Presentation Color Creator

General description of the project (2 pts)

The program will allow users to select a color by either color-selecting using an eyedropper tool, by entering its RGB values directly, ~~or by using a slider system~~ and obtaining the color's complement (opposite on the color wheel), analogous colors (colors near it on the color wheel), and triadic colors (three equidistant on the color wheel). The program would show the RGB values of the colors and show all of the colors next to each other. Then, the program would apply the color combination to a ~~PDF or~~ PowerPoint file template and allow the user to download it.

I would use either TKInter or Streamlit to create a GUI. A GUI would be necessary to see the colors together and see the colors in the template (and download the template), but it could potentially run minimally with a command line interface as well. In that case, the user would enter the RGB values directly (or randomly generate them) and get RGB values back, without the slider system or color-picking.

Task Vignettes (User activity "flow") (4 pts)

1. User input (RGB values directly input, picked on three sliders, or picked from uploaded image)

Ellen is creating a presentation for a conference. She has chosen a color she likes (perhaps the color of her lab's logo), but she wants to see what colors would look good with it. She uploads an image directly into the program and color-picks using an eyedropper tool. Alternatively, she could use another program to find the RGB values of the color ~~or use RGB sliders within the program~~. She selects whether she wants to see complementary, analogous, or triadic colors using radio buttons. The program shows her two-three rectangles with the colors next to each other below the input area. For each color, the program also shows RGB values. The program also ~~shows a sample presentation with the chosen colors~~ allows Ellen to download a presentation using the colors in a PowerPoint format which she can then edit directly.

Details/ideas for later:

- ~~If the program she used to identify the color only gave an HSV or Hex color code, the program would first convert the value to RGB.~~
- It would be great if users could enter an image and use an eyedropper tool to identify the color, rather than having to get the color values from another program.
- ~~Something else could be an option to choose what kind of deliverable the colors would be used for (e.g., website, poster, presentation) and an example image/combination of text could be shown to the user.~~

2. Color palette randomizer

Ellen may not already have a starting color in mind. In that case, she can click the “Random Color Palette” button to see new randomized harmonious color palettes.

Technical "flow" (3 pts)

1.

- User input
    - RGB values directly OR
    - Selected from user-uploaded image using eyedrop tool
- Create color block with input color (draw a series of rectangle)
- Calculate color values (e.g., complementary: R = 255 – R input, G = 255 – G input, B = 255 – B input)
    - For analogous and triadic, would need to do process twice, to get 3 total colors
- Create color blocks with generated colors, display next to input color
- Apply selected colors to the poster/presentation template.
    - ~~Program will build a template as a PDF, using the colors (text + block elements)~~
    - ~~PDF will be converted to PPT with pdf2pptx~~ ~~Display a preview of the template~~
    - Program will build a template as a PowerPoint file
    - User will be able to download the template file
- ~~Optionally, can save combination’s RGB values to CSV file~~
- Version 2 will be implemented via TKInter ~~or Streamlit~~

2.

- User input: “Random Color Palette” selected
- Random RGB values are generated
- The correct RGB values are generated in rectangles to create a harmonious color palette
- Apply selected colors to the poster/presentation template.
    - ~~Program will build a template as a PDF, using the colors (text + block elements)~~

    - ~~PDF will be converted to PPT with pdf2pptx~~ ~~o~~ ~~Display a preview of the template~~
    - Program will build a template as a PowerPoint file
    - User will be able to download the template
- ~~Optionally, can save combination's RGB values to CSV file~~
- ~~(Clicking random again restarts the cycle—can add on to the CSV file instead of making a new one for each color combination)~~
- Version 2 will be implemented via TKInter ~~or Streamlit~~

Blocks needed

- Grab input color (for 1)
- Generate random color (for 2)
- Generate new colors based on input color
- Radio buttons for complementary, analogous, triadic
- Output color blocks
- ~~Output template preview~~
- Output template itself
    - Allow download template
- ~~Potentially convert PDF to PPT~~