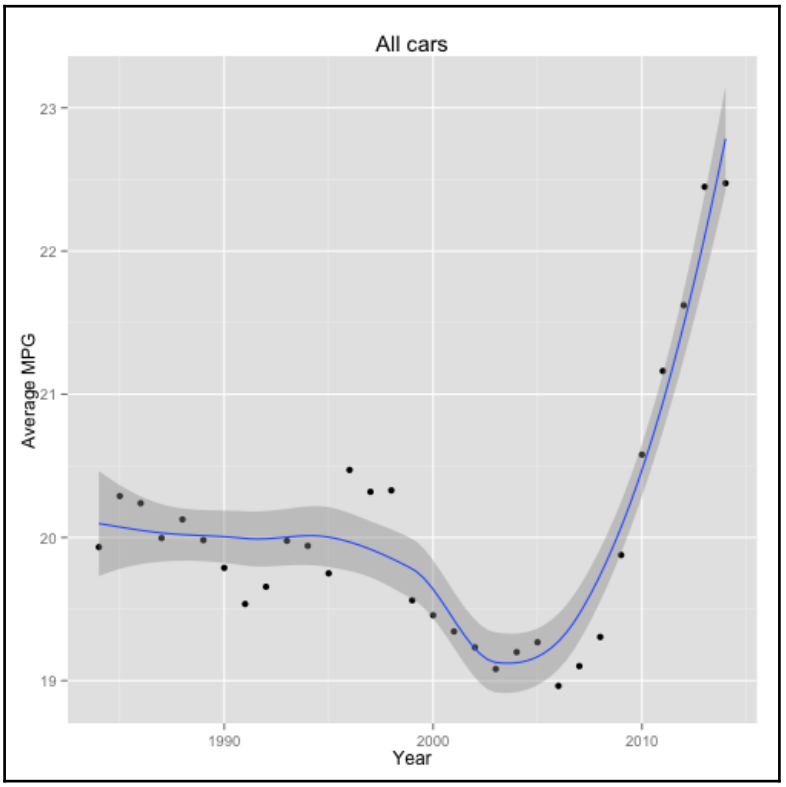
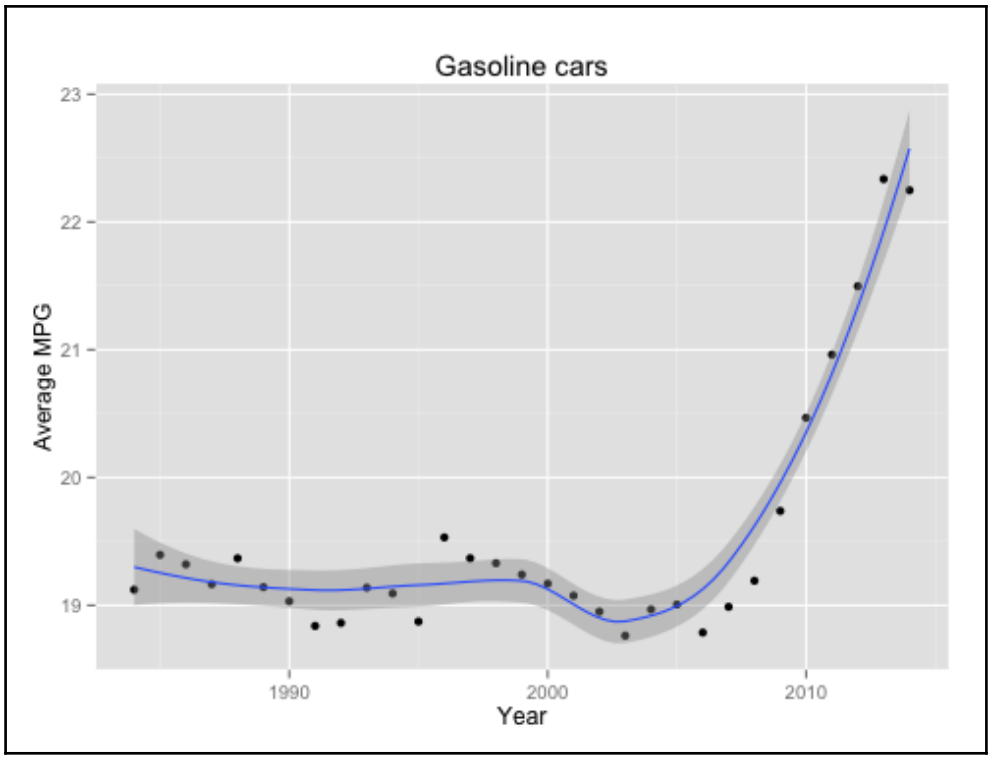
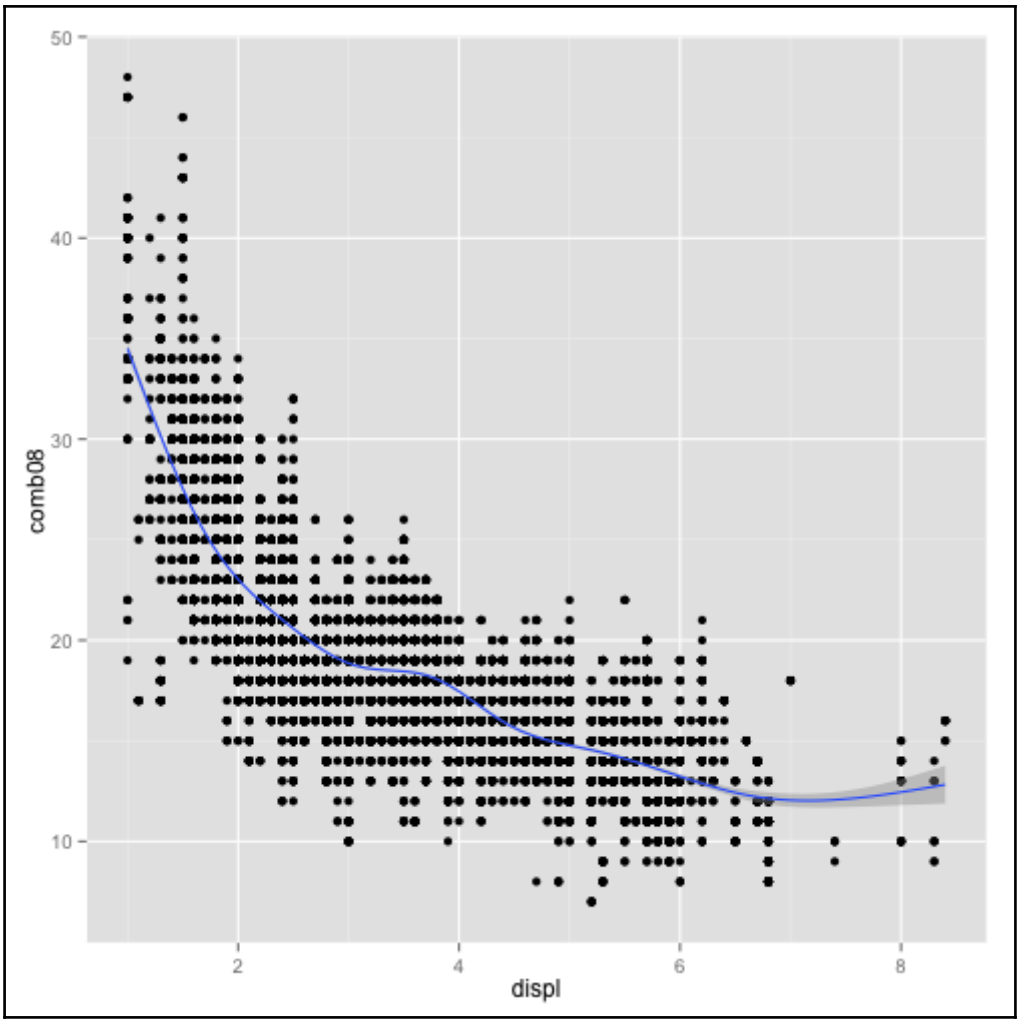
Graphics Bundle

