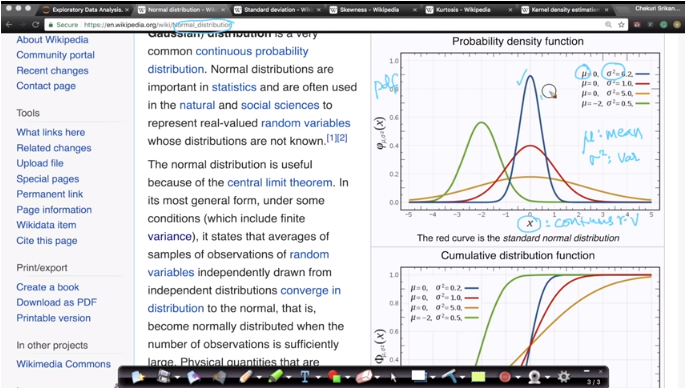
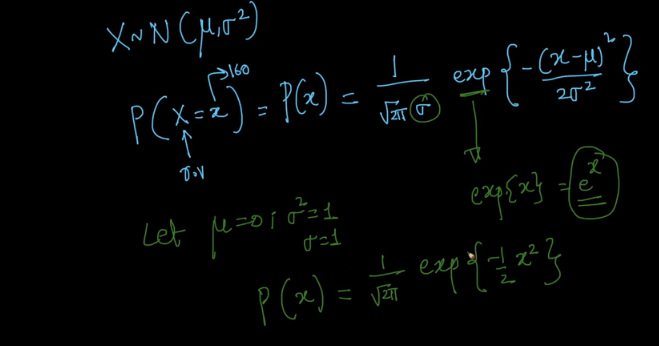
**Probability and Statistics**

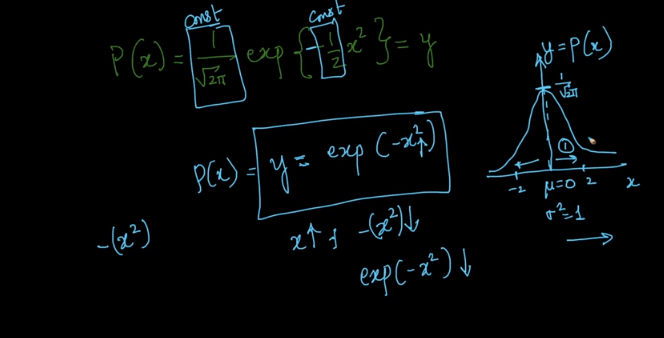
1. **Gaussian/Normal Distribution and its PDF(Probability Density Function)**

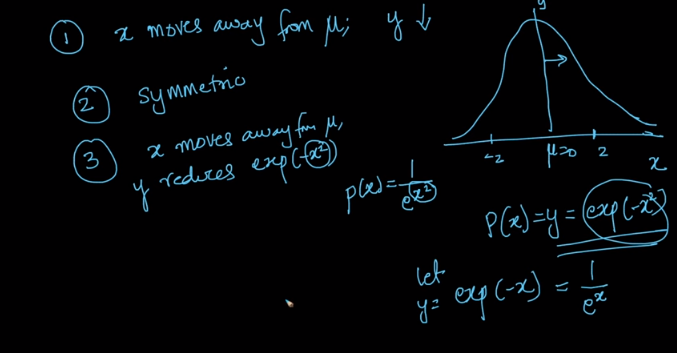


It explains the Gaussian Distribution with parameters Mean (mu) and variance (sigma square).

