Flowchart: Image Transformation Program

Start

- Create a prototype for the transformations (without tkinter)
- Add all the imports and create a main window
- Create and place a help bar (general info button)
  - Exit button → Closes the program
  - Info button → Provides background info about project
  - Fullscreen button → Use tracker/counter to let program know if currently in fullscreen or not
  - Help button → Provides all the controls and features of the project
  - Restart button → Restarts the program using sleep
  - Add authorship button (name under title) → Redirects to my github page
- Create an entry for the user to choose the number of images they want to transform
- Make sure number is valid (integer between 1-10 inclusive)
  - **Valid** → Clean up the screen
  - **Invalid** → Create a new window with error message
- Forget everything unnecessary on screen
- Transition to a new screen with an upload button
- User will be prompted to upload images one at a time
- User uploads their images one at a time (until they reach the number they chose)
  - resize each image based on the number chosen and display images one by one as user uploads
  - Keep track of all uploaded images using list
- Each image will be displayed on a button
  - Opens new window that shows all the users chosen images
  - User can scroll left and right through images
  - Provides a summary of the chosen image (mode, filename, size, etc.)
- When number of images uploaded equals number chosen, clean up the screen
- Remove upload button
- Create and place transform button at bottom of page (Transform button inverses colour when cursor hovers above)
- Create checkbutton for each transformation
  - Options include inverse, threshold, greyscale, flip x, flip y, pinch and zoom, rotate clockwise, rotate anticlockwise and opacity
  - Use a list to keep track of which transformation/checkbutton has been chosen
  - When threshold/pinch and zoom/opacity ticked, create entry and verify button
    - Pinch and zoom defaults to 1 if left blank
    - Verify button is always on the right and entries are in order
  - When entries filled out, verify button to check validity of numbers
    - **Valid** → Create a new window with valid message (Threshold is valid if positive integer, pinch and zoom is valid if blank or positive integer, opacity is valid if between...)
    - **Invalid** → Create a new window with error message
- When button clicked, verify if transformation is valid
  - **valid** → Do the transformation (use the transformation tracking list)
    - Keep track of transformed images using a list
    - Go through each image in the tracking list and apply each chosen transformation to it
  - **Invalid** → Create a new window with error message
  - Threshold is valid if positive integer, pinch and zoom is valid if blank or positive integer, opacity is valid if between 0-100
- Clean up the screen (remove transformation button and options, remove displayed images)
- Display the transformed images (resize each image based on the number chosen and display transformed images)
  - Each image will be displayed on a button
    - Opens new window that shows all the transformed images
    - User can scroll left and right through images
    - Provides a summary of the transformed image (mode, filename, size, etc.)
    - Download button created at the bottom of the window → Saves a copy of the transformed image on to the system
  - Create a 'view images' button
- Create a 'Do another transformation button' (Clears the screen and goes back to how it was when opening or use sleep)

End