ITU

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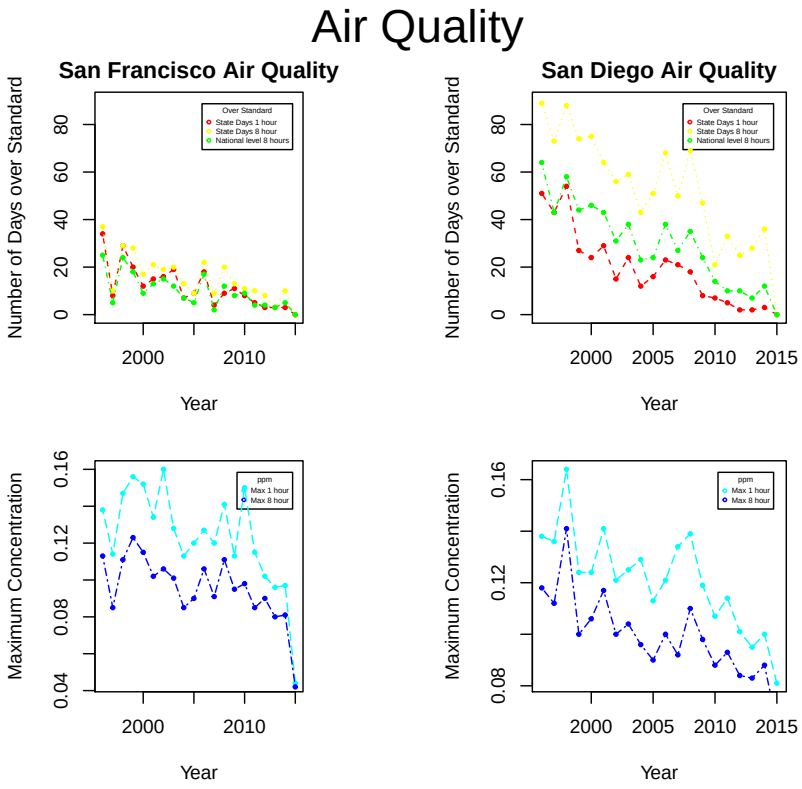
Homework 2

Abstract

This homework uses the data from `http://www.arb.ca.gov/aqmis2/ozone_annual.php` It is described in HoffmanPracticeGraphics.pdf
Please turn in both the graphs and the code that produces the graphs.

Question 1

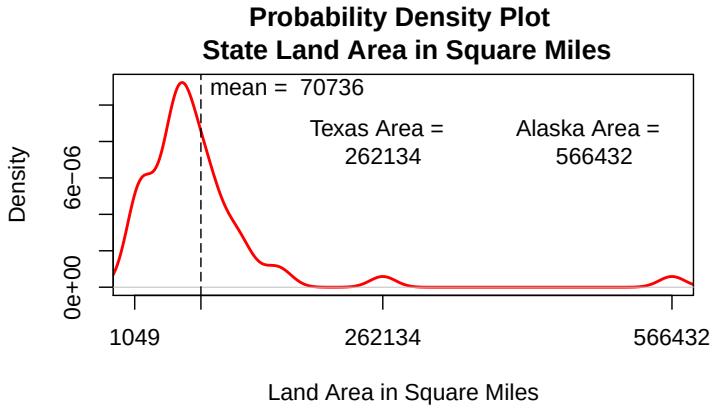
Investigate the air quality of two areas in California. Use the base plotting functions from the graphics package. Show the code you used to generate the graphs. Use the data in AirQualitySanFranciscoData.csv and in AirQualitySanDiegoData.csv. Create four graphs with the year on the horizontal axis. Two of the graphs have number of days ppm exceeded the standard on the vertical axis. Two of the graphs have maximum concentration on the vertical axis. Notice the spacing between the columns of graphs. Make an exact replica of the graph shown below:

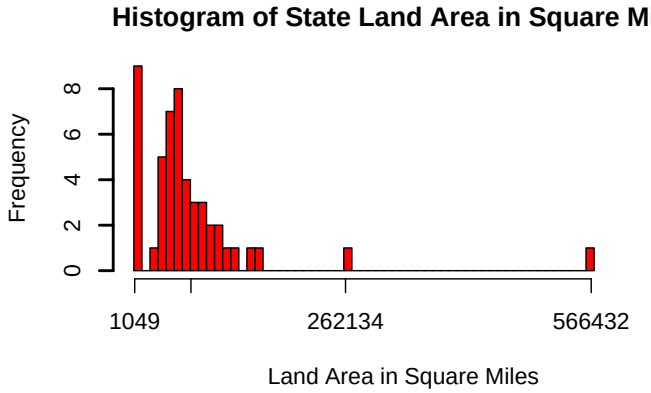


Answer 1

Question 2

Investigate the land areas of USA states. Use the base plotting functions from the graphics package. Show the code you used to generate the graphs. Use the state.x77 data set (recall typing ?state.x77 into the console will provide a discription of this data set). Notice the axis for the charts. Create the graphs and charts exactly the same as those below:

