TASK 8: Color recognition through classification: After the SOMs have been trained, the weighted vectors should be clustered together by their similarities. Given this to be the case, craft a way to label all the similar data by asking the program what color is “and then a specified RGB color vector”. If the system doesn’t already have a classification for the given vector, supply one to the program to label all the similar ones and to get an accurate color classification.

TASK 8 Demo Outline: "Color recognition through classification"

```
(setf map '())   ;create an empty list
(create map 16) ;give the list 16-squared empty list elements
nil
(visualize map) ;displays the map-list as a grid
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - -
(setf map (init map random)) ;assigns each list in the map-list to have three elements a red,
green, and blue value RANDOMLY
(visualize map) ;displays the map-list as a grid
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
```

6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)

(setf map (init map four-corners)) ;assigns each list in the map-list to have three elements a red, green, and blue value to have red, green, blue, and black initialized at the four corners of the map and have them fade away radially.
(visualize map) ;displays the map-list as a grid
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7

6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)

(setf map (init map equidistant-from-center)) ;assigns each list in the map-list to have three elements a red, green, and blue value to have red, green, and blue initialized equidistant from the center of the map and have them fade away radially.
(visualize map) ;displays the map-list as a grid
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7

```
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(setf sample (create-sample random)) ;create a random sample to help select a winning RGB
weight vector
(print sample)
(32 245 0)
(setf sample (create-sample custom (0 245 32))) ;create a custom sample to help select a winning
RGB weight vector
(print sample)
(0 245 32)
(setf winning-weight-vector (winner map sample))
(print winning-weight-vector) ;prints the most similar RGB weight vector in the map to the one
given
(42 37 125)
(setf samples (create-samples 5 random)) ;creates 5 random samples using the (create-sample)
function, a specified amount of samples to generate, and a specifier to generate the sample RGB
vectors at random
(display samples) ;prints the most similar RGB weight vectors in the map to the ones given as a
list
((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
(setf samples (create-samples 5 custom ((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0
0)))) ;creates 5 custom samples by a prompt for manual input, a specified amount of samples to
```

generate, a specifier to generate the sample RGB vectors customly, and a list of lists containing the 3 elements consisting of R G B values
(display samples) ;prints the most similar RGB weight vectors in the map to the ones given as a list
((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
(setf sample (create-sample random)) ;create a random sample to help select a winning RGB weight vector
(print sample)
(32 245 0)
(setf sample (create-sample custom (0 245 32))) ;create a custom sample to help select a winning RGB weight vector
(print sample)
(0 245 32)
(setf winning-weight-vector (winner map sample euclidean-distance))
(print winning-weight-vector) ;prints the most similar RGB weight vector in the map to the one given
(42 37 125)
(setf samples (create-samples 5 random)) ;creates 5 random samples using the (create-sample) function, a specified amount of samples to generate, and a specifier to generate the sample RGB vectors at random
(setf winning-weight-vectors (winners map samples euclidean-distance)) ;sets the most similar RGB weight vectors in the map to the ones given as a list
(print winning-weight-vectors)
((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
(setf samples (create-samples 5 custom ((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0)))) ;creates 5 custom samples by a prompt for manual input, a specified amount of samples to generate, a specifier to generate the sample RGB vectors customly, and a list of lists containing the 3 elements consisting of R G B values
(setf winning-weight-vectors (winners map samples euclidean-distance)) ;sets the most similar RGB weight vectors in the map to the ones given as a list
(print winning-weight-vectors)
((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
(setf winning-weight-vector (winner map sample pearson-correlation-coefficient))
(print winning-weight-vector) ;prints the most similar RGB weight vector in the map to the one given
(42 37 125)
(setf samples (create-samples 5 random)) ;creates 5 random samples using the (create-sample) function, a specified amount of samples to generate, and a specifier to generate the sample RGB vectors at random

```
(setf winning-weight-vectors (winners map samples pearson-correlation-coefficient)) ;sets the most similar RGB weight vectors in the map to the ones given as a list
(print winning-weight-vectors)
((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
(setf samples (create-samples 5 custom ((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0)))) ;creates 5 custom samples by a prompt for manual input, a specified amount of samples to generate, a specifier to generate the sample RGB vectors customly, and a list of lists containing the 3 elements consisting of R G B values
(setf winning-weight-vectors (winners map samples pearson-correlation-coefficient)) ;sets the most similar RGB weight vectors in the map to the ones given as a list
(print winning-weight-vectors)
((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
(setf neighbors (find-neighbors map winning-weight-vector hexagons)) ;creates a list of lists consisting of the RGB vectors
(print neighbors)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(setf neighbors (find-neighbors map winning-weight-vector concentric-squares)) ;creates a list of lists consisting of the RGB vectors
(print neighbors)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(setf neighbors (find-neighbors map winning-weight-vector gaussian)) ;creates a list of lists consisting of the RGB vectors
(print neighbors)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(setf map (scale-winner winning-weight-vector sample map)) ;remake the map with the winning-weight-vector scaled to be more like the sample
(visualize map) ;displays the map-list as a grid
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
```

```
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (0 222 0) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(setf map (scale-neighbors neighbors sample map)) ;remake the map with the
winning-weight-vector scaled to be more like the sample
(visualize map) ;displays the map-list as a grid
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7
6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (3 90 1) (10 200 3) (20 70 42) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5)
(7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (0 90 0) (0 222 0) (14 155 30) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5)
(7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
```

```
(5 3 8) (5 6 7) (3 0 5) (3 90 1) (10 200 3) (20 70 42) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125) (5 3 8) (5 6 7) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)
(setf graded-map (symbolic-grade-visualization map))
(visualize graded-map) ;displays the map-list as a grid
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 235 240 235 100 123 200 188 165 180 132 111 100 123
200 188 165 240 255 240 100 123 200 188 165 180 132 111 100 123
200 188 165 180 240 235 100 123 200 188 165 180 132 111 100 123
200 188 165 235 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
200 188 165 180 132 111 100 123 200 188 165 180 132 111 100 123
(what-color-is (0 222 0)) ;ask the system what label it has for all the similar data to the weight vector given if it has one
"I'm sorry, I'm afraid I don't know that yet. Would you please tell me what color this is?"
"BLUE"
(what-color-is (10 200 3)) ;ask the system what label it has for all the similar data to the weight
```

vector given if it has one
"I found this to be blue."