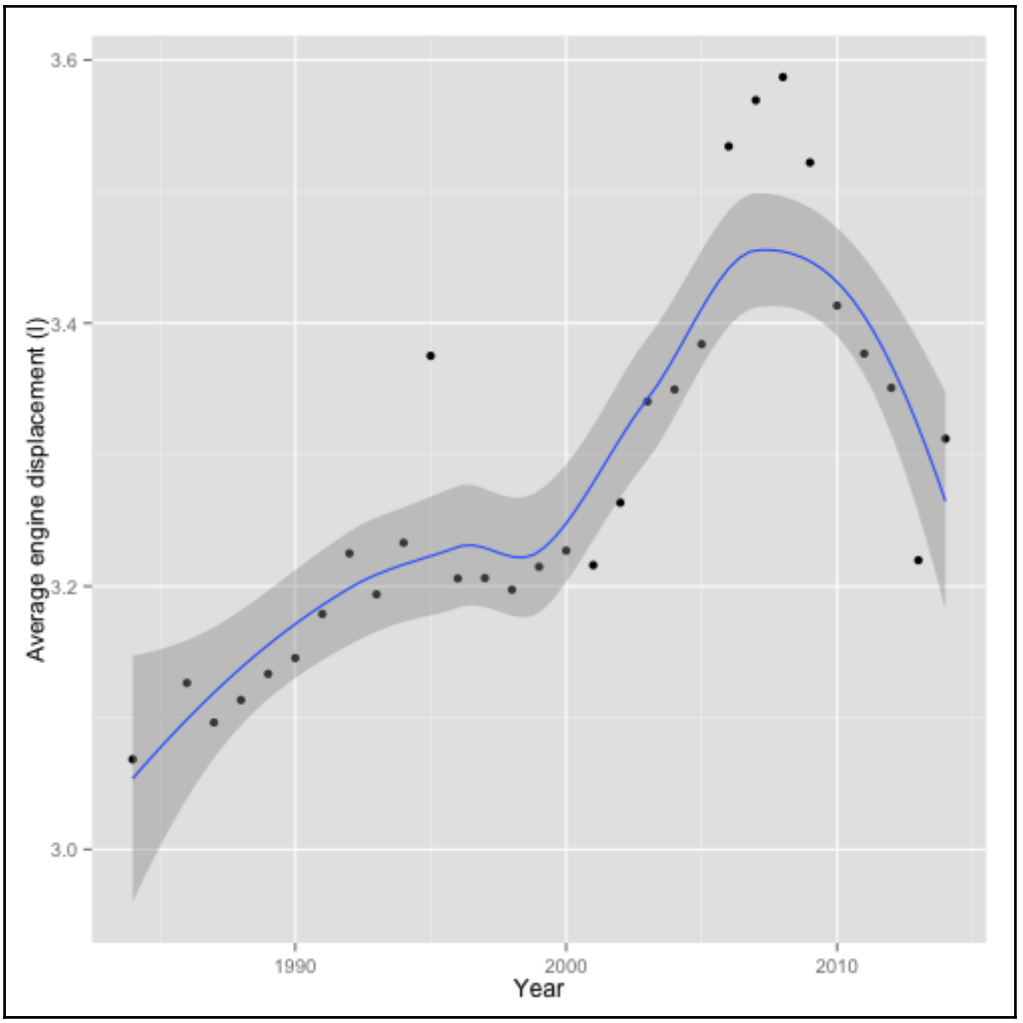
Chapter 2: Driving Visual Analysis with Automobile Data with R

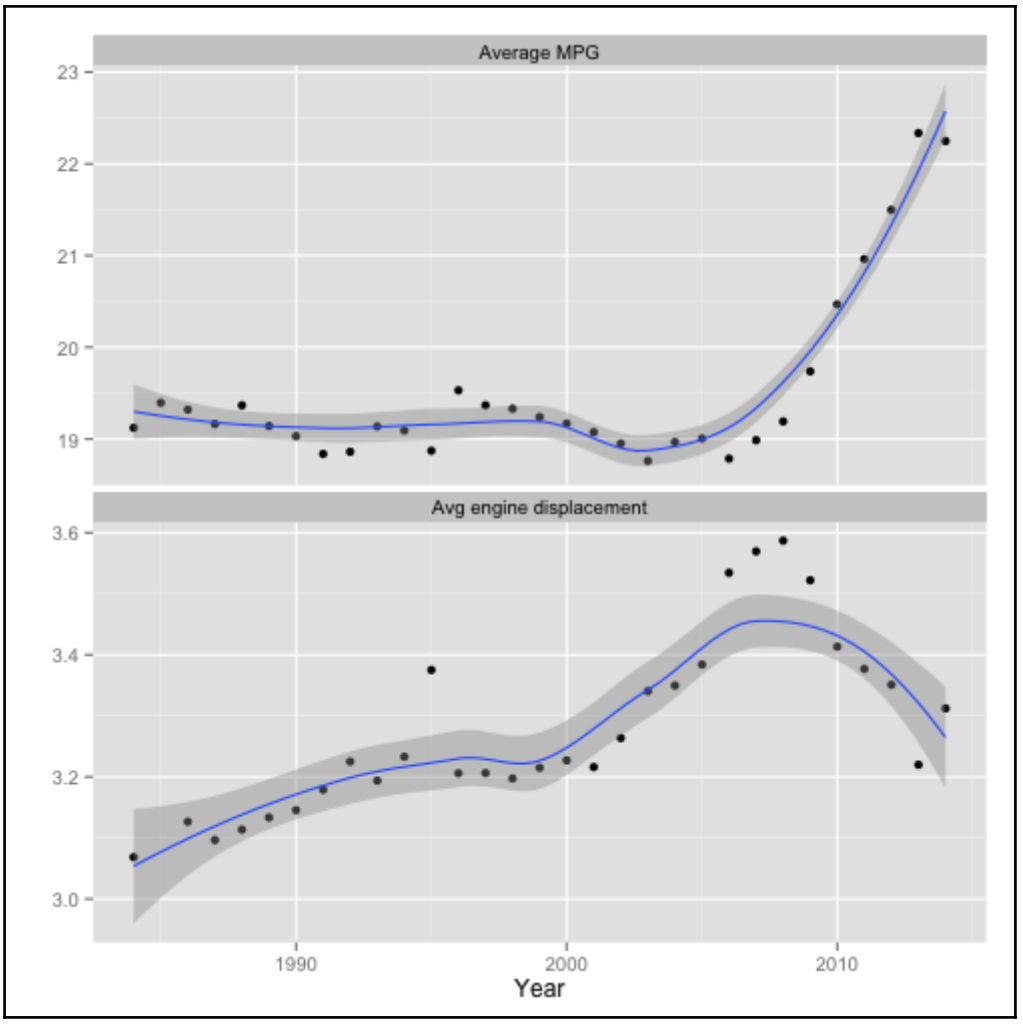
Analyzing automobile fuel efficiency over time