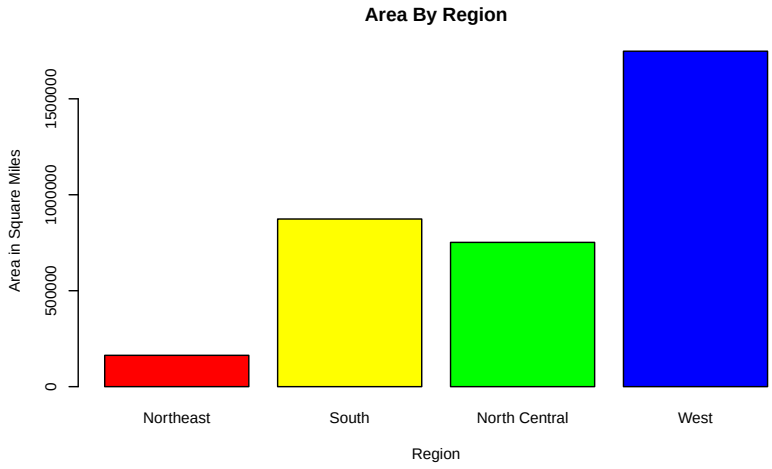


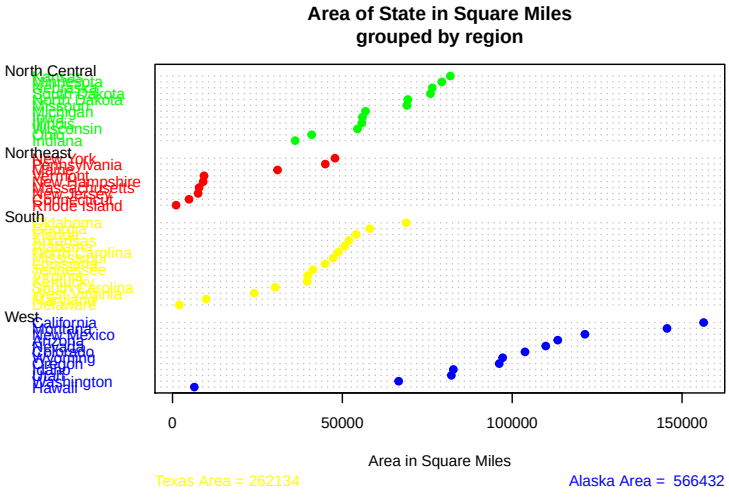


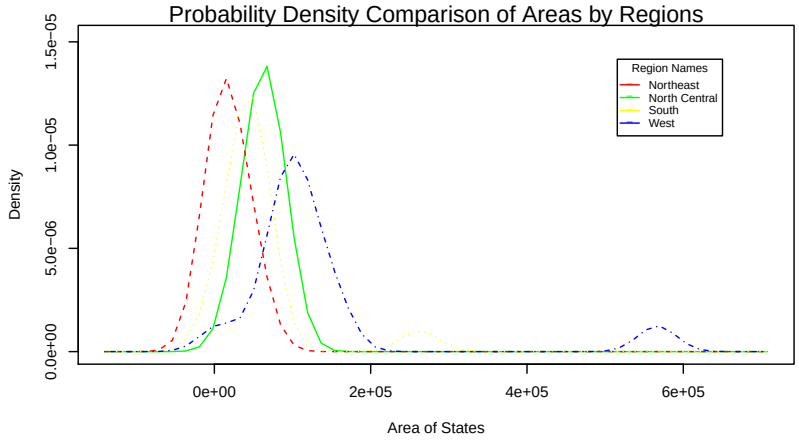
Answer 2

Question 3

Investigate the land areas of USA regions. State regions can be found in the state.region data set. Use the base plotting functions from the graphics package. Show the code you used to generate the graphs. Use the data sets state.x77 and state.region. Notice the axis for the charts. Watch out; Color code the graphs correctly. Create the graphs and charts exactly the same as those below:


Area By Region
Area in Square Miles
0
500000
1000000
1500000
Northeast
South
North Central
West
Region

