Esther Ho

CMSC 405

Professor Korrapati

Due: 11/4/2018

Project 1 Documentation

Test Plan

My Images: Cyan Letter E, Green Letter H, Pink Heart

What is Being	Expected Output	Output
Tested		
Creation &	Letter E	Letter E
storing of	$ \{\emptyset,\ \emptyset,\ \emptyset,\ 1,\ 1,\ 1,\ 1,\ 1,\ 1,\ 1,\ 1,\ 1,\ 1$	{0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
images	[0, 0, 0, 1, 2, 2, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	(0, 0, 0, 1, 2, 2, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
	Letter H	Letter H
	[\{0, 0, 0, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 3, 3, 3, 1, 0, 0, 0\}\] [\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,	{0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 0} {0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0} {0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

	Heart Shape	Heart Shape
	[8, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,	{0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 0, 0, 0} {0, 0, 1, 1, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 4, 4, 4, 1, 0, 0} {1, 1, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 4, 4, 4, 1, 0, 0} {1, 1, 4, 4, 4, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 4, 4, 4, 1, 0, 0} {1, 1, 4, 4, 4, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 4, 4, 4, 4, 1, 1} {1, 1, 4, 4, 4, 4, 4, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 4, 4, 4, 4, 4, 1, 1} {1, 1, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,
Retrieve &	Displays Images in the correct colors in their	Displays Images in the correct colors in their
display images	original position	original position
(Frame 1 –		- See screenshot below.
original image)		
Images	Translated -5 in the x-direction.	Translated -5 in the x-direction.
Translation -5 in		- See screenshot below.
x direction		
(Frame 2)		
Images	Translated +7 in the y-direction	Translated +7 in the y-direction
Translation +7		- See screenshot below.
in y direction		
(Frame 3)		
Images	Rotated 45 degrees counter clockwise.	Rotated 45 degrees counter clockwise.
Rotation 45		- See screenshot below.
degrees		
counter		
clockwise		
(Frame 4)		
Images	Rotated 90 degrees clockwise	Rotated 90 degrees clockwise
Rotation 90		- See screenshot below.
degrees		

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clockwise		
(Frame 5)		
Images scaled	Scaled 2.0 times for x-component	Scaled 2.0 times for x-component
2.0 for the x		- See screenshot below.
component		
(Frame 6)		
Images scaled	Scaled 0.5 times for y-component	Scaled 0.5 times for y-component
0.5 for the y		- See screenshot below.
component		
(Frame 7)		

Testing Screenshots:

Letter E in Array Form:

```
2, 2, 2, 1, 1, 1, 1, 1, 1,
           1, 1, 1, 1,
               1,
                1,
                1,
   2, 2, 2, 1, 0, 0, 0, 0, 0,
           0, 0, 0, 0, 0, 0, 0,
   2, 2, 2, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
                 0, 0,
2, 2, 2, 1, 1,
{0, 0, 0, 1,
          1, 1,
           1, 1,
                  0, 0,
        1, 1,
             1, 1,
               1,
                1, 1,
   1, 1, 1, 1, 1, 1, 0, 0,
   0,
                0, 0,
               0,
                0, 0,
   2, 2, 2, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
{0, 0, 0, 1, 2, 2, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
               1,
                1, 1,
```

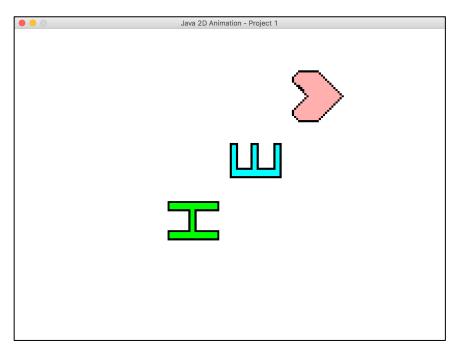
Letter H in Array Form:

```
\{0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 0\}
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 1, 0, 0, 0\}
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 1, 0, 0, 0\}
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3,
              3,
                 3, 1, 0,
                         0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                  3,
                                                    3,
{0, 0, 0, 1,
           3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                  3, 3,
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3,
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0\}
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 1, 0, 0, 0\}
{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                 3, 3,
{0, 0, 0, 1,
           3, 3, 3, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
                                                  3, 3,
3, 1,
           3, 3, 3, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
                                                 3, 3,
           3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                  3, 3,
              3,
                 3, 1, 0,
                         0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                  3,
                3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                  3, 3,
{0, 0, 0, 1,
           3,
              3,
                                                       3, 1,
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3,
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 1, 0, 0, 0\}
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3,
{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                 3, 3,
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                                                  3, 3,
                                                       3, 1,
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3,
\{0, 0, 0, 1, 3, 3, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 3, 3, 1, 0, 0, 0\}
\{0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 0\}
```

