

Quiz 6

7 December 2011

1. Suppose you were hired by the *Space Telescope Science Institute* in Baltimore. This is the organization that collects scientific data from the Hubble Space Telescope. They want you to create a ‘smart’ software application that can examine pictures of space objects and classify them as *planets*, *stars*, or *nebulae*. They already have programs that can extract four features (named x_1 – x_4) from the images. They provide you with these sample data:

x_1	x_2	x_3	x_4	classification
A	D	H	L	star
A	E	H	K	star
A	F	G	L	planet
A	F	H	K	star
A	F	H	L	star
B	D	G	K	planet
B	D	H	K	nebula
B	E	G	K	planet
C	D	G	L	planet
C	E	G	L	planet
C	E	H	L	nebula

- (a) Draw a plausible decision tree that matches these classifications.
- (b) What would be the most likely classification of an image with $x_1 = A$, $x_2 = D$, $x_3 = G$, and $x_4 = L$?

2. In networking, what is the difference between an *IP address* and a *domain name*?