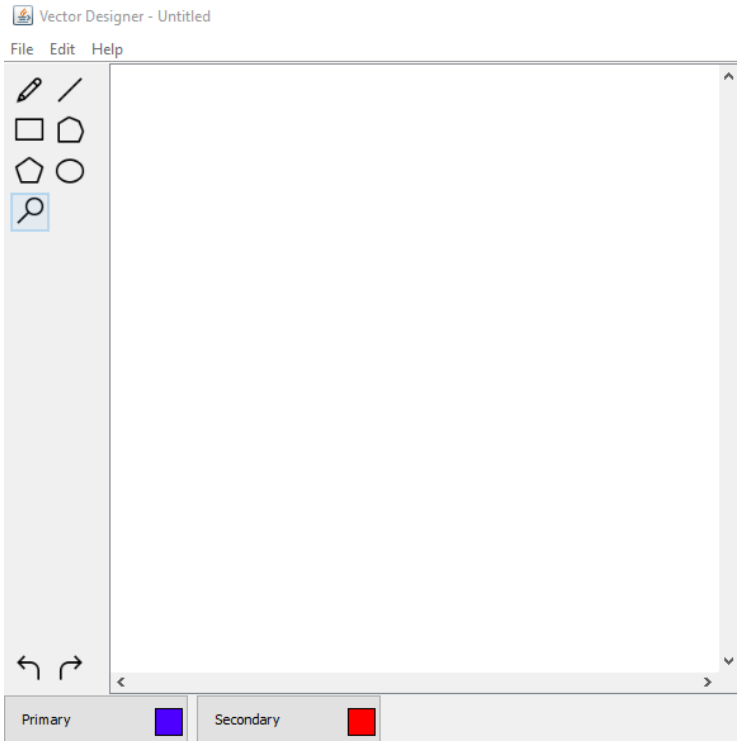


Figure 2: New File Function

As we can observe, when the new file button is pressed, the canvas has been emptied, our current file has been set to 'Untitled' in the top left of the screen, yet our colours and tool have not changed from those that we were using before we pressed the new button. We can also press CTRL + N to complete this same process

The *Open* function will bring up a dialogue box over our main menu, where we can select an existing VEC file to open. As we can see below, the user has found a VEC file called 'Example' on their desktop, selected it, and can now open it using the 'Open' button

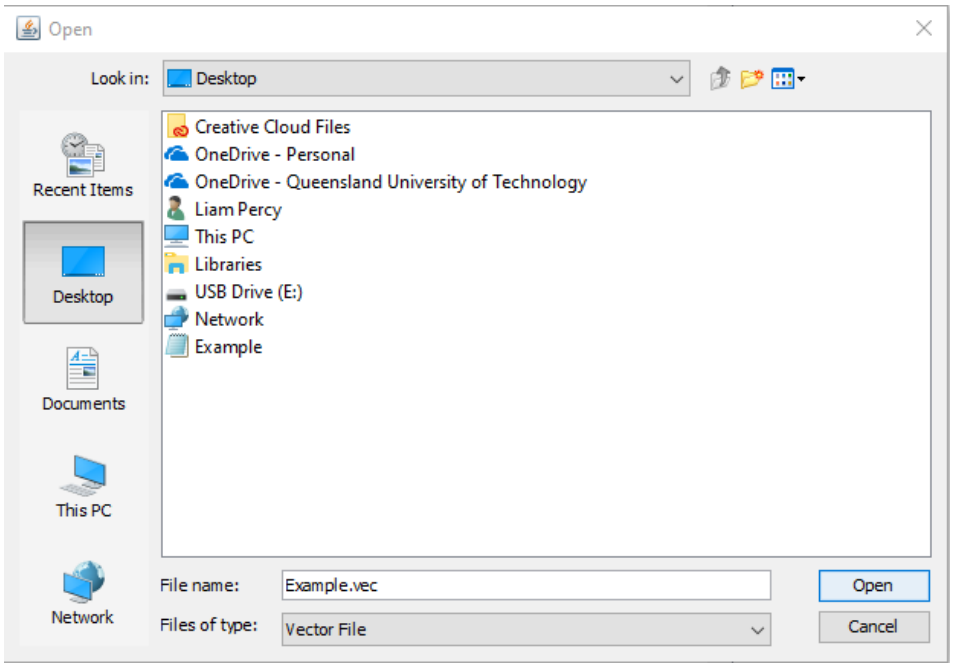


Figure 3: Open File Dialogue

The *Save* function works in a similar way, although it brings up a dialogue box where we can specify a file name and location in which we want to save our existing drawings on our canvas as a VEC file.

