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CS422

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Homework 1 Exercises

1.1

- a. No- Not predictive or descriptive
- b. No- Not predictive or descriptive
- c. No- Not predictive or descriptive
- d. No- Not predictive or descriptive
- e. No- Not predictive or descriptive, also because fair dice is more about probability.
- f. Yes- Predictive
- g. Yes-Descriptive (looking for anomalies)
- h. Yes-Predictive
- i. No-Not predictive or descriptive

1.3

- a. No, the census is public.
- b. Yes; IP addresses may contain sensitive information like location.
- c. No; The images are not likely to be of sensitive information
- d. No; The phone books are public
- e. No; Those are qualities necessary to be on the web.

2.2

Classify the following attributes as binary, discrete, or continuous. Also classify them as qualitative (nominal or ordinal) or quantitative (interval or ratio). Some cases may have more than one interpretation, so briefly indicate your reasoning if you think there may be some ambiguity.

a. Time in terms of AM or PM.

Binary, Qualitative, Nominal

b. Brightness as measured by a light meter.

Continuous, Numeric, ratio

c. Brightness as measured by people's judgments.

Discrete, Qualitative, Ordinal

d. Angles as measured in degrees between 0 and 360.

Continuous, Quantitative, ratio

e. Bronze, Silver, and Gold medals as awarded at the Olympics.

Discrete, Qualitative, Ordinal

f. Height above sea level.

Continuous, quantitative, interval

g. Number of patients in a hospital.

Discrete, quantitative, ratio

h. ISBN numbers for books. (Look up the format on the Web.)

Discrete, Qualitative, Nominal

i. Ability to pass light in terms of the following values: opaque, translucent, transparent.

Discrete, Qualitative, Ordinal

j. Military rank.

Discrete, Qualitative, ordinal

k. Distance from the center of campus.

Continuous, Quantitative, ratio

l. Density of a substance in grams per cubic centimeter.

Continuous, Quantitative, ratio

m. Coat check number. (When you attend an event, you can often give your coat to someone who, in turn, gives you a number that you can use to claim your coat when you leave.)

Discrete, Qualitative, Nominal

2.3

- a. The boss is right because it wouldn't make sense to simply count the number of complaints. The marketing director incorrectly infers that the bestselling product had least satisfaction solely on the number of complaints. This doesn't make sense because as more people buy there is a chance of more complaints. A better method would be to have a percentage of complaints and total products sold.
- b. The original satisfaction attribute that the director was mentioning was a quantitative ratio attribute

2.7

Daily temperature is more likely to show temporal autocorrelation because if two measurements were made in a short period of time it is likely that the measurements would be similar. In comparison to rainfall where measurements can differ greatly.

2.12

- a. Noise is not desirable or interesting, but Outliers can be interesting

- b. Yes, noise can be part of outliers as there can be erroneous measurements.
- c. No, noise can be similar to accurate objects but still have no meaning
- d. No, outliers can present different objects than normal objects but still be relevant
- e. Yes, noise can distort data.