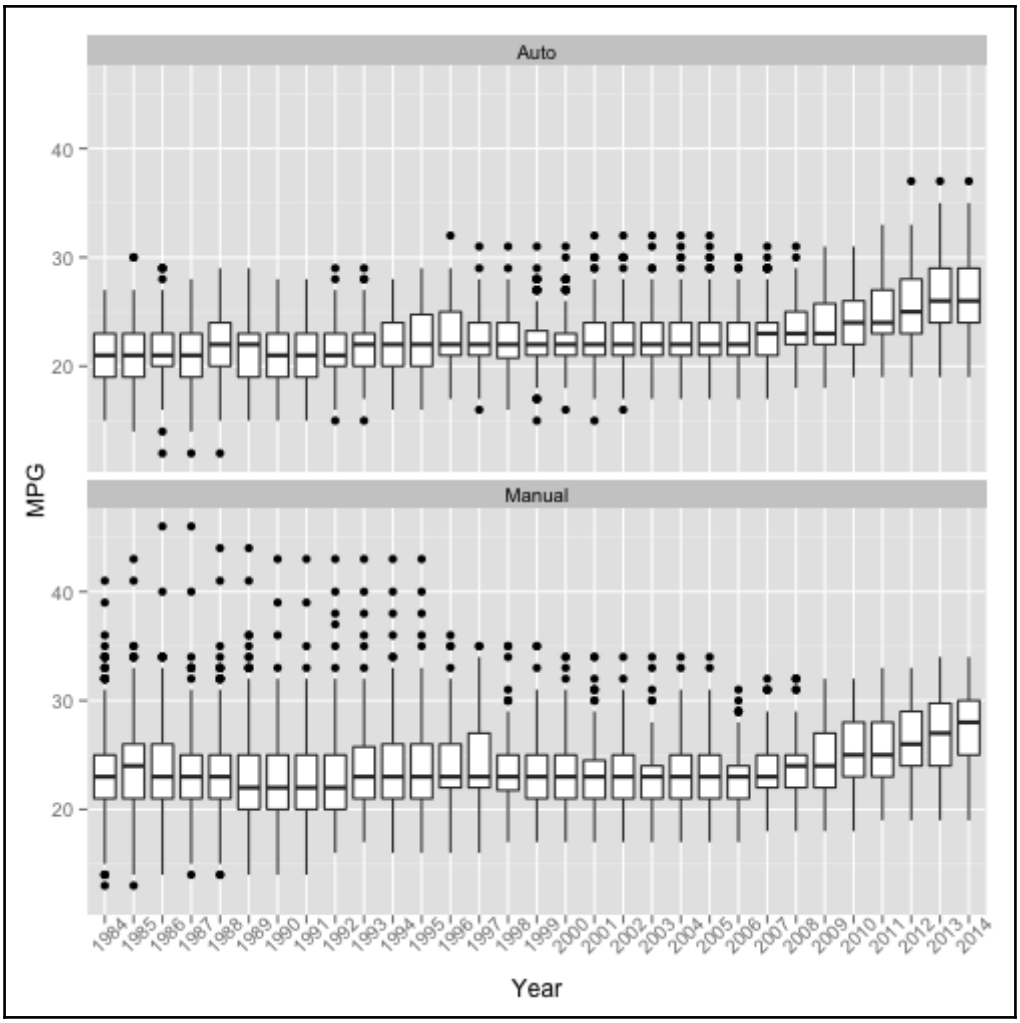


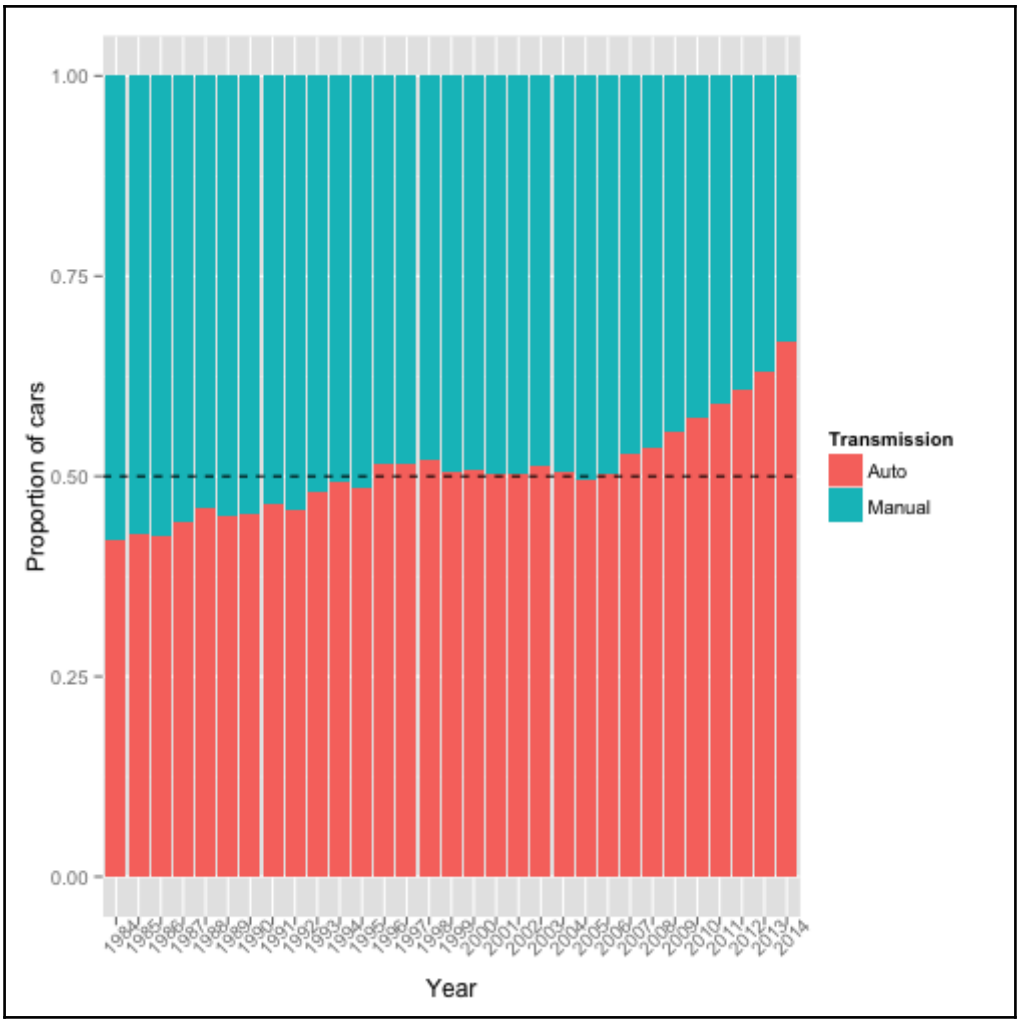

Gasoline cars
Average MPG
23
22
21
20
19
1990
2000
2010
Year


50
40
30
20
10
comb08
2
4
6
8
displ


3.6
3.4
3.2
3.0
Average engine displacement (l)
1990
2000
2010
Year

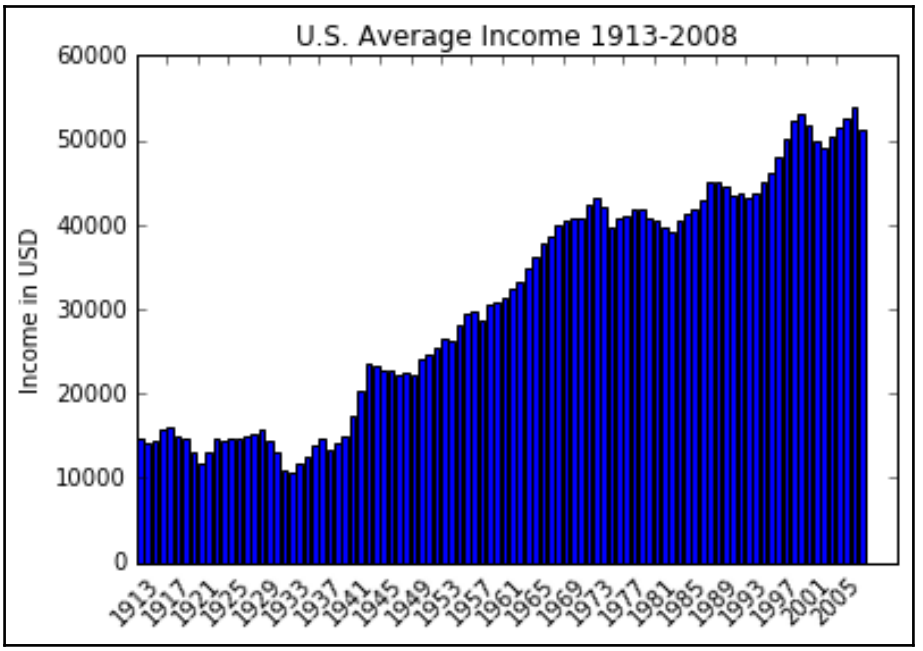

Average MPG
23
22
21
20
19
Avg engine displacement
3.6
3.4
3.2
3.0
1990
2000
2010
Year


Auto
Manual
MPG
40
30
20
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year

