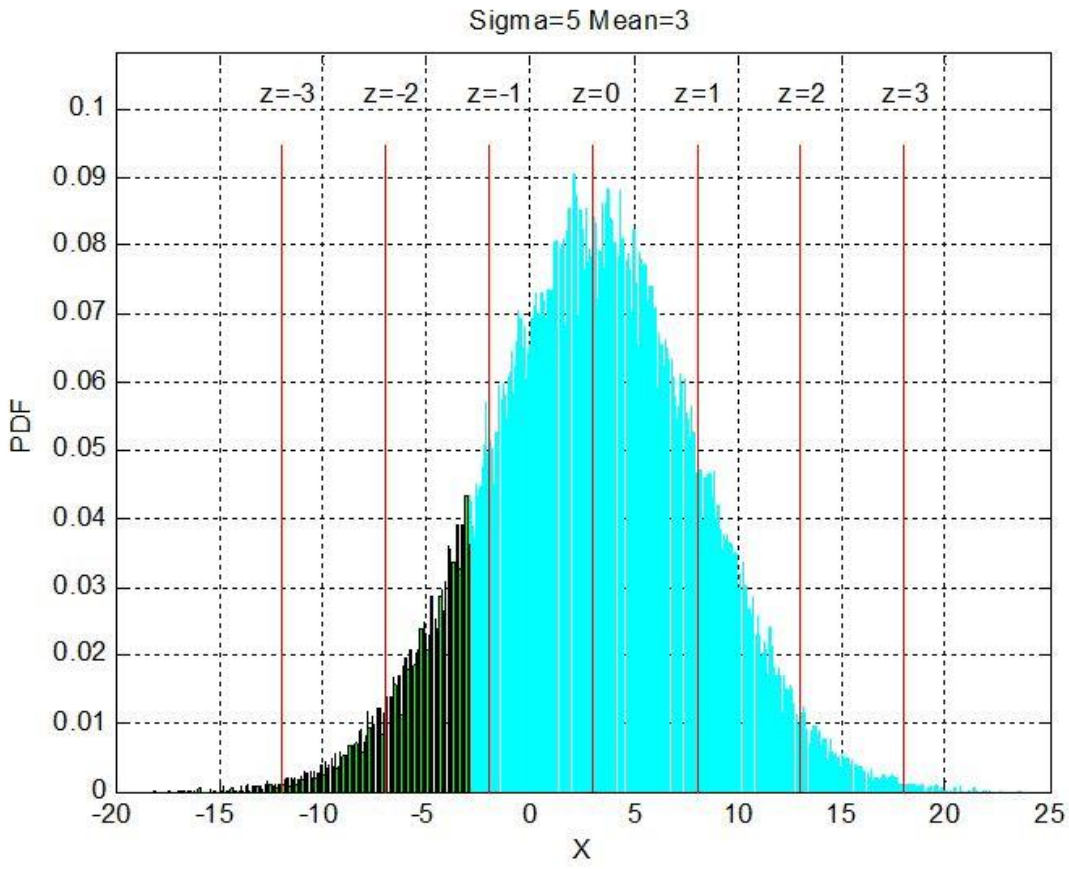
Module 12: Probability and Statistics in Matlab

M12 Exercise

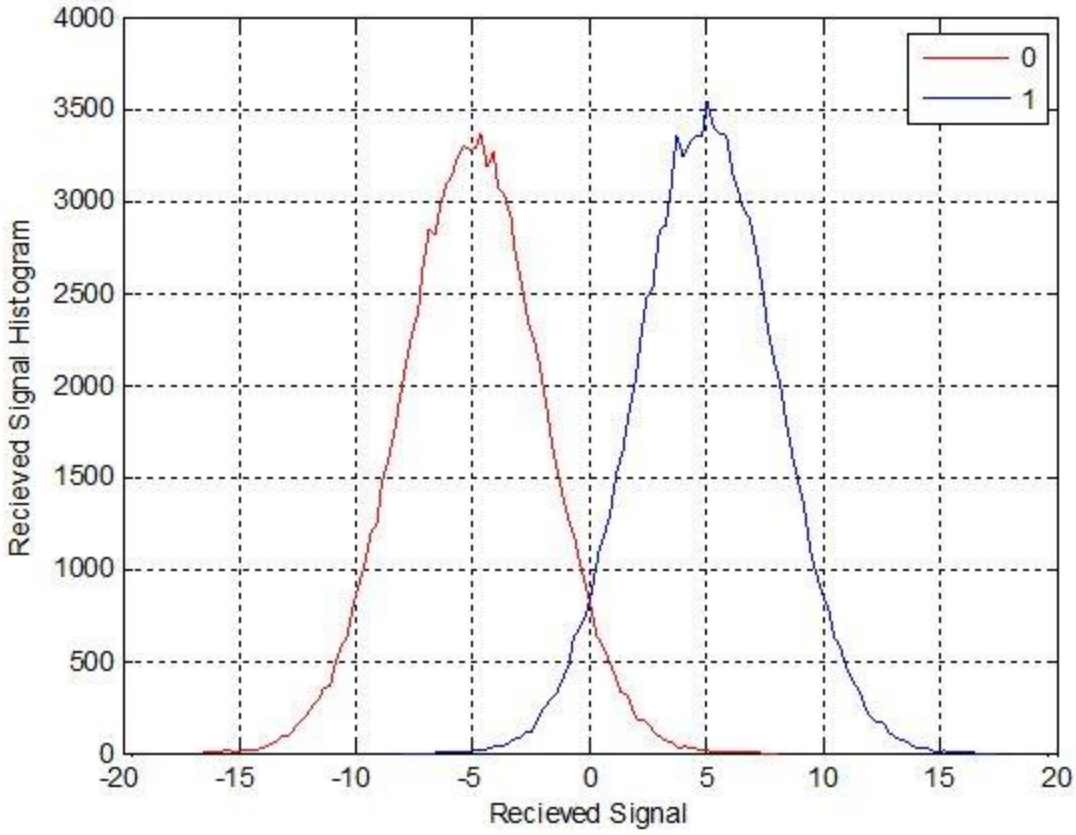
Instructions

1. Starting with the code in **ThreeOfaKind.m** create a new mfile named Flush_LastName.m that computes the probability of a flush. A flush is 5 cards of the same suit. Compute the analytic probability. Look up the probability on Wikipedia. Compare the three values.

2. Starting with the code in **Histograms.m** generate the following plot. Use 100,000 random normal numbers with a standard deviation of 5 and a mean of three. Plot red vertical lines for sigma=-3:3, and label the z scores as shown. Call this mfile DistributionHomework_LastName.m.



3. Compute the Bit Error Rate (BER) for a communications channel where a zero has a mean of -5, and a sigma of 3, and a one has a mean of 5 and a sigma of 3. The probability of a one is 50%. Compute the BER using a simulation of 100,000 ones, and 100,000 zeros. Plot the PDFs. Call you Matlab script BitErrorRateHomework_LastName.m. Compute the BER analytically using normcdf, erf, or erfc. Your plot should look like this:



4. Please use the **Homework template (Word)** when submitting your work.

For this exercise, you should submit the following files in the M12 Exercise submission area:

1. Flush_LastName.m
2. DistributionHomework_LastName.m
3. BitErrorRateHomework_LastName.m

Note: Substitute your last name for LastName in all submitted files.

Please refer to the Course Schedule for due date.