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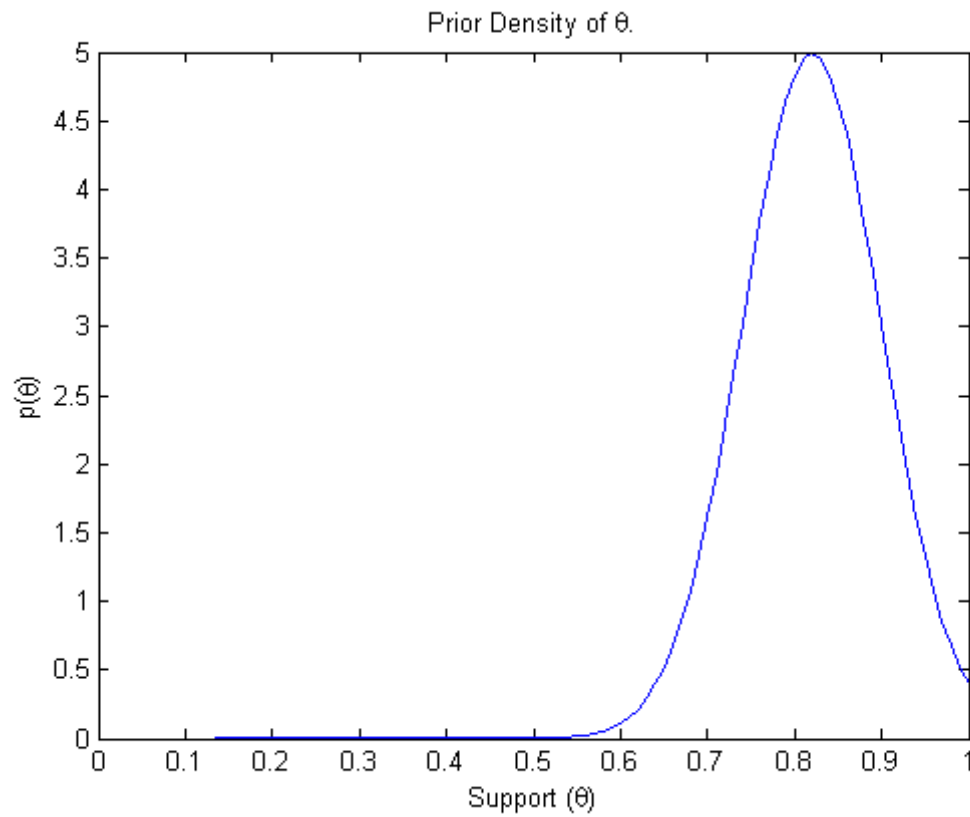
STA 601: Homework - 1

```
% Author: Kedar Prabhudesai
% Created on: 8/30/2013
close all;clear all;

% Number of students in class
n = 50;
% Expected Score - 82%
mu = 0.82;
% Std. Dev - 8%
sigma = 0.08;
% Support of the pdf
X = 0:0.01:1;
% Compute pdf over support
Y = (1/(sigma*sqrt(2*pi))).*exp(-((X-mu).^2)/(2*sigma^2));

% Make sure it is pdf. Verify that integration over support is 1
areaOverSupport = trapz(X,Y);
disp(['Area Under pdf = ',num2str(areaOverSupport)]);
% Plot Distribution
figure;plot(X,Y);
xlabel('Support (\theta)');
ylabel('p(\theta)');
title('Prior Density of \theta.');
```

Area Under pdf = 0.98768



Find 95% Confidence Interval

```
% Use Z* = 1.96
muUpper = mu + 1.96*sigma/sqrt(n);
muLower = mu - 1.96*sigma/sqrt(n);

disp(['95% Confidence Interval - ', num2str(muUpper), ' < mu < ', num2str(muLower)]);
```

95% Confidence Interval - 0.84217 < mu < 0.79783

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