

TASK 10 Demo Outline: "SOMs color visualization"

(create map 16);give the list 16-squared empty list elements

(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

(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
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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.

[illegible]

[illegible]

(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

[illegible]

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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

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(display samples) ;prints the most similar RGB weight vectors in the map to the ones given as a list

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((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
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(setf sample (create-sample random)) ;create a random sample to help select a winning RGB weight vector

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(print sample)
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(32 245 0)
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(setf sample (create-sample custom (0 245 32))) ;create a custom sample to help select a winning RGB weight vector

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(print sample)
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(0 245 32)
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(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

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(42 37 125)
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(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

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(print winning-weight-vectors)
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((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
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(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

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(print winning-weight-vectors)
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((42 37 125) (3 0 5) (7 6 0) (24 98 12) (34 32 87) (154 0 0))
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(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

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(42 37 125)
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(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

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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  
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(7 6 0) (24 98 12) (34 32 87) (154 0 0) (42 37 125)  
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(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)
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(setf graded-map (symbolic-grade-visualization map))

(visualize graded-map) ;displays the map-list as a grid

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(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."

;;use another program to create a GUI with the pixelated visualization in black and white color saturations

;;use another program to create a GUI with the pixelated visualization in all color