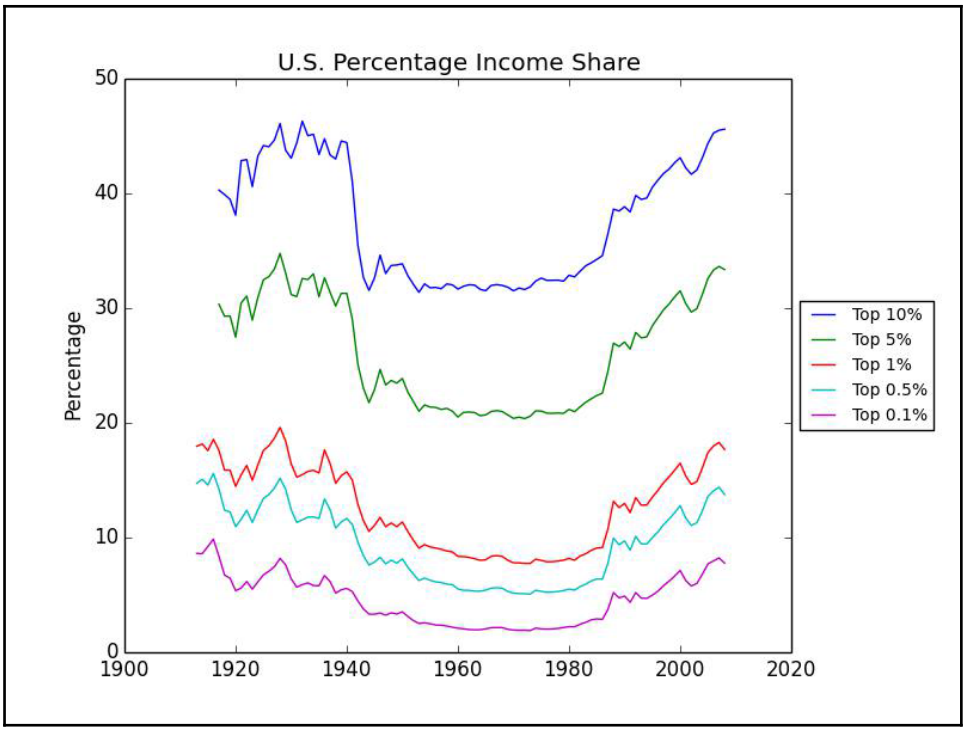

1.00
0.75
0.50
0.25
0.00
Proportion of cars
Year
Transmission
Auto
Manual

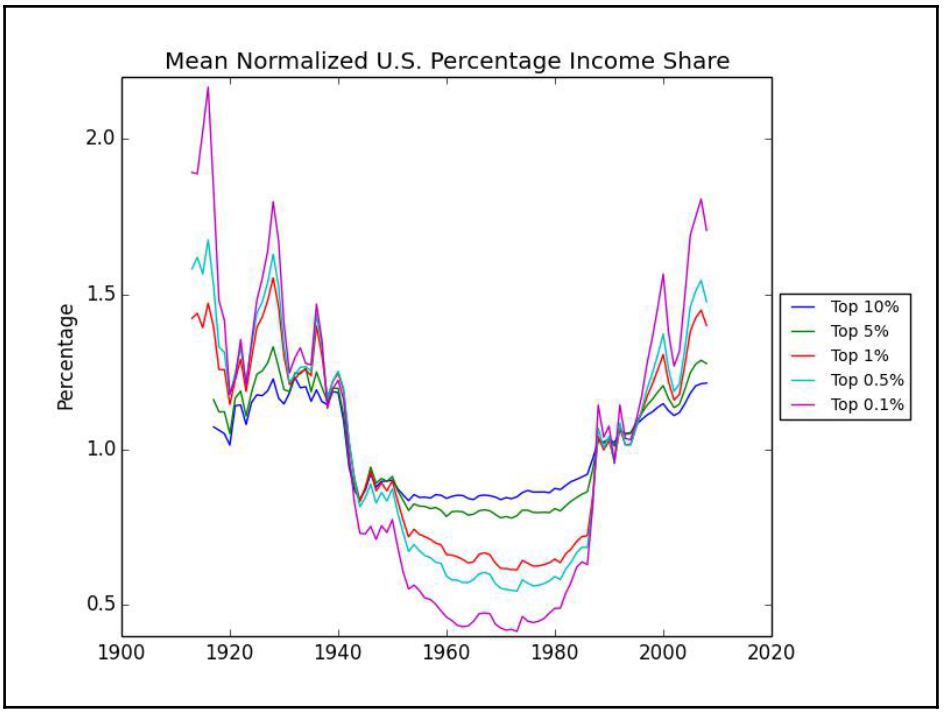
Chapter 3: Creating Application-Oriented Analyses Using Tax Data and Python

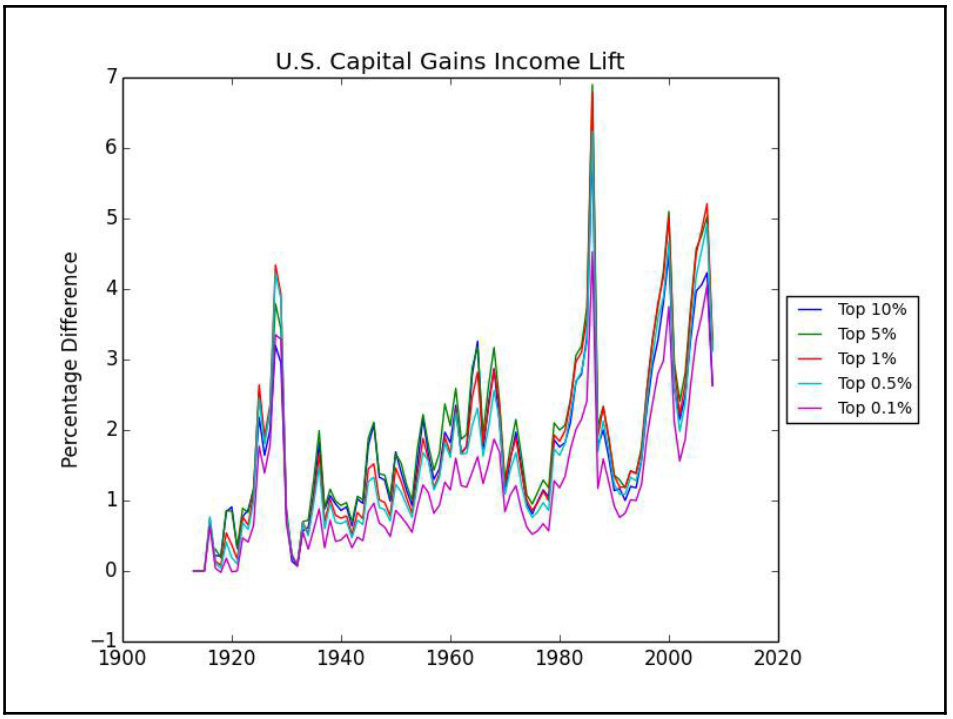
Importing and exploring the world's top incomes dataset



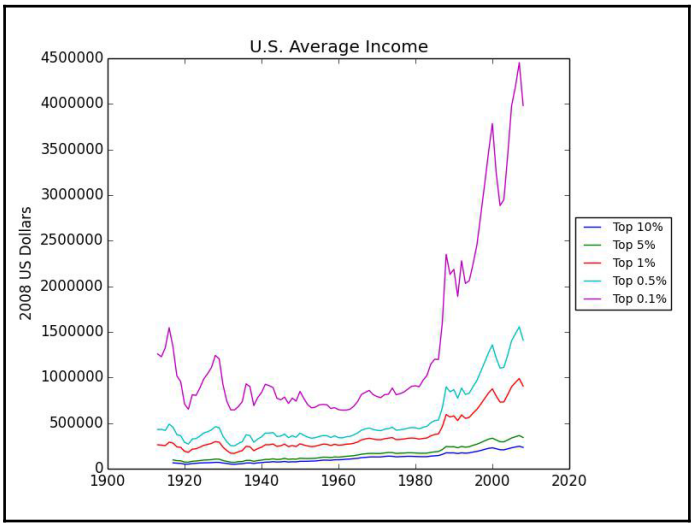
Analyzing and visualizing the top income data of the US

