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DSC520-T301 2225
Week 1 Exercise
3/19/22

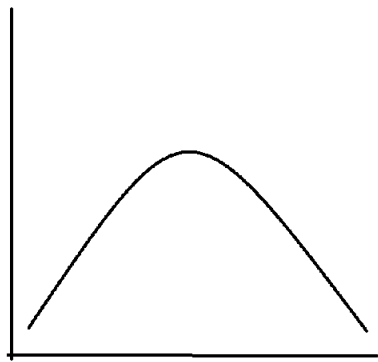**GitHUB:** https://github.com/StephenTYoung/hello-world

Task 3: What is the level of measurement of the following variables?

• **The number of downloads of different bands' songs on iTunes.** – Discrete/Ratio Discrete because it is a whole number and ratio because it has a zero point and there maybe songs that have no downloads at all.
• **The names of the bands that were downloaded.** – Nominal, it is used to label attributes and pointless to do arithmetic on it
• **The position in the iTunes download chart.** – Ordinal Variable, they are an ordered list of the song
• **The money earned by the bands from the downloads.** – Ratio Variable since there is a true 0
• **The weight of drugs bought by the bands with their royalties.** – Ratio Variable weight is based on a true 0 measurement scale
• **The type of drugs bought by the bands with their royalties.** – Categorical Variable since the type of drug is a category and name define the values. This also makes it nominal since there are multiple choices but no meaningful order.
• **The phone numbers that the bands obtained because of their fame.** Nominal since there are multiple different choices and there is no meaningful arithmetic that can be done with them.
• **The gender of the people giving the bands their phone numbers.** – Binary Variable, although one could argue that sex is a binary variable, but gender is not as gender isn't necessarily two.
• **The instruments played by the band members.** – Categorical Variable as the name of the instruments give us a name to put them in (guitar, drums, etc) and then there may be variations within (bass, acoustic, etc)
• **The time they had spent learning to play their instruments**. – Ratio Variable since it is a time interval and has a meaningful zero. Someone could have spent 0 minutes learning their instrument, however unlikely that may be.
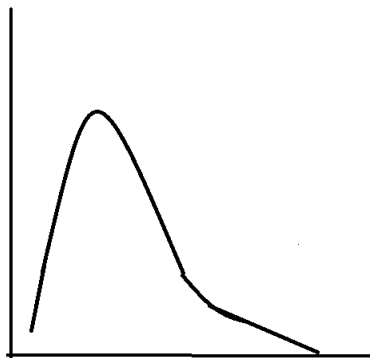
Task 4: Say I own 857 CDs. My friend has written a computer program that uses a webcam to scan the shelves in my house where I keep my CDs and measure how many I have. His program says that I have 863 CDs. Define measurement error. What is the measurement error in my friend's CD-counting device?

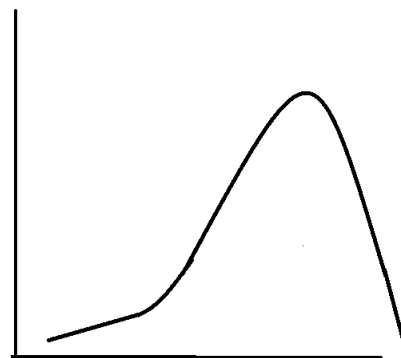Measurement error is 5 CDs, I know I have 857 and the program counted 5 extra so 863-857 is 5.

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

Normal Distribution

Positively Skewed Distribution

Negatively Skewed Distribution