APM496 Assignment 1

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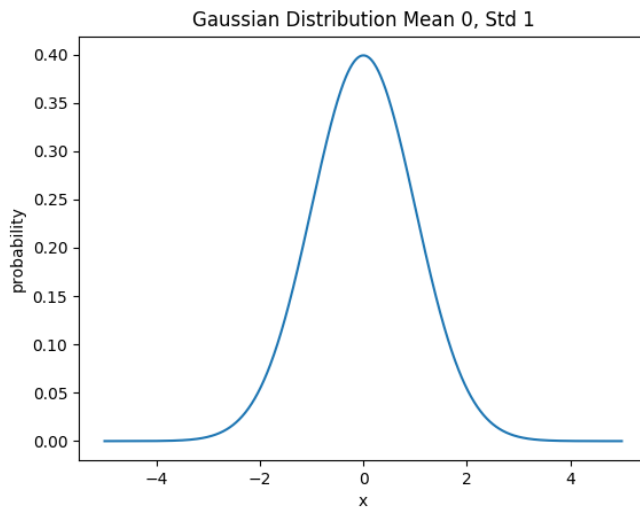
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Problem 1 (Probability Distribution)

(a)My favourite univariate distribution is Normal Distribution.

The distribution of Normal Distribution is: $f(x) = \frac{1}{\sigma\sqrt{2\pi}}e^{-\frac{1}{2}(\frac{x-\mu}{\sigma})^2}$
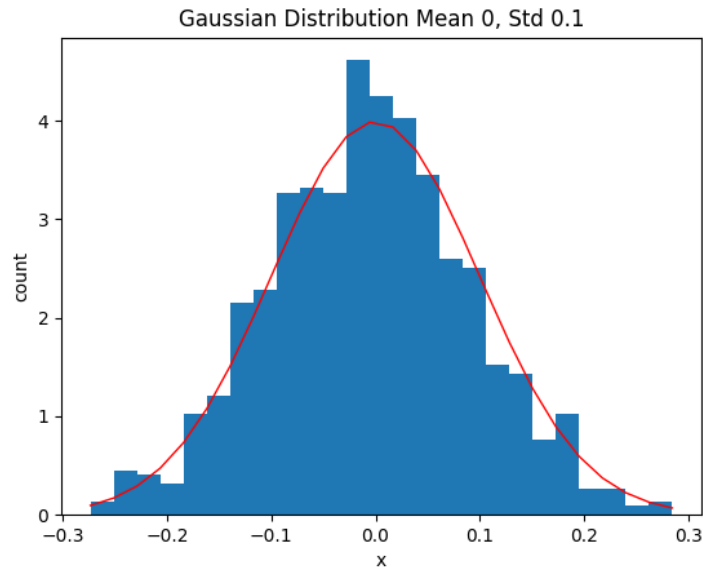
(b)

(c) A normal distribution can be used to describe the distribution of height of all the male in GTA area. It is because normal distribution can fits many natural phenomena.

Problem 2 (Data Estimators)

(a)

Gaussian Distribution Mean 0, Std 0.1

(b) The mean, standard deviation, skewness, kurtosis of the sampel data are: -0.0026993520933585166, 0.09918935348015007, 0.06245314139561282, and -0.05905021119428211.

(c) If we generate another sample, the mean, standard deviation, skewness, kurtosis of the data will not be the same, as the np.random will generate different data for each time from a "seed", so if we do not set the seed to be the same, then python would generate different data from time to time.