Phys/Comp 546 Pattern Recognition

HW 1

Read through ch.1 of the textbook 'Pattern Recognition and Classification', and do exercises 1.1 – 1.4 inclusive.

1. **List a number of applications of classification, additional to those mentioned in the text.**

   - Websites use classification to show an appropriate ad to the visitors using their history and the cookies stored on their system.
   - Classification is used by many apps to classify a voice and possibly identify the person.
   - YouTube uses classification to decide the genre and annotations for a video so as to ensure it reaches the right crowd.

2. **Consider the data of four adults, indicating their weight (actually, their mass) and their health status. Devise a simple classifier that can properly classify all four patterns. How is a fifth adult of weight 76 kg classified using this classifier?**

   A simple classifier will be

Weight (kg)	Class label
0-50	Unhealthy
51-70	Healthy
71+	Unhealthy

An adult of weight 76 kg will be classified as unhealthy by this classifier.

3. **Consider the following items bought in a supermarket and some of their characteristics: Which of the three features (cost, volume and color) is the best classifier?**

Out of these 3 features cost is the best classifier.

4. Consider the problem of classifying objects into circles and ellipses. How would you classify such objects?

We can classify whether the object is circle or ellipse by looking at a distance from the center points to all the points on the circumference.