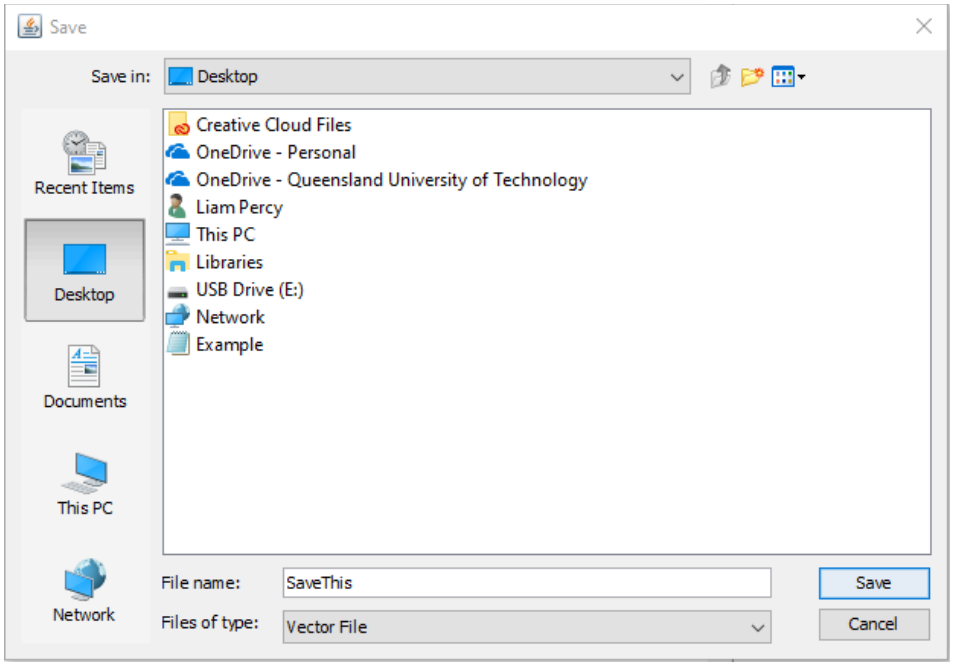


Figure 4: Save File Dialogue

Once an 'Untitled' file has been saved, the save function will overwrite the given file each time the save button is hit in the future. If we want to specify a new file name/location, we can press the *Save As* button, or press Ctrl + Shift + S

The *Export as BMP* and *Export as PNG* functions work much in the same way. Initially, when clicked, each button will bring up another dialogue box, the allows us to specify the size of the image we want when we export all items on our canvas. We can specify whether we want the width and the height to be equal be checking the 'Maintain Aspect Ratio' checkbox

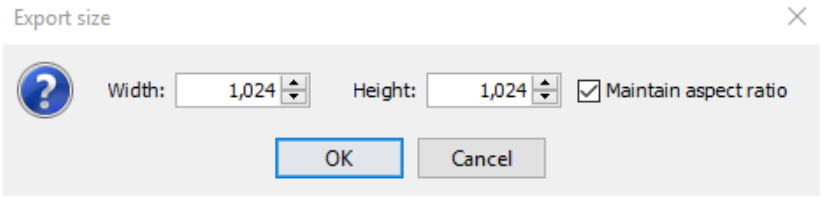


Figure 5: Export Dimensions Dialogue

At this point, the save file dialogue box will reappear. It will behave in exactly the same was as we mentioned previously, only now it will save items as either BMP or PNG images, based on which button you pressed in order to export the canvas.

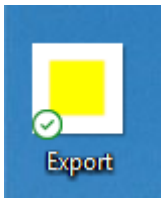


Figure 6: PNG Export

Edit

The edit submenu displays two options; undo and redo; in addition to their associated keyboard shortcuts. The undo button will remove drawings from the canvas going backwards through the order in which the were drawn (i.e. most recent first). The redo command will reverse this undo process, and reinstate any drawings that may have been removed by the undo command.

