APM496 Assignment 1

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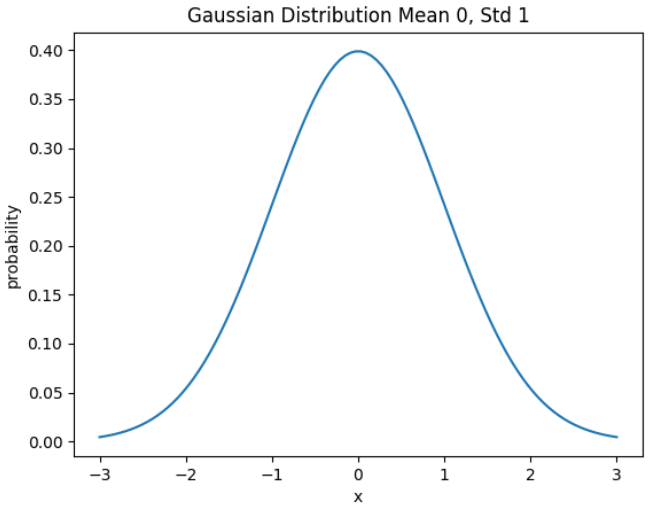
Problem 1 (Probability Distribution)

(a)My favourite univariate distribution is Normal Distribution.

The distribution of Normal Distribution is: $f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}(\frac{x-\mu}{\sigma})^2}$
In my distribution, my sample mean is 0, and the variance is 1.

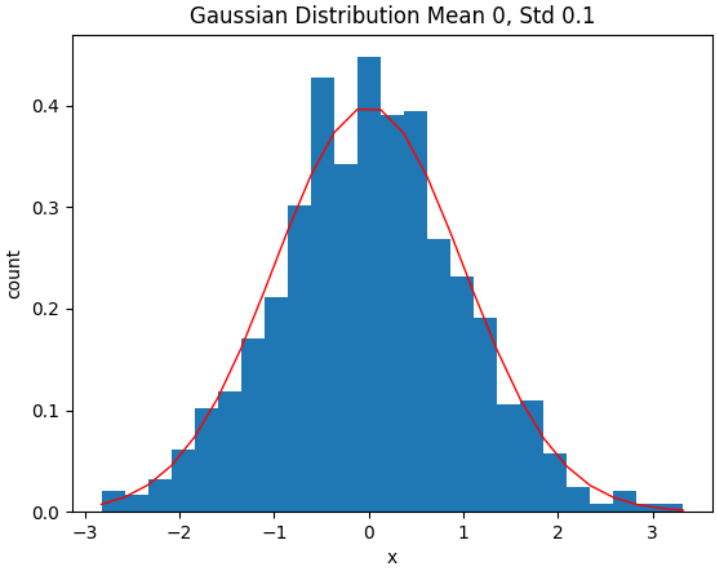
(b)



(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)



(b) The mean, standard deviation, skewness, kurtosis of the sampel data are: -0.026993520933585168, 0.9918935348015007, 0.06245314139561316, -0.059050211194283

(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.