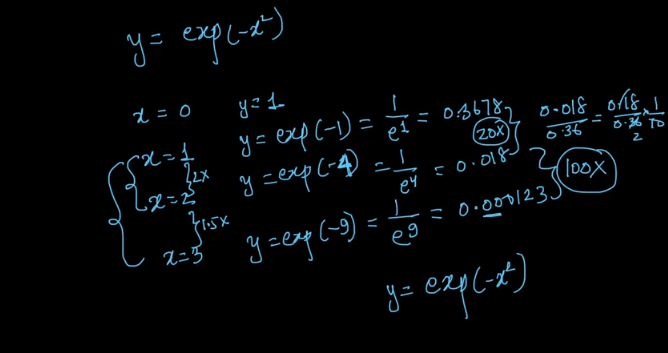


It explains the formula for PDF in gaussian distribution.



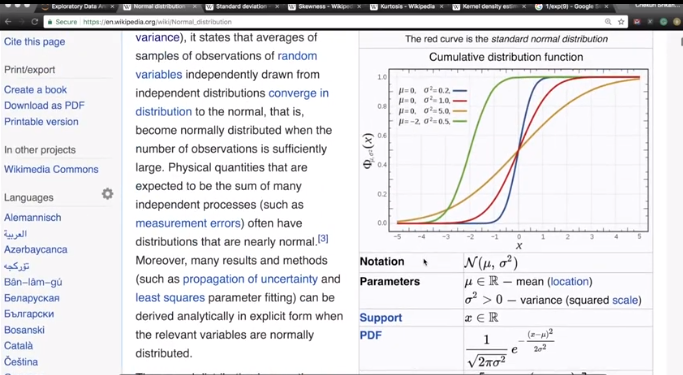


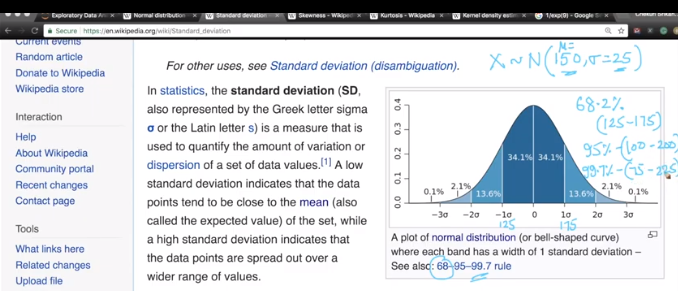
Conclusions drawn from the formula.



Example to explain the formula.

1. **CDF(Cumulative Distribution function) of Gaussian/Normal distribution**

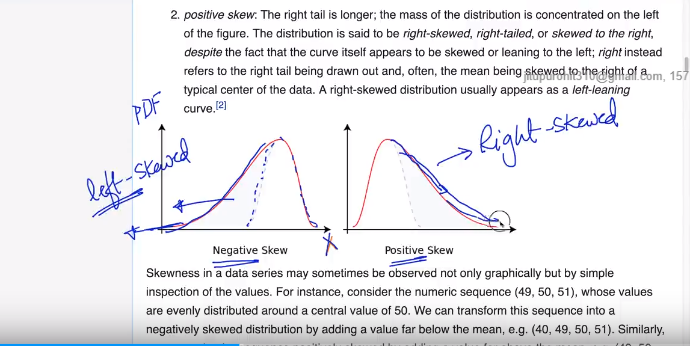




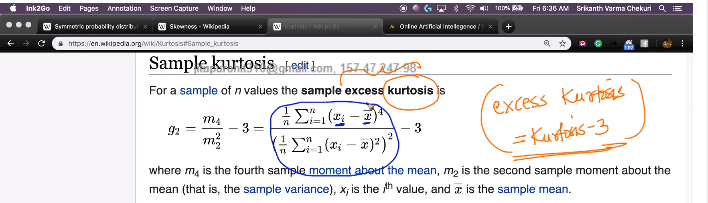
1. **Symmetric distribution, Skewness and Kurtosis**