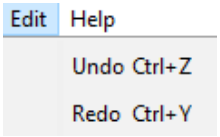


Figure 7: Edit Submenu

Tool Bar

The tool bar is a collection of all the available tools provided within the program that you can select and use to draw your vector-based shapes. These tools include, in order from left to right then top to bottom: plot, line, rectangle, free-form polygon, regular polygon, ellipse and zoom planner.

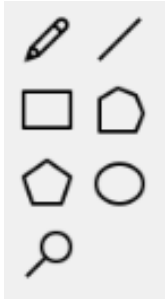


Figure 8: Tool Bar

The currently selected tool is highlighted by a blue square. If we mouse over other tools, they will also gain a highlighted blue colour, and we can then click on this new tool to mark it as our active tool.

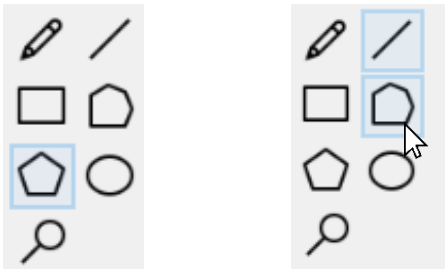


Figure 9: (Left) Current Tool Selected, (Right) Hover Over New Tool for Selection

Additionally, there is also an undo and redo tool at the bottom of the tool frame, which share the some functionality as the functions in the *Edit* submenu

Figure 10: Undo and Redo Buttons

Plot

The *Plot* tool draws a single pixel each time you click on the canvas, at the click location. The colour of the pixel is determined by the currently selected primary colour. This tool is denoted by the symbol:

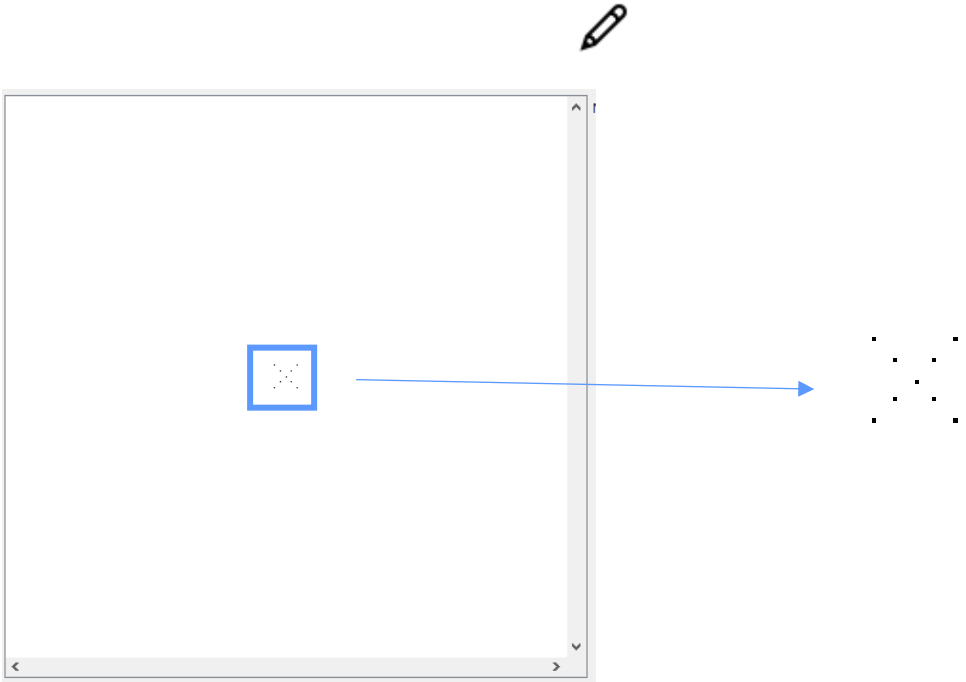


Figure 11: Plot Tool on the Canvas

Line

The *Line* tool draws a line between two points on our canvas, starting from the mouse click position, and ending at the mouse release position. The colour of the line is determined by the currently selected primary colour. This tool is denoted by the symbol:

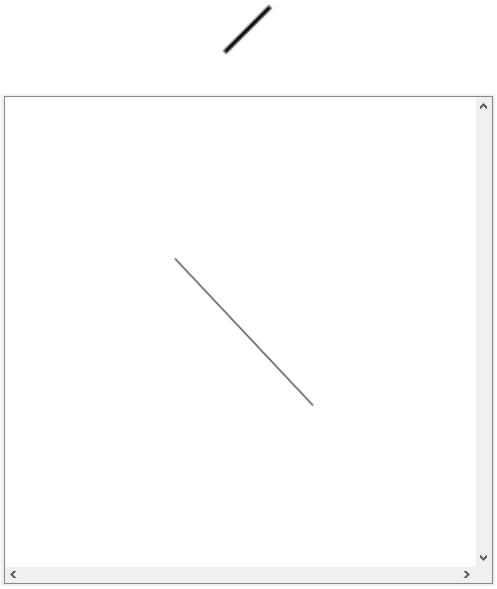


Figure 12: Line Tool on the Canvas

Rectangle

The *Rectangle* tool draws a rectangle between two points on our canvas, starting from the mouse click position, and ending at the mouse release position. The mouse click represents the top left point of the rectangle, and the mouse release represents the bottom right. The stroke of the rectangle is determined by the currently selected primary colour, while the fill is determined by the secondary colour. This tool is denoted by the symbol:

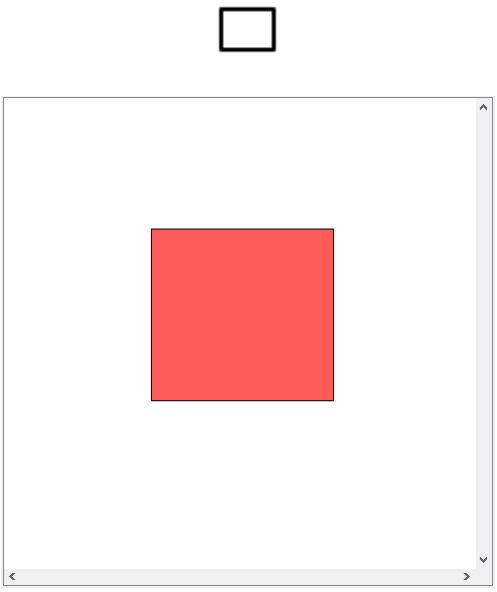


Figure 13: Rectangle Tool on the Canvas

Ellipse

The *Ellipse* tool draws an ellipse defined by a rectangular bounding box, between two points on our canvas, starting from the mouse click position, and ending at the mouse release position. The mouse click represents the top left point of the bounding box, and the mouse release represents the bottom right. The stroke of the ellipse is determined by the currently selected primary colour, while the fill is determined by the secondary colour. This tool is denoted by the symbol:

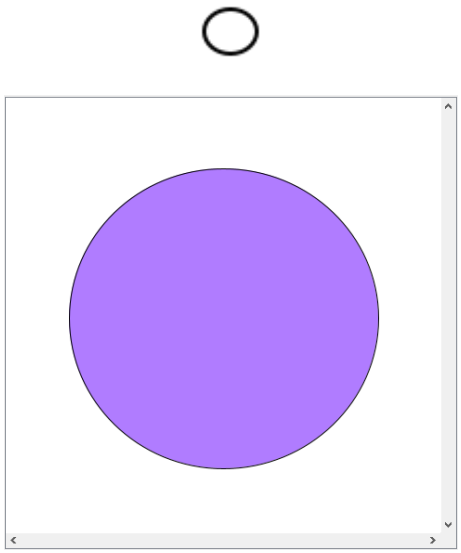


Figure 14: Ellipse Tool on the Canvas

Polygon

The *Polygon* tool draws a polygon by connecting a series of lines between mouse clicks. Each mouse click will create a new point, that will join to the previous point in the polygon. To end the polygon drawing process and connect the last point of the polygon with the first, press the ESCAPE key. The stroke of the polygon is determined by the currently selected primary colour, while the fill is determined by the secondary colour. This tool is denoted by the symbol:

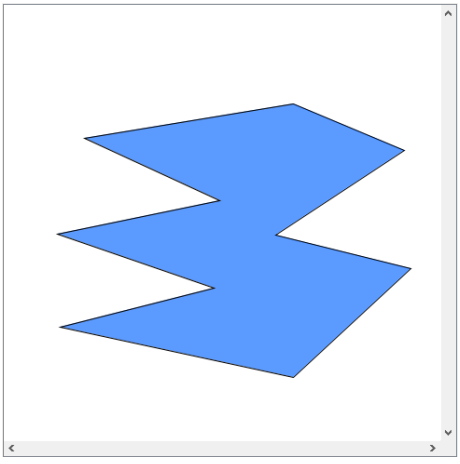


Figure 15: Polygon Tool on the Canvas

Regular Polygon

The Regular *Polygon* tool draws a polygon by connecting a series of lines between angularly even spaced points, based on the number of sides that the regular polygon has. Each point will be placed at a radius distance away from the centre mouse click location, defined by the location of the mouse when released. The stroke of the polygon is determined by the currently selected primary colour, while the fill is determined by the secondary colour. This tool is denoted by the symbol:

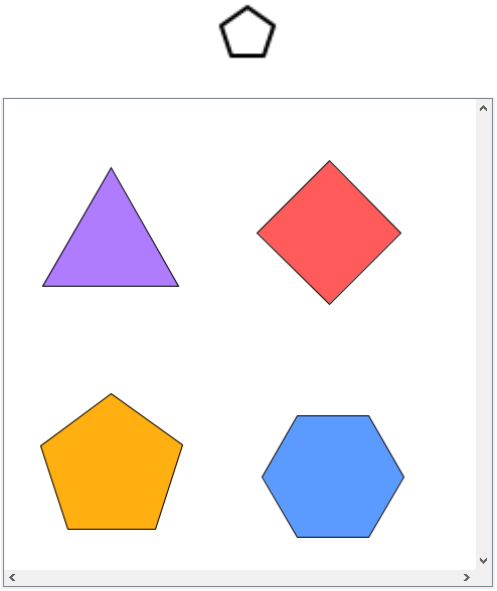


Figure 15: Regular Polygon Tools on the Canvas

Options Bar

The options bar appears to the right of our canvas and contains additional controls that allow you to set certain tool parameters, as long as the given tool is selected.

In the case of the regular polygon tool, as evident in figure 15 above, we can specify the number of sides a given shape has, and use this specification to draw our desired shape.

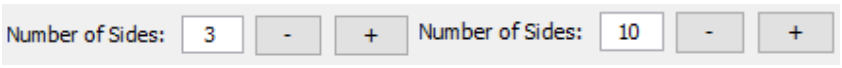


Figure 16: Regular Polygon Sides Option

Colour Buttons

The colour buttons appear below our canvas, in the bottom left hand corner of the main window. When our program is first initialised, the primary colour will be set to black, and the fill colour will not be specified.

Figure 16: Colour Buttons on Initialisation

When you click on one of these buttons, a new dialogue box will appear, prompting you to select a new colour. This box displays colours in terms on their Hue, Saturation, and Value, and also displays either 'Primary' or 'Secondary' in the top left corner of the window, to help you identify which colour you are changing. By pressing any of the radio buttons, this will provide a clearer understanding of how each parameter is affecting the colour.

