Day 25 of #100daysofmathandstats: Data sampling Concepts(Contd...)

By Harsh Kathiriya

Outline

- Standard Normal (Normal Distribution)
- QQ-Plot

Standard Normal

- A normal distribution with mean = 0 and standard deviation = 1.
- A standard normal distribution is one in which the units on the x-axis are expressed in terms of standard deviations away from the mean.
- To compare data to a standard normal distribution, you subtract the mean and then divide by the standard deviation; this is also called normalization or standardization

Real examples of standard normal

- Height of the population is the example of normal distribution. Most of the people in a specific population are of average height.
- The number of people taller and shorter than the average height people is almost equal, and a very small number of people are either extremely tall or extremely short
- Rolling a dice
- Technical stock market
- Shoe size

QQ Plot

- A QQ-Plot is used to visually determine how close a sample is to a specified distribution—in this case, the normal distribution.
- The QQ-Plot orders the z-scores from low to high and plots each value's z-score on the y-axis; the x-axis is the corresponding quantile of a normal distribution for that value's rank.
- Since the data is normalized, the units correspond to the number of standard deviations away from the mean.

Example of QQ-Plot

- The result of standardizing an individual data point.
- Simply put, a z-score (also called a standard score) gives you an idea of how far from the mean a data point is. But more technically it's a measure of how many standard deviations below or above the population mean a raw score is.
- The normal Q Q plot is one way to assess normality. However, you don't have to use the normal distribution as a comparison for your data; you can use any continuous distribution as a comparison (for example a Weibull distribution or a uniform distribution), as long as you can calculate the quantiles.

Thank you

Github Link: https://github.com/harsh9898/100daysofstatandmath

Don’t forget to post your queries or feedbacks on the post.

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Source for some of the content: https://www.openintro.org/book/os/