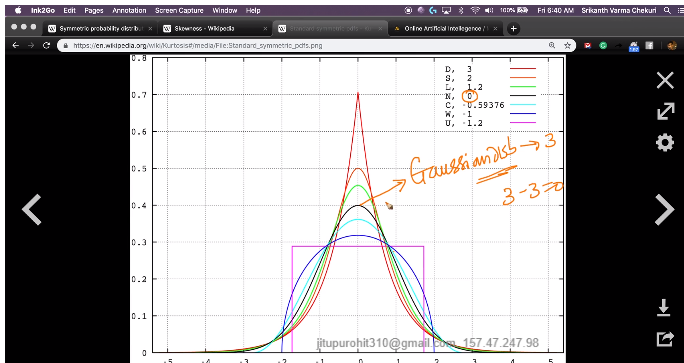
Symmetric distribution



Skewness

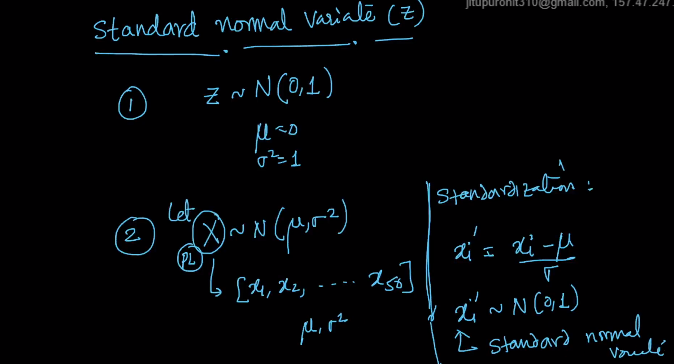


Kurtosis formula

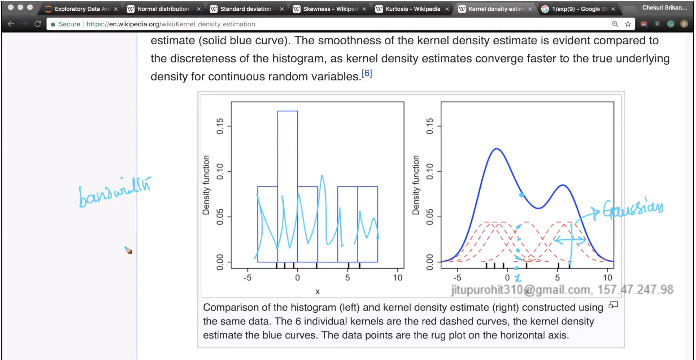


Distributions in Kurtosis

1. **Standard normal variate (Z) and standardization**