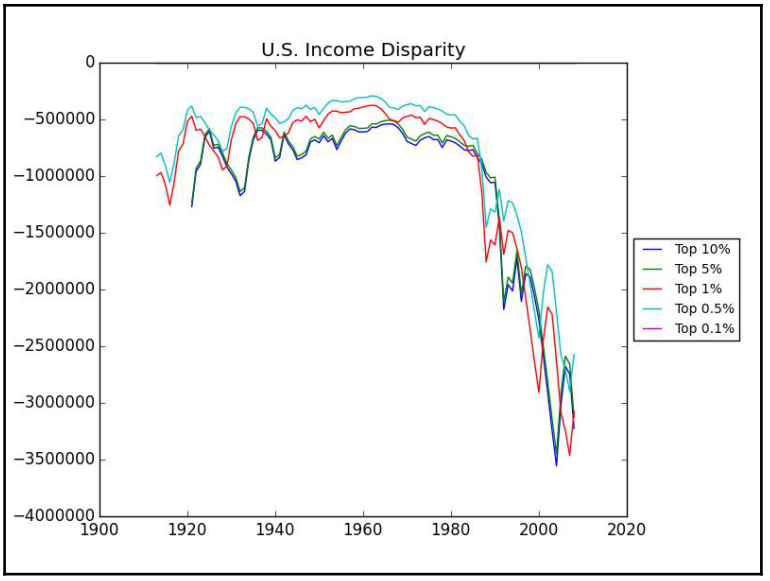


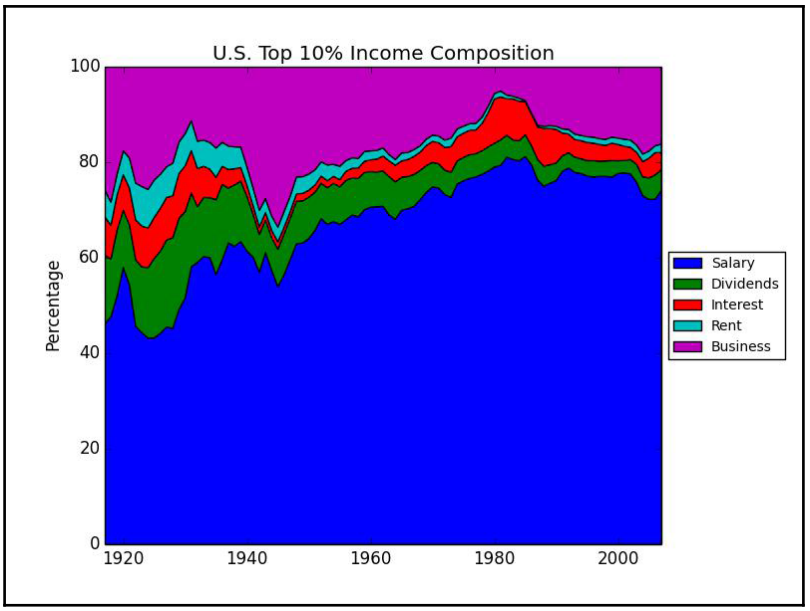

Mean Normalized U.S. Percentage Income Share
Percentage
2.0
1.5
1.0
0.5
1900
1920
1940
1960
1980
2000
2020
Top 10%
Top 5%
Top 1%
Top 0.5%
Top 0.1%


U.S. Capital Gains Income Lift
Percentage Difference
7
6
5
4
3
2
1
0
−1
1900
1920
1940
1960
1980
2000
2020
Top 10%
Top 5%
Top 1%
Top 0.5%
Top 0.1%

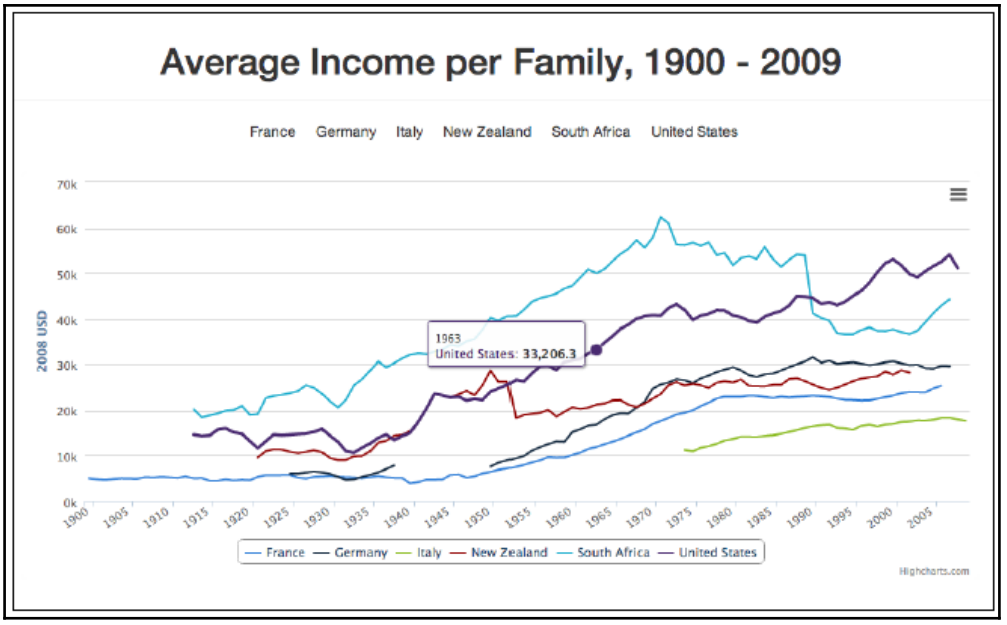
Furthering the analysis of the top income groups of the US