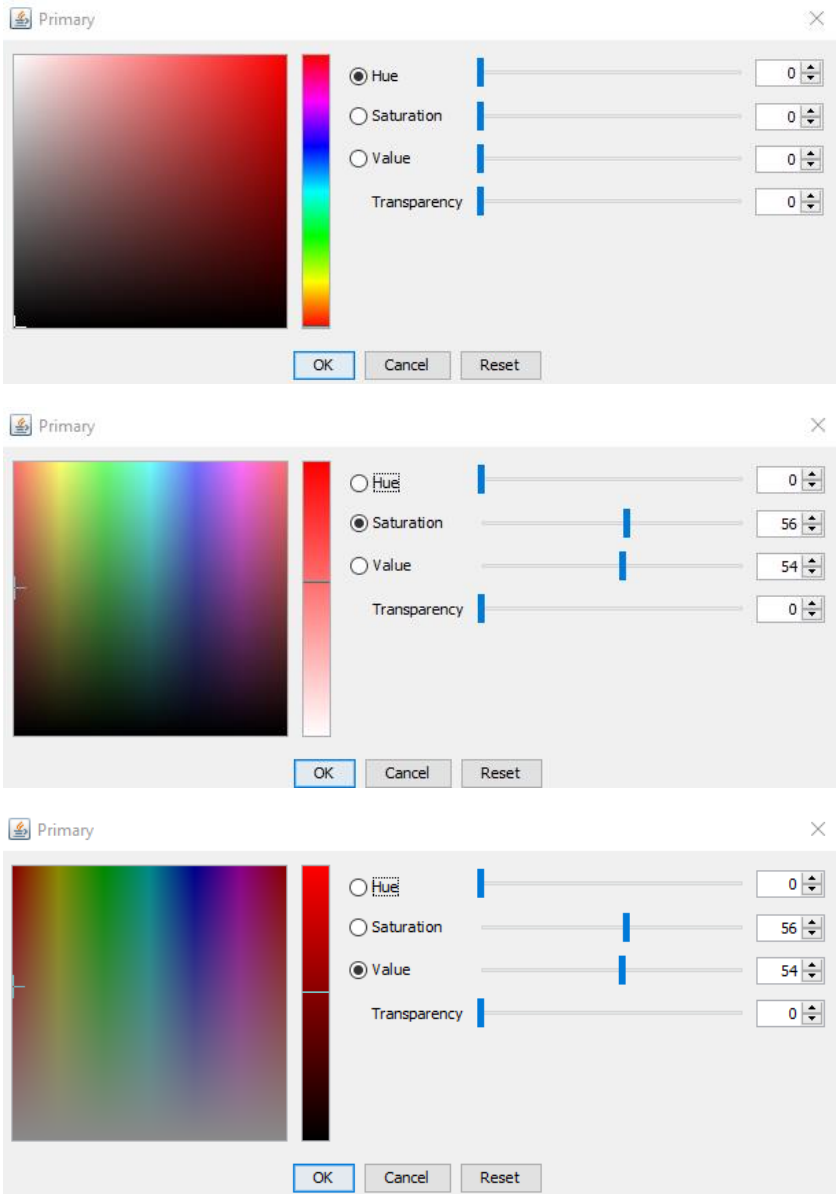


Figure 17: (Top) Hue Colour Box, (Middle) Saturation Colour Box, (Bottom) Value Colour Box

We can change these values by either manipulating the sliders or using the colour box on the left-hand side of this window. We can either hit the OK button to select our colour, or press the RESET, which will revert the colour back to its original state. Once our colours are selected, we can visualise them on the right hand side of the colour buttom.

Figure 18: Custom Primary and Secondary Colours Displayed on Colour Button

Additionally, we can change the transparency of our colours, allowing us to see through shapes.