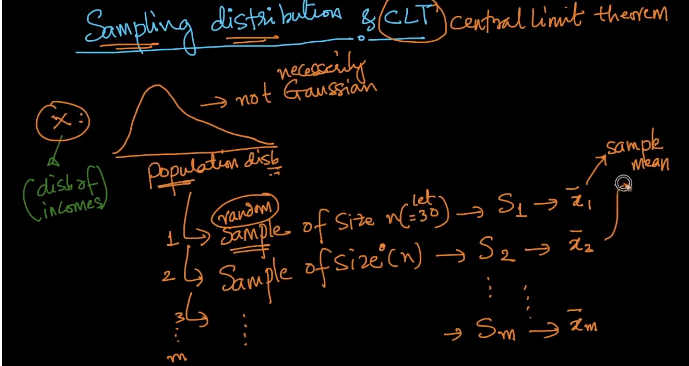


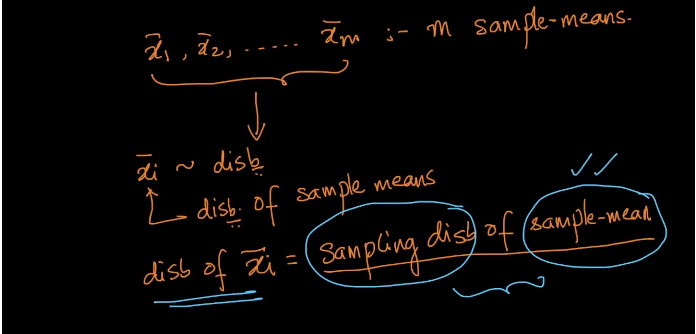
1. **Kernel Density Estimation (KDE)**

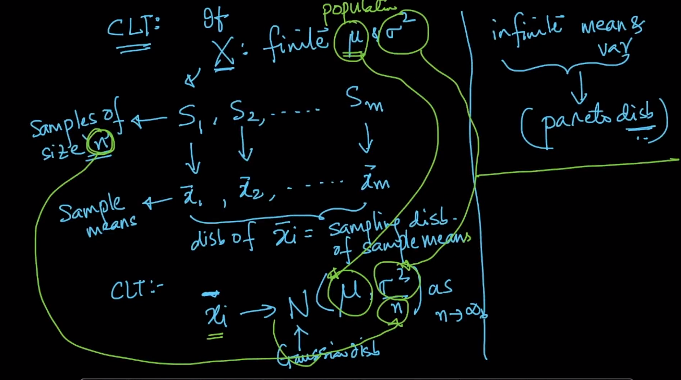


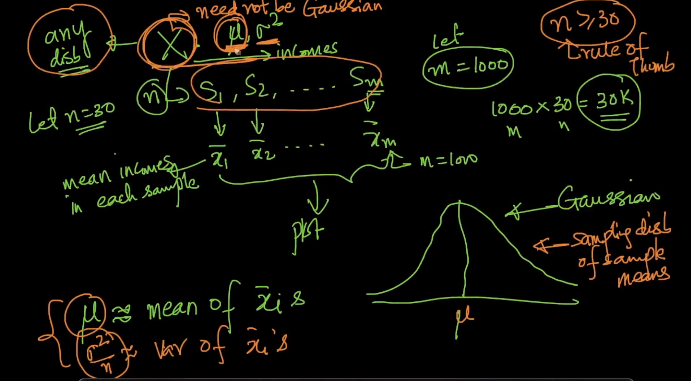
It explains how PDF is constructed using KDE. Refer notebook pg no.22.