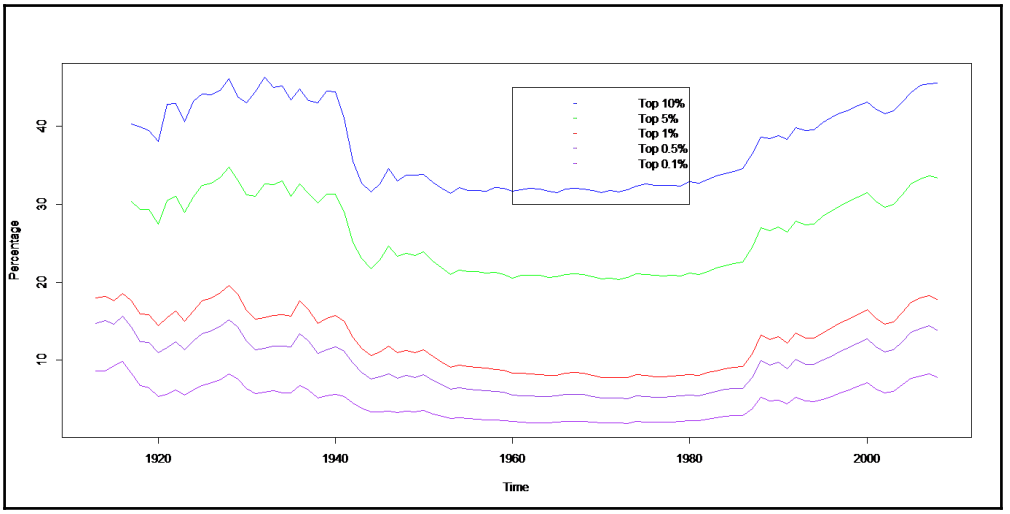


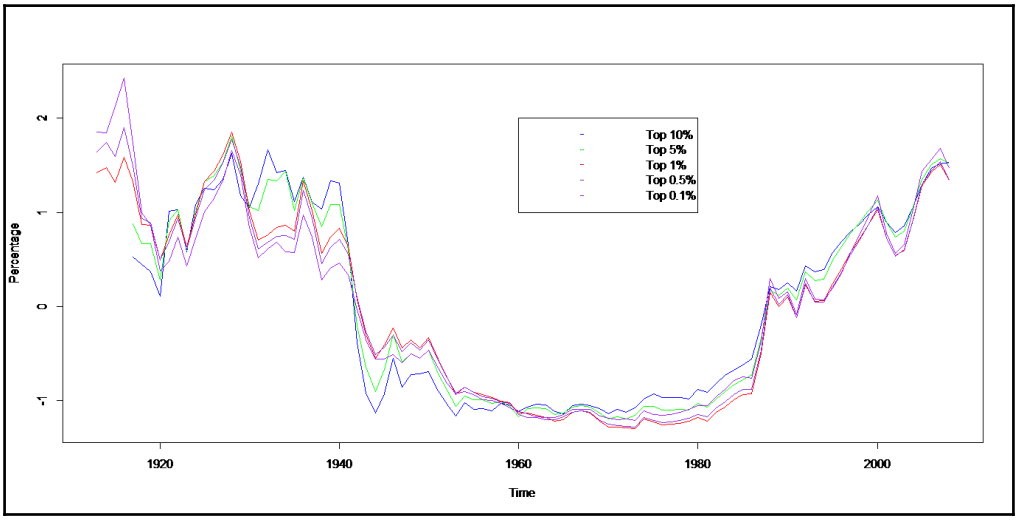


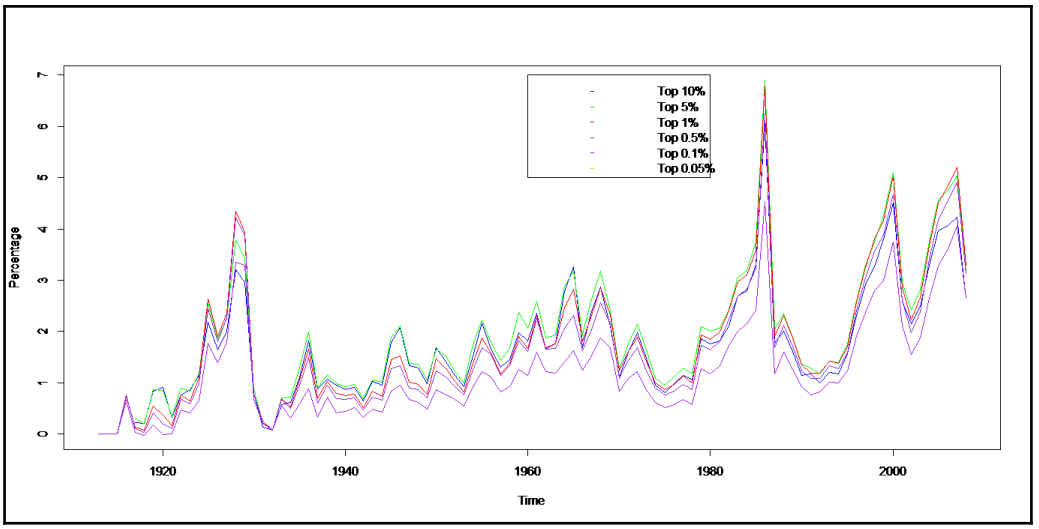
Reporting with Jinja2



Repeating the analysis in R

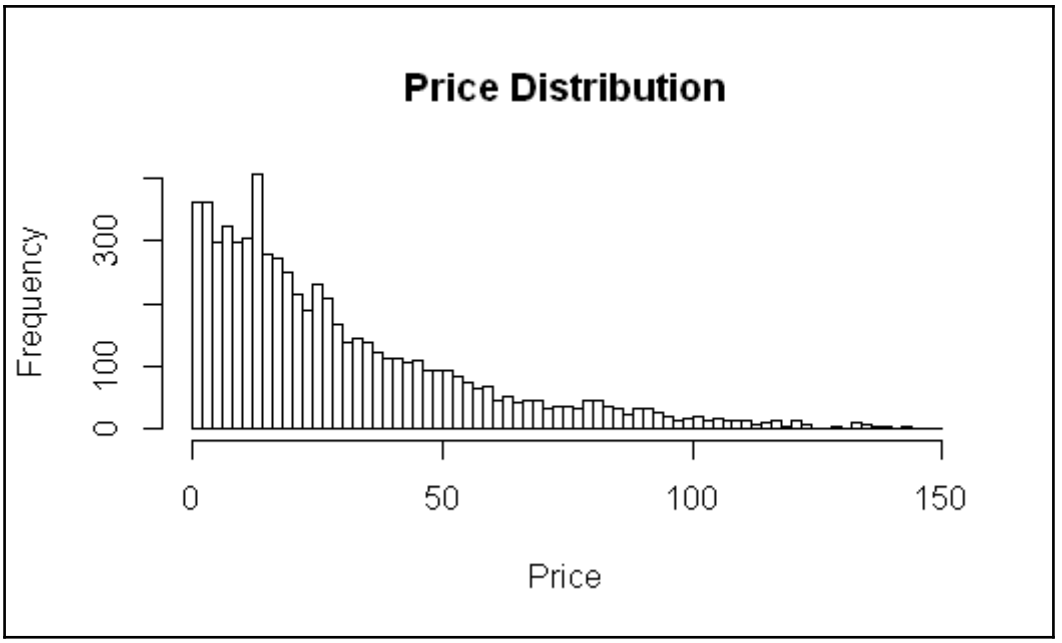