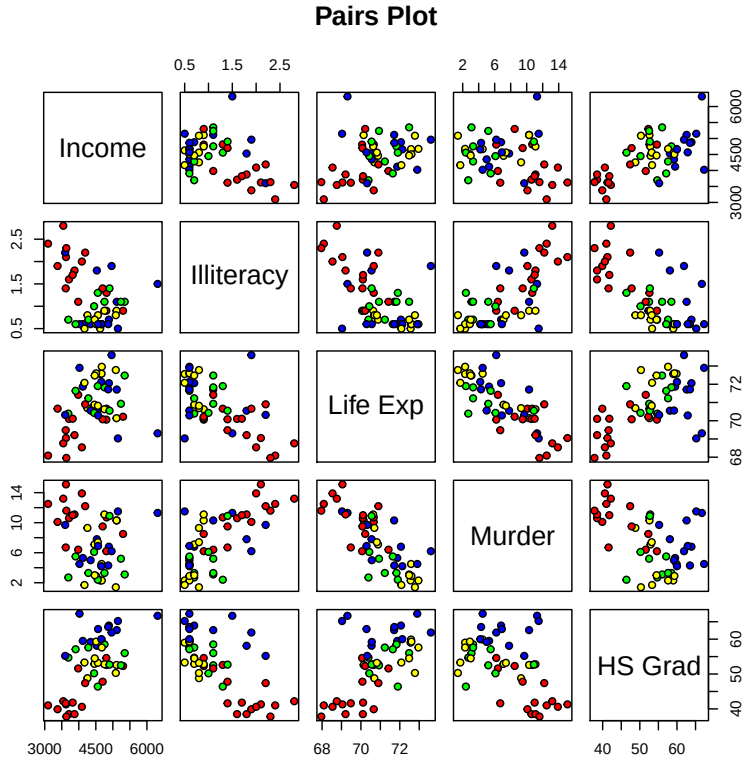

Area of State in Square Miles
grouped by region
North Central
Northeast
South
West
Rhode Island
Hawaii
0
50000
100000
150000
Area in Square Miles
Texas Area = 262134
Alaska Area = 566432

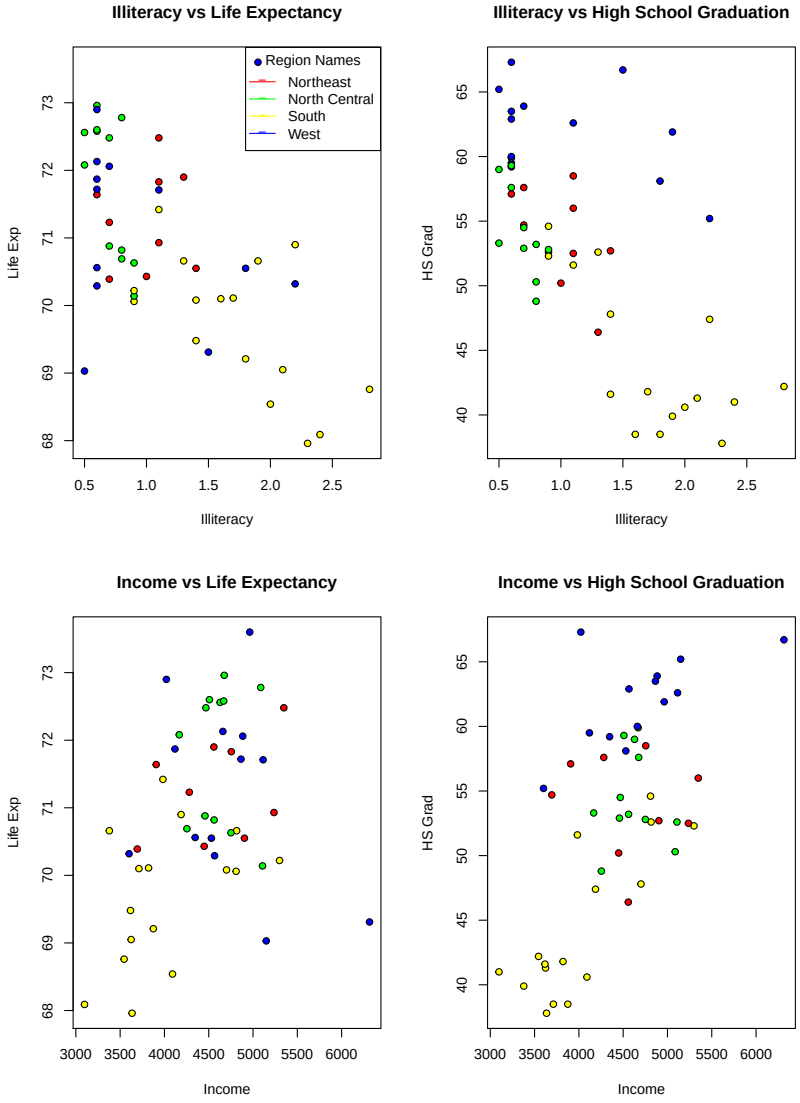

Probability Density Comparison of Areas by Regions
Region Names
Northeast
North Central
South
West
Density
0.0e+00
5.0e−06
1.0e−05
1.5e−05
0e+00
2e+05
4e+05
6e+05
Area of States

Answer 3

Question 4

Some interesting observations can be seen by looking at pairs plots of the state.x77 data. Use the base plotting functions from the graphics package. Show the code you used to generate the graphs. Create the graphs and charts exactly the same as those below:





By observing the previous charts can you make some generalized statements about the relationships between these variables?

Answer 4

Question 5

Use the base plotting functions from the graphics package. Show the code you used to generate the graphs. The precip data contains the average amount of precipitation (rainfall) in inches for each of 70 United States (and Puerto Rico) cities. Be creative to generate some graphs and charts using either the precip data or another data set of your choice. What about using the scatterplot3d package?

Answer 5