1. **Sampling Distribution and Central Limit Theorem (CLT)**



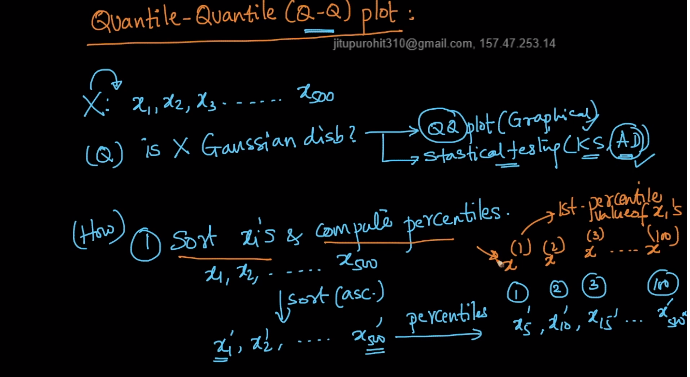


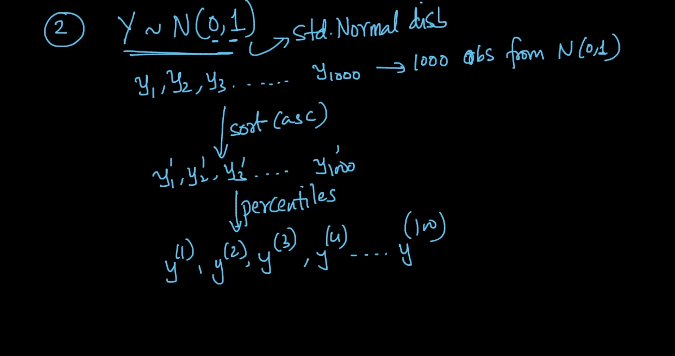




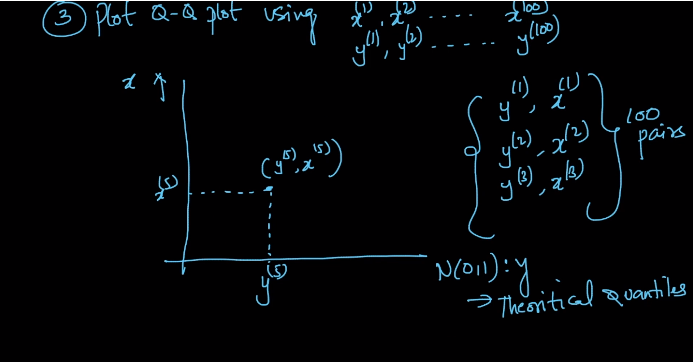
Refer notebook pg no. 25-26-27.

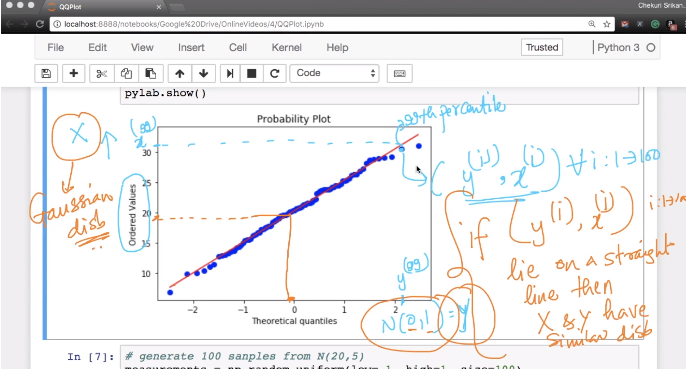
1. **Q-Q plot:How to test if a random variable is normally distributed or not?**

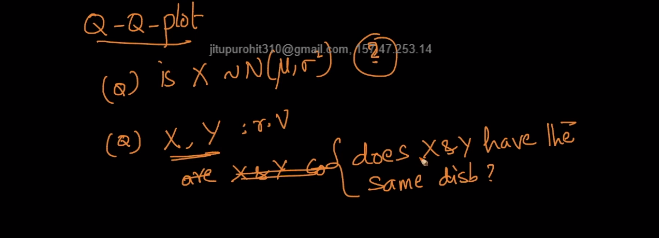




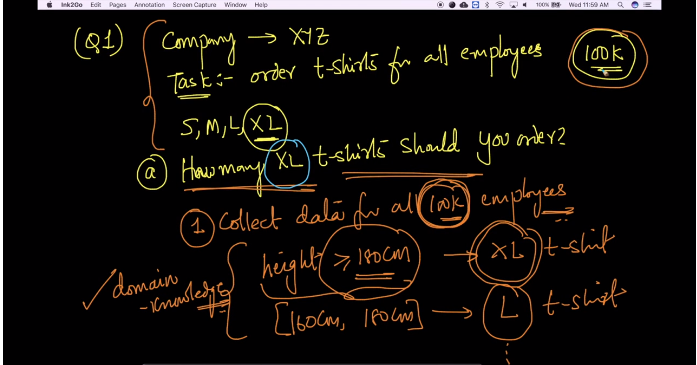
Refer notebook pg no.27 and also this notes.