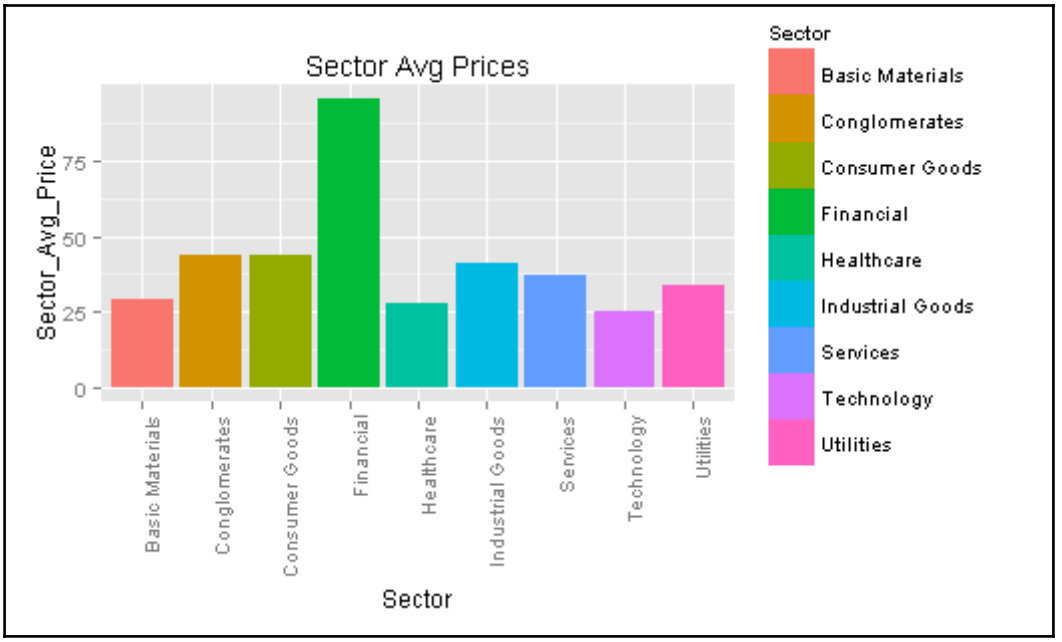


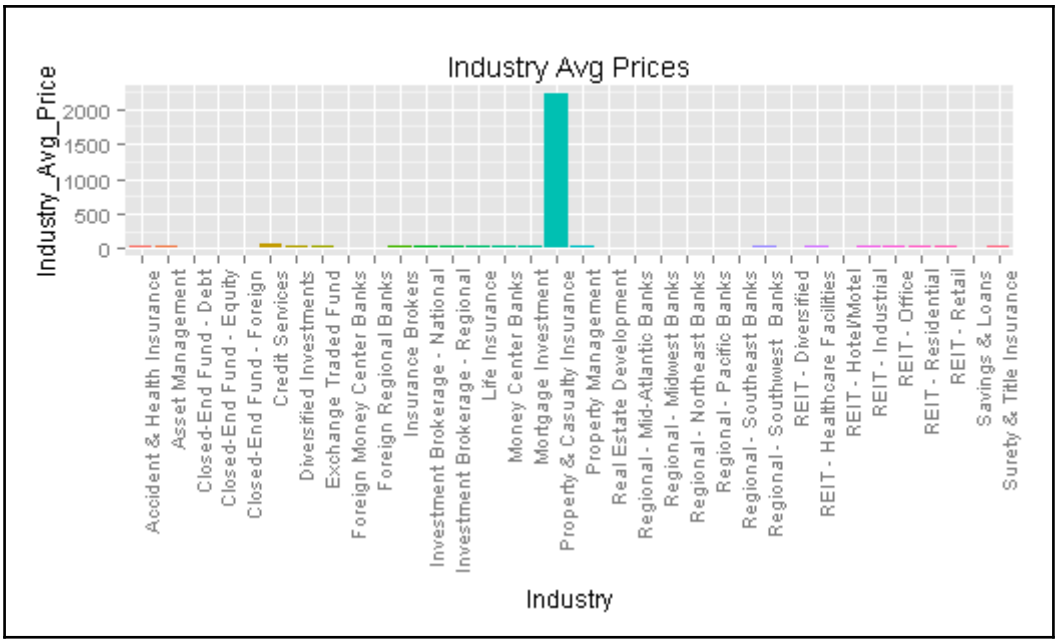

Top 10%
Top 5%
Top 1%
Top 0.5%
Top 0.1%
Top 0.05%
Percentage
0
1
2
3
4
5
6
7
1920
1940
1960
1980
2000
Time

