

Name: _____

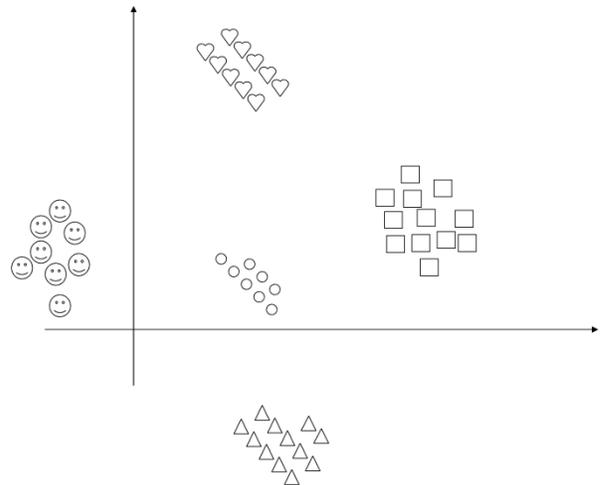
EE435 Spring 2012 Quiz 3

Given the scatterplot to the right, answer the questions that follow:

1. How many features are represented?

2. How many classes are represented?

3. What does each individual shape represent?



4. Would you say that based on this scatterplot, the classification problem is probably easy or hard? Why?

5. Assume that the axes cross at the origin (0,0). Name the easiest way to differentiate between smiley faces and the other shapes. Name the easiest way to differentiate between the triangles and the other shapes.

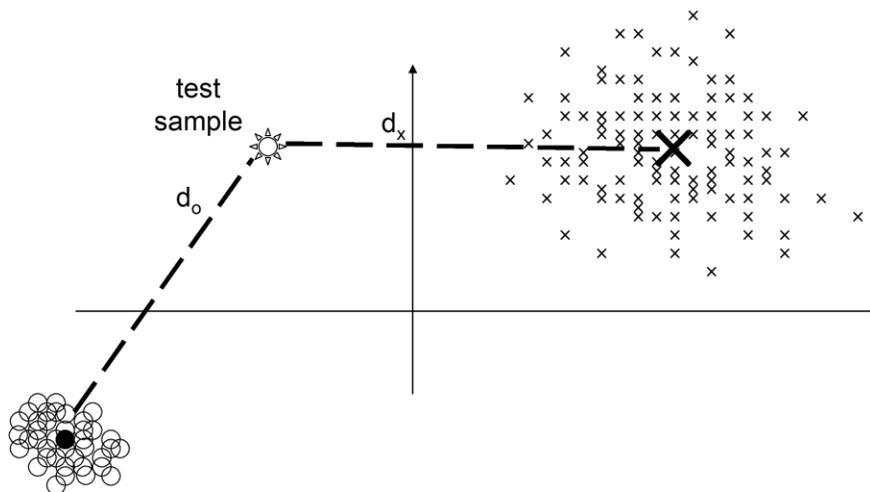
6. In terms of pattern recognition, what does it mean if in the scatter plot above that there were some smiley faces among the triangles, and some hearts among the squares? That is, how would it affect the design of a pattern recognition system?

The questions on the reverse side do not relate to the scatterplot above.

7. Name 2 measurable features that might be useful in differentiating Dachshunds from Great Danes.

8. Give a good reason why using the above two features, that there still may be errors in differentiating Dachshunds from Great Danes.

9. A pattern recognition system must decide if a sample is an “x” or an “o”. In the scatterplot below, d_o and d_x are Euclidean distances from a test sample, and are equal ($d_o = d_x$). The large X and the filled in circle are the models for each. Should the pattern recognition system decide that the test sample vector is an “x” or an “o” ? Why?



10. In the system of problem 9, if a weighted Euclidean distance is used instead of a Euclidean distance, should the pattern recognition system decide that the test vector is an “x” or an “o” ? Why?

Bonus: What is the capital of Cambodia?