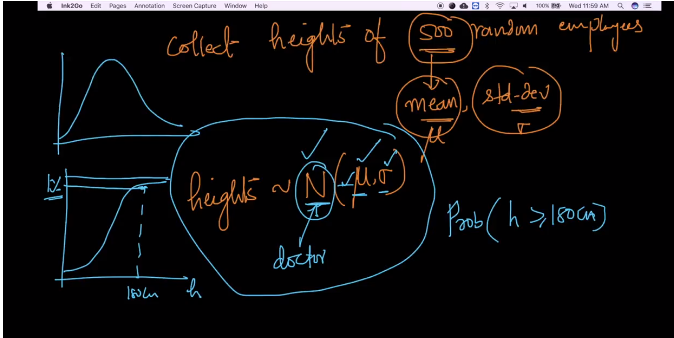


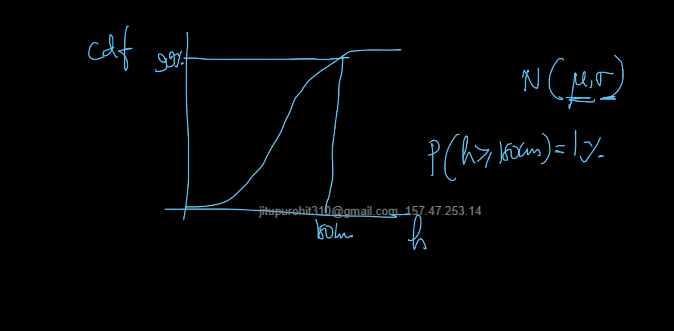


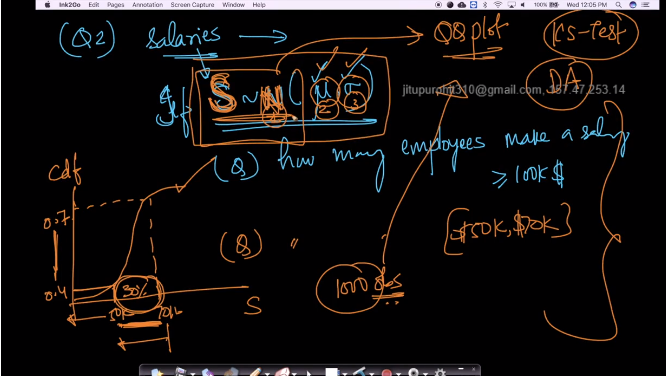


1. **How ditributions are used ?**

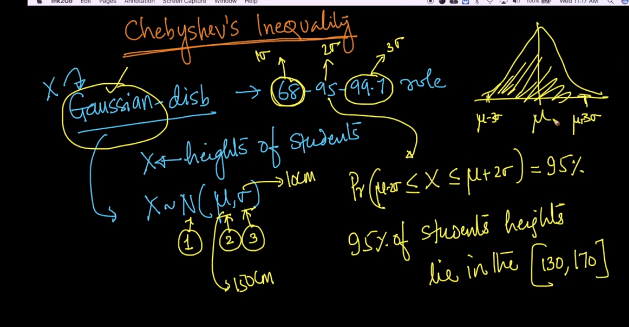


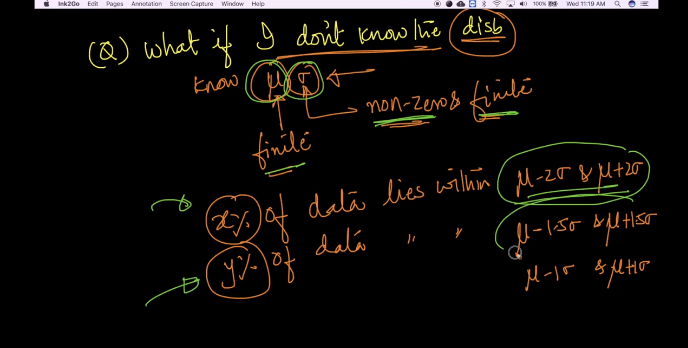


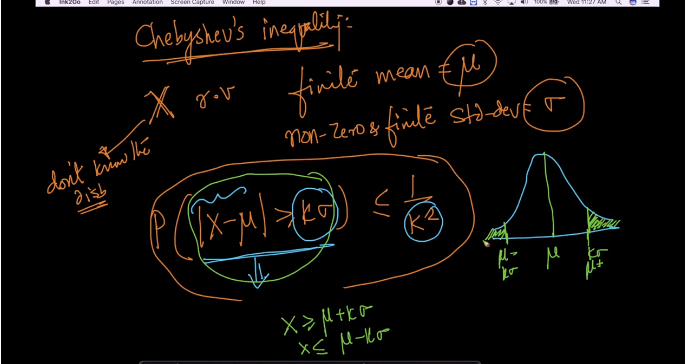




