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Lesson Quiz

Answer the following questions to test your knowledge of the concepts and techniques taught in this lesson.

Note: Some of the questions are based on the lab associated with this lesson , so make sure you have explored and run the lab.

Question 1

1.0/1.0 point (graded)

What does the term K in K -means clustering represent?

- ☐ The number of pixels in our image.
- ☐ The first initial of the inventor of this algorithm.
- ☒ The number of clusters into which we want to partition our image.
✓

Explanation

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You have used 1 of 1 attempt

i Answers are displayed within the problem

Question 2

1.0/1.0 point (graded)

What 2 iterative steps are core to K-means for image segmentation

- ☒ Assigning each pixel in an image to a cluster and calculating the centre of each cluster
✓
- ☐ Assigning each pixel in an image to a cluster and calculating the distance of that pixel to every other pixel in the image
- ☐ Randomly assigning each pixel to a cluster and repeating until it makes sense
- ☐ Placing each pixel into a cluster at random and updating the mean of that cluster

Explanation

The other answers are not relevant to K-means.

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Question 3

1/1 point (graded)

The following is a question based on the lab in this lesson. In this lab, you created a data vector (Z) with 7 values for each pixel in the image. 3 of the values were the red, green, and blue values of each pixel. From which line in the following list were the other 4 values derived?

- ☒ a. position of the pixel in the image and RGB values
✓

- ☐ b. Hue, Saturation and Luminosity values
- ☐ c. position of the pixel in the image and Hue, Saturation and Luminosity values
- ☐ d. RGB and HSV values.

Explanation

a. (as usual) is correct. b, c, and d are incorrect. While it might be interesting to use HSV/HSL, we didn't use these at all in our Labs.

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Question 4

1/1 point (graded)

The following is a question based on the lab in this lesson. In this lab, what did we set the value of 'K' to in our call to `cv2.kmeans()` ?

☐ 3

☒ 2



☐ 4

☐ 1

Explanation

K=2. We're splitting the image into 2. K is the parameter (in K-means) denoting how many parts we want to split the image into.

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Question 5

1/1 point (graded)

The following is a question based on the lab in this lesson. In this lab, we pass a criteria vector into `cv2.kmeans()`. How did we decide to terminate our `cv2.kmeans()` in the lab. ?

☐ neither a maximum number of iterations nor a required level of accuracy.

☐ a required level of accuracy

☐ both a maximum level of iterations and a required level of accuracy

☒ a maximum number of iterations



Explanation

While we filled the vector with both a required level of accuracy and a maximum number of iterations, we only specified 'TERM_CRITERIA_MAX_ITER'. Reviewing the `cv2.kmeans()` documentation should make the point clear.

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