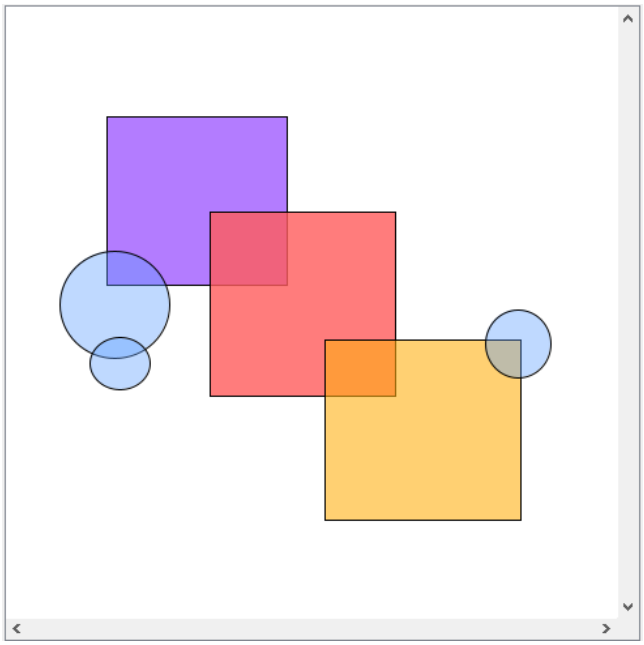


Figure 19: Transparent Shapes

The secondary colour selector also allows us to remove its colour entirely

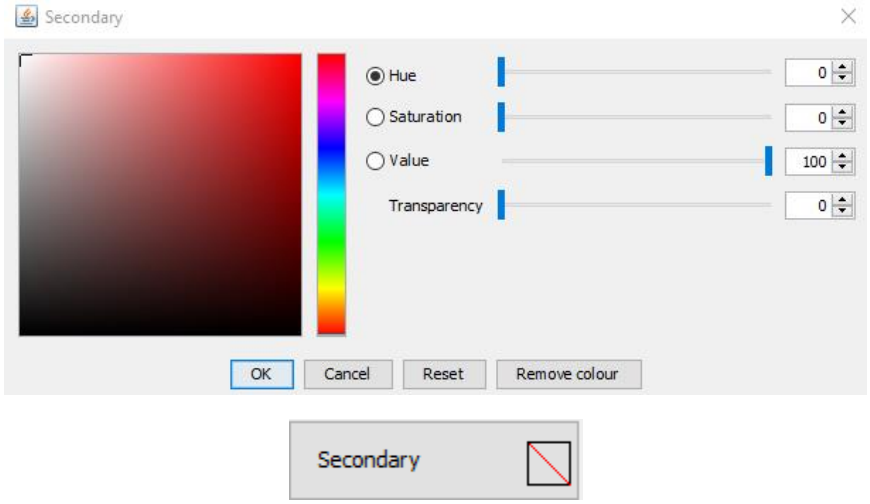


Figure 20: (Top) Secondary Colour Selector, (Bottom) After Colour Removed

Zoom Slider

The zoom slider appears in the bottom right of our main window, just below our canvas and right next to our colour buttons. This tool allows us to zoom in and out of our canvas, by manipulating the slider.

Figure 21: Zoom Slider Tool

In the figure below, we can observe the same vector drawing, with normal zoom on the left, and double zoom on the right. Once double zoomed, we can use the zoom panning tool to move around within the zoomed image with greater control.

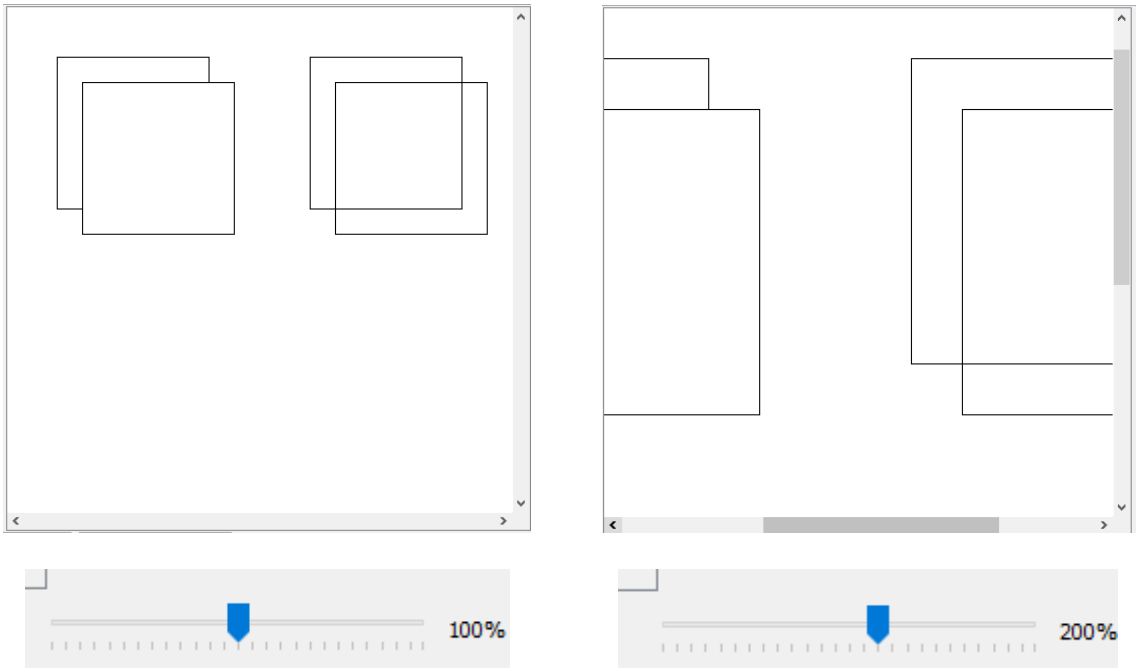


Figure 22: Zoom Slider, (Left) Normal Zoom, (Right) Double Zoom