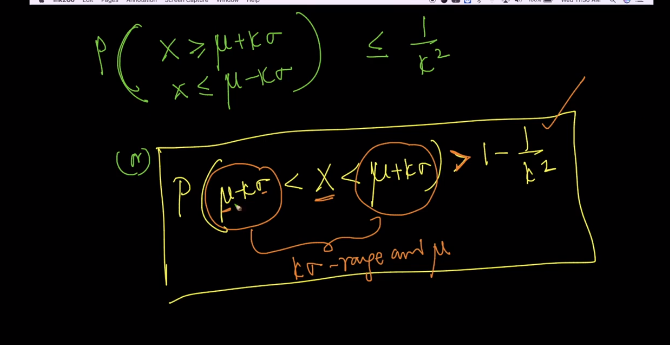
1. **Chebyshev’s inequality**



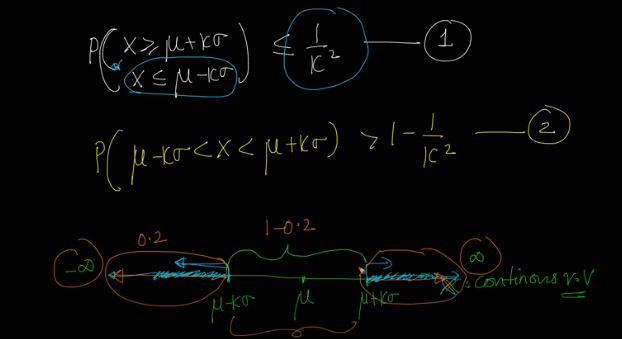




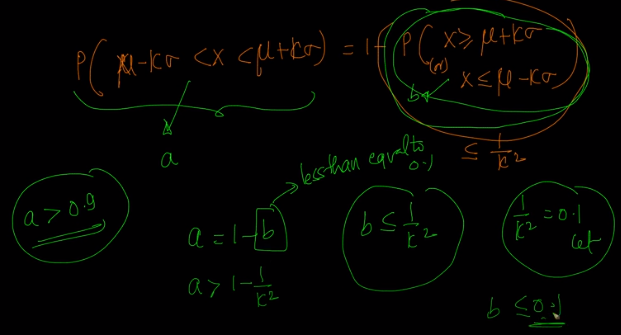
Original Equation



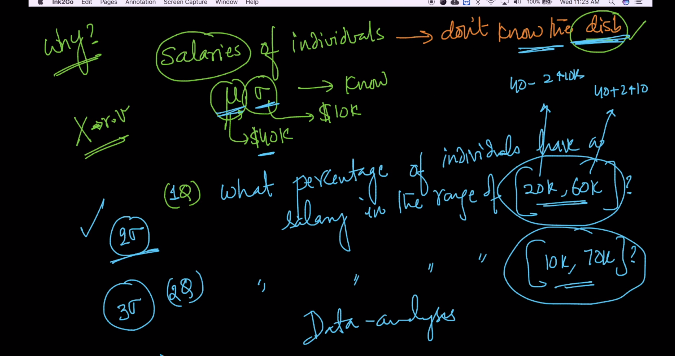
Simplified version



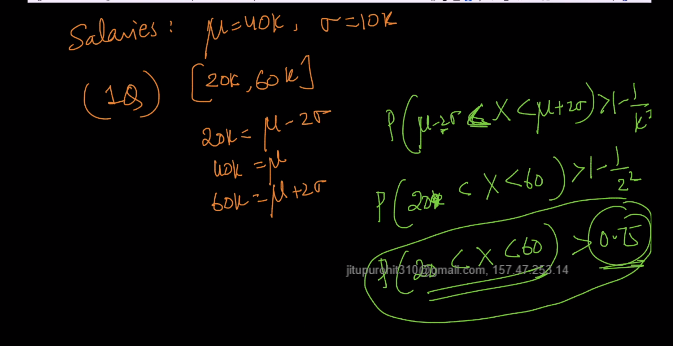
Explaination -1



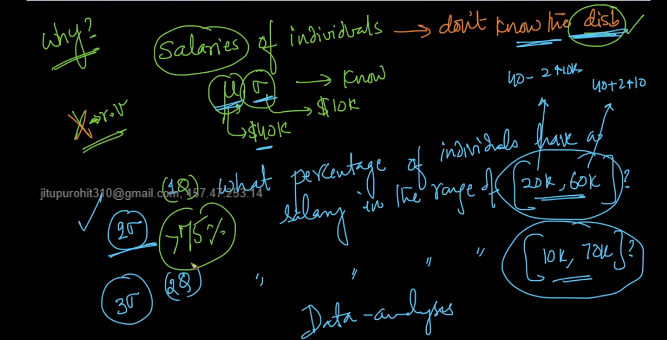
