

**Tasks:**

1. Create a new script: lab5.py that contains the following.
2. **(3 points)** A game loop which will stay open until the user presses the escape key or presses the close button on the window. Show a paintable area that takes up most of the screen (inset it about 10 pixels, though) and takes up most of the screen area. In mine, the black area is the canvas, the gray area is the tools / border area.
3. **(5 points)** If the user left-clicks and drags, the currently selected color and brush-size should be used to draw a circle to “paint” on the canvas. Show an outline of the brush as the mouse moves. Use `pygame.mouse.set_visible` to turn off the normal mouse cursor.
4. **(1 points)** If the users presses ‘C’, clear the canvas
5. **(2 points)** If the user presses ‘S’, save the canvas to “output.bmp”
6. **(3 points)** If the user presses ‘L’, load the canvas from “output.bmp” – use a try-catch block to gracefully handle the case where there is no output.bmp (ask and I’ll show you how this works)
7. **(5 points)** Using a font object, toggle showing the canvas and a help-screen or the canvas when F1 is pressed.
8. **(3 points)** Using the scroll wheel, change the size of the brush (you’ll need to set some max / min values)
9. **(15 points)** Draw a color-picker area using only `pygame.draw.line` commands (no images) [hint: you’ll need a loop] – allow the user to click within this to change the individual components of the brush color.
10. **(+10 points)** Make the screen resizable. Adjust the size of the canvas – keep the tools area the same height, but adjust the canvas area. Stretch the user’s existing drawing as you scale and keep all the tools proportional (see the video for an example)
11. **(+3 points)** When the brush center is completely outside the canvas area, turn it back to the normal mouse cursor.
12. **(+7 points)** Use right-clicks to toggle the brush-shape between circle, square, and spray-paint (use the `random.gauss` function); change the painting code to reflect the brush shape.
13. Here’s a video of my solution (with the bonus features implemented): <https://youtu.be/SaqAc10EPmE>