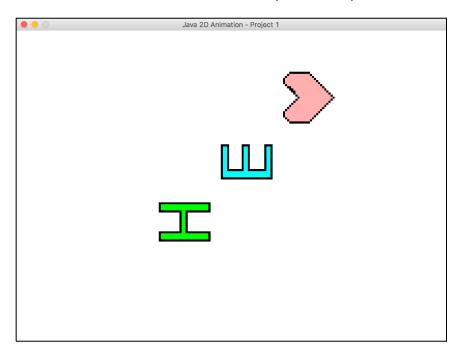
Heart Shape in Array Form:

```
{0, 1, 4, 4, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 4, 4, 4,
{1, 4, 4, 4, 4, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 4, 4, 4,
{1, 4, 4, 4, 4, 4, 4, 4, 4, 1, 0, 0, 0, 0, 0, 1, 1, 4, 4, 4, 4, 4, 4,
{1, 4, 4, 4, 4, 4, 4, 4, 4, 4, 1, 0, 0, 0, 1, 1, 4, 4, 4, 4, 4,
                                       4, 4,
     4, 4, 4, 4, 4, 4, 4,
                      4, 4, 1, 0, 1, 4, 4,
     4, 4, 4, 4, 4, 4, 4,
                      4, 4, 4, 1, 4, 4, 4,
                                       4, 4,
                                       4, 4,
     4, 4, 4, 4, 4, 4, 4,
                      4, 4, 4, 4, 4, 4, 4,
     4, 4, 4, 4, 4, 4, 4,
                      4, 4, 4, 4, 4, 4, 4,
                                       4, 4, 4, 4, 4,
4, 4, 4, 4, 4,
{1, 4, 4, 4, 4, 4, 4, 4, 4, 4,
                      4, 4, 4, 4, 4, 4, 4,
                      4, 4, 4, 4, 4, 4, 4,
{1, 4, 4, 4, 4, 4, 4, 4, 4, 4,
                                       4, 4, 4, 4,
{0, 0, 1, 4, 4, 4, 4, 4, 4,
                      4, 4, 4, 4, 4, 4, 4,
{0, 0, 0, 1, 4, 4, 4, 4, 4,
                      4, 4, 4, 4, 4, 4, 4,
                                       4, 4, 4, 4, 4,
{0, 0, 0, 0, 1, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,
{0, 0, 0, 0, 0, 1, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,
                                       4, 4, 4, 1, 0, 0, 0, 0, 0}
{0, 0, 0, 0, 0, 0, 1, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,
                                       4, 4, 1, 0,
     0, 0, 0, 0, 0, 1, 4, 4, 4, 4, 4, 4, 4, 4,
                                       4, 1,
                      4, 4, 4, 4, 4, 4, 4,
{0, 0, 0, 0, 0, 0, 0, 0, 1,
                                       1, 0, 0, 0, 0, 0, 0,
{0, 0, 0, 0, 0, 0, 0, 0, 1, 4, 4, 4, 4, 1, 0, 0, 0, 0, 0, 0, 0,
\{0,\ 0,\ 0,\ 0,\ 0,\ 0,\ 0,\ 0,\ 0,\ 1,\ 4,\ 4,\ 4,\ 1,\ 0,\ 0,\ 0,\ 0,\ 0,\ 0,\ 0,
\{0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0\}
```

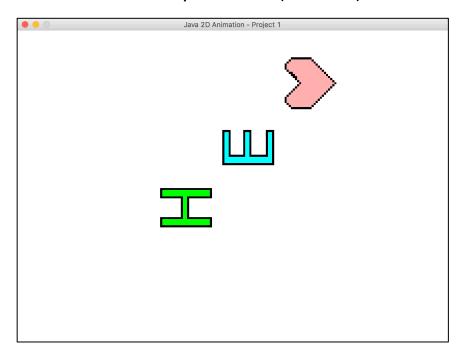
Original Image (Frame 1):



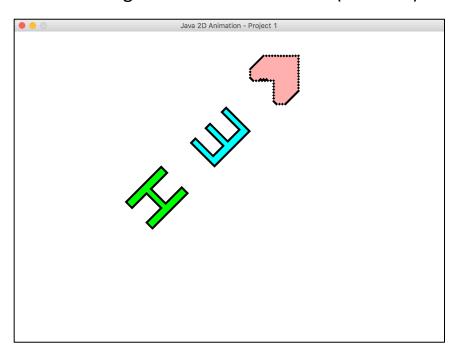
Translate -5 in the x direction (Frame 2):



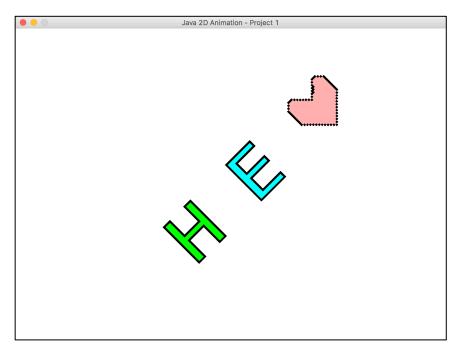
Translate +7 in the y direction (Frame 3):



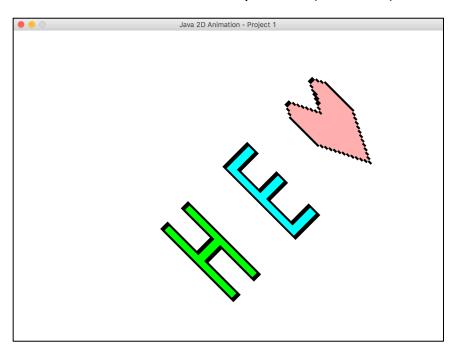
Rotate 45 degrees counter clockwise (Frame 4):



Rotate 90 degrees clockwise (Frame 5):



Scale 2 times for the x component (Frame 6):



Scale 0.5 for the y component (Frame 7):