Explaination – 2



Example question

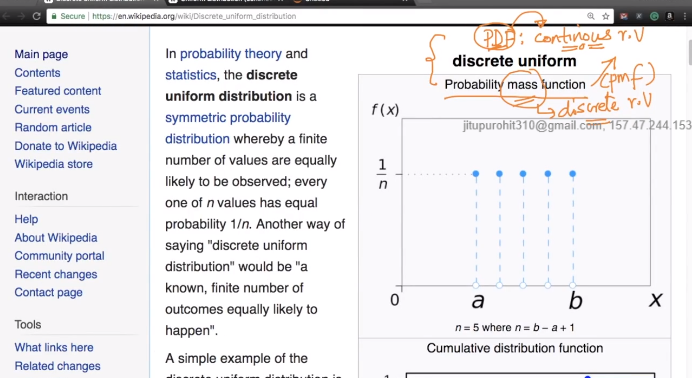


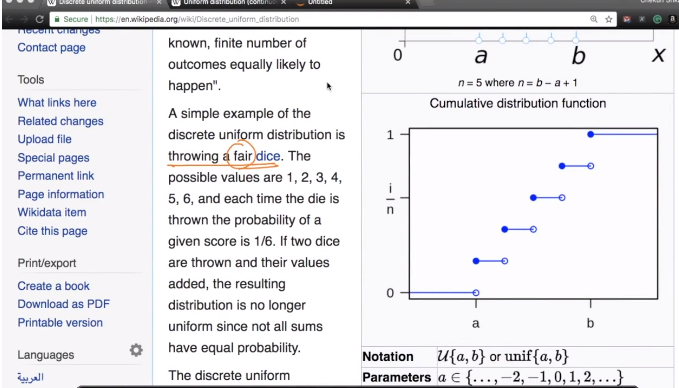
Example solution

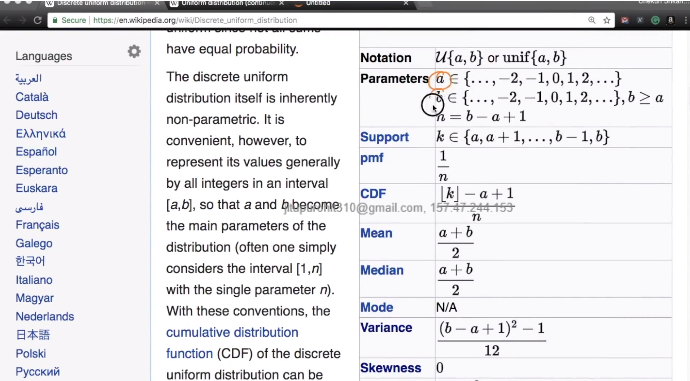


1. **Discrete and Continuous Uniform Distribution**

Discrete Uniform Distribution







Continuous Uniform Distribution

