CMSC 405: Project #1

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CMSC 405: Computer Graphics

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**Class Description**

**Constants.** In order to make changing some of the code simpler, I set constants for the number of frames in the animation, the maximum size of the shape after all transformations have been completed and the number of shapes desired. I also derived an offset for declaring the scope of the window from the size of the shape. The prior form with the numbers just being put manually into methods and loop limitations was difficult to read and manipulate, so this is simpler.

**TransformHolder.** Since the program builds on the transform iteratively, and the previous form of the program required that the parameters be re-entered each time, I created a static inner class called TransformHolder in order to keep track of the previous iterations and avoid reusing code. I also created a reset method for it in order to reset it to default after each loop.

**drawImage.** Since the logic had to be repeated for each image in the base template, I created a method called drawImage to process that logic. It simply applies the current translate, rotation and scale stored in TransformHolder to the passed image with the Graphics2D target and offsets the image based on how many images came before it this loop.

**Shapes and Colors.** I modified ImageTemplate to have 25x25 images instead of 10x10. I then recreated T and added O and C. For colors, I added in new numbers in the arrays. In addition to 0 giving white and 1 giving black, 2 gives pure blue, 3 gives pure red, and 4 gives pure green. I then made the T black and blue, the O blue and red, and the C red and green.

**Test Cases:**

|  |  |  |  |
| --- | --- | --- | --- |
| Purpose | Expected Result | Actual Result | P/F |
| Test initial position | Each image will be displayed in order diagonally from each other |  | P |
| Test translate | The images will all shift up and to the left. |  | P |
| Test rotate counterclockwise | The images will all rotate 45 degrees counterclockwise. |  | P |
| Test rotate clockwise | The images will all rotate 90 degrees clockwise |  | P |
| Test scale | The images will squish together across the top and stretch out toward the bottom. |  | P |
| Test reset | The images will return to their initial position |  | P |