MAT1372, Classwork4 Lab, Fall2025

Download data `loan50.csv` : https://www.openintro.org/data/csv/loan50.csv

Load the data `loan50.csv` in Octave (https://octave-online.net/ and then login with token):

Drag the csv file to Octave then type `data = csvread('yourfile.csv'); %for arrays`

```
pkg load io; % Load the io package if not already loaded
data_cell = csv2cell('yourfile.csv');

m = cell2mat(c); % Convert cell to a matrix(numbers/arrays)
```

I. Scatterplots for paired data:

```
x= cell2mat(data_cell(2:51,5)); y=cell2mat(data_cell(2:51,7));
scatter(x, y);
xlabel('annual income'); %X-axis Label
ylabel('total credit limit'); %Y-axis Label
title('My Scatter Plot');
```

II. Dot plots and the mean:

```
inter_rate= cell2mat(data_cell(2:51,14));
x_bar = mean(inter_rate);

% Create a vector of zeros or a constant value for the y-coordinates
% It places all dots on a single horizontal line
y_dot = zeros(size(data));
plot(data, y_dot, 'o', 'markersize', 8, 'markerfacecolor', 'b');
scatter(data, y_dot, 'o', 'filled');
```

III. Histograms and the shape:

```
hist(inter_rate);% plot a histogram w/o specific instruction which gave 10 bins
hist(inter_rate,15);% plot a histogram which gave 15 bins

central_bin = 6.25:2.5:26.25;% give the central of each bin
hist(inter_rate, central_bin);% the plot with the given center of each bin
```

IV. Variance and Standard Deviation:

```
v = var(inter_rate);% find the sample variance. Also see var(inter_rate,0);
v = var(inter_rate,1);% find the population variance.

s = std(inter_rate);% find the sample standard deviation. Also see std(inter_rate,0);
s = std(inter_rate,1);% find the population standard deviation.
```

V. Box plots, Quartiles and the median:

```
m = median(data);
q1 = quantile(data, 0.25); % q will be the 25th percentile (first quartile)
q_multi = quantile(data, [0.25, 0.5, 0.75]);% find 1st, 2nd (median), and 3rd quartiles
iqr = quantile(data, 0.75)- quantile(data, 0.25);

boxplot(inter_rate); % the boxplot
```

VI. Robust statistic

VII. Transforming data

VIII. Mapping data