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Statistics For Data Science

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Task 3:

What is the level of measurement of the following variables?

1 a. The number of downloads of different band songs on iTunes - **Ratio and Continuous**.

Ratio - you can have twice as many downloads as the last bands song. All forms of measurement matter.

Continuous - all songs have a distinct value.

b. The names of the bands that were downloaded. **Nominal**

Can be identified by name but order does not matter.

c. The position in the iTunes download chart. **Ordinal**

Can be identified by name and order matters. As an example, the band that is number one got more downloads than the band at number two.

d. The money earned by the bands from the downloads. **Ratio and continuous**

You can make twice as much money as the last band. All bands will have a distinct level of money earned.

e. The weight of drugs bought by the bands with their royalties. **Ratio and continuous**

You can buy twice as many drugs as the last band. Each amount of weight is distinct from the last weight that the bands buy.

f. The type of drugs bought by the bands with their royalties. **Nominal, categorical**

The name of the drugs matter, like meth and marijuana, but the order doesn't matter. They can be categorized by their drug type.

g. The phone numbers that the bands obtained because of their fame. **Nominal, categorical**

The names gathered matters, or how would you find their names, but the order of the numbers does not matter. For example, the girl with the shorter number does not mean it's the better number.

h. The gender of the people giving the bands their phone numbers. **Binary, categorical**

Gender can be a Male or Female and can only fall under those types.

i. The instruments played by the band members. **Nominal, categorical**

Instruments matter but their order does not. They can be categorized like flute, guitar,

and piano.

j. The time they had spent learning to play their instruments. **Ratio, continuous**

A person can spend twice as much time learning an instrument as the last person. The time is important for predictors. Continuous because it's distinct.

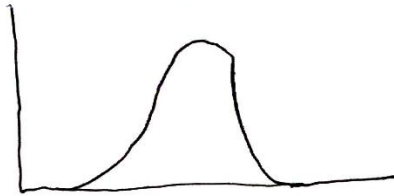
Task 4: Say I own 857 CDs. My friend has written a computer program that uses a webcam to scan the shelves in my house where I keep my CDs and measure how many I have. His program says that I have 863 CDs. Define measurement error. What is the measurement error in my friend's CD-counting device?

The error was $863 - 857 = 6$ cds

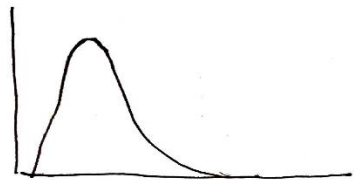
The discrepancy is knowing the actual value of what is being measured and getting a different result that is not equal to that value. For example, if I were to know that my dog weighs 40 pounds, then I weigh him again and it weighs 42 pounds. The weight error is 2 pounds. The actual weight is 40 pounds.

Task 5: Sketch the shape of a normal distribution, a positively skewed distribution, and a negatively skewed distribution

Normal distribution



Positive distribution



Negative distribution