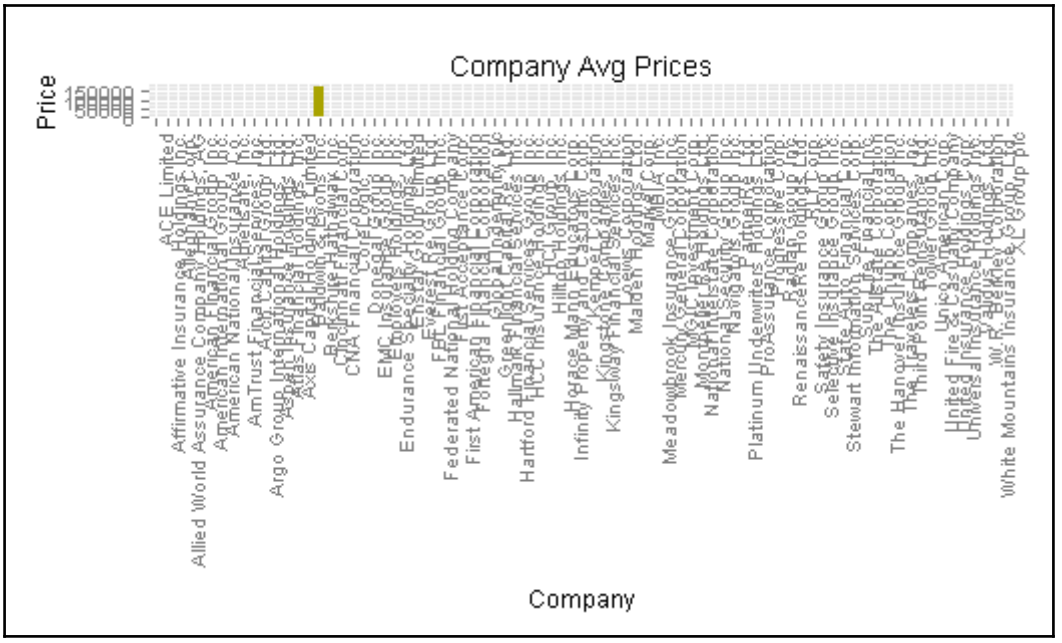
Chapter 4: Modeling Stock Market Data

Cleaning and exploring the data

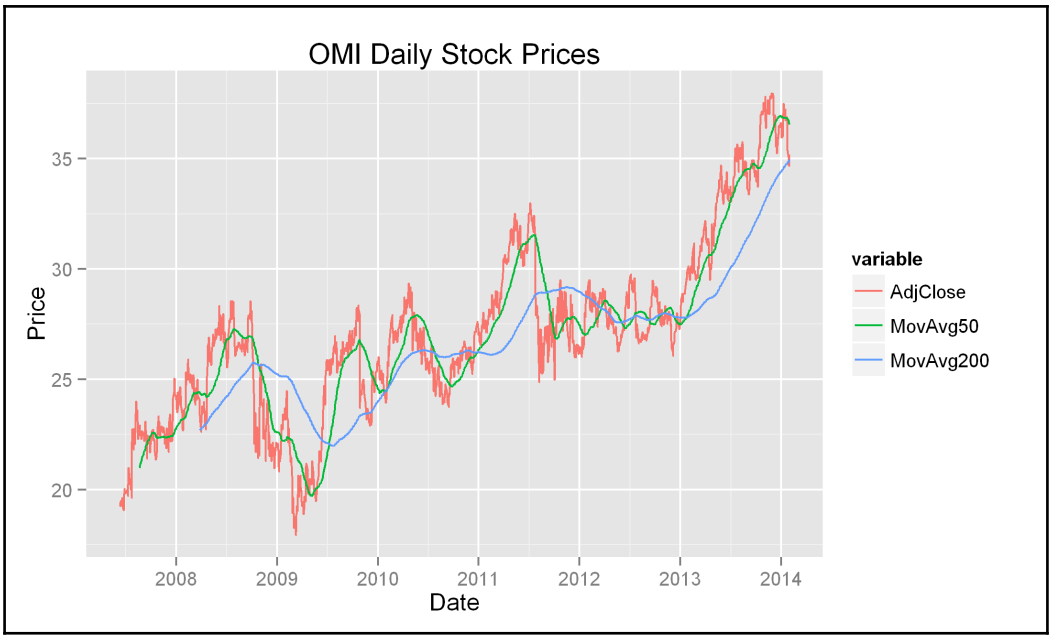

Price Distribution
Frequency
0
100
300
0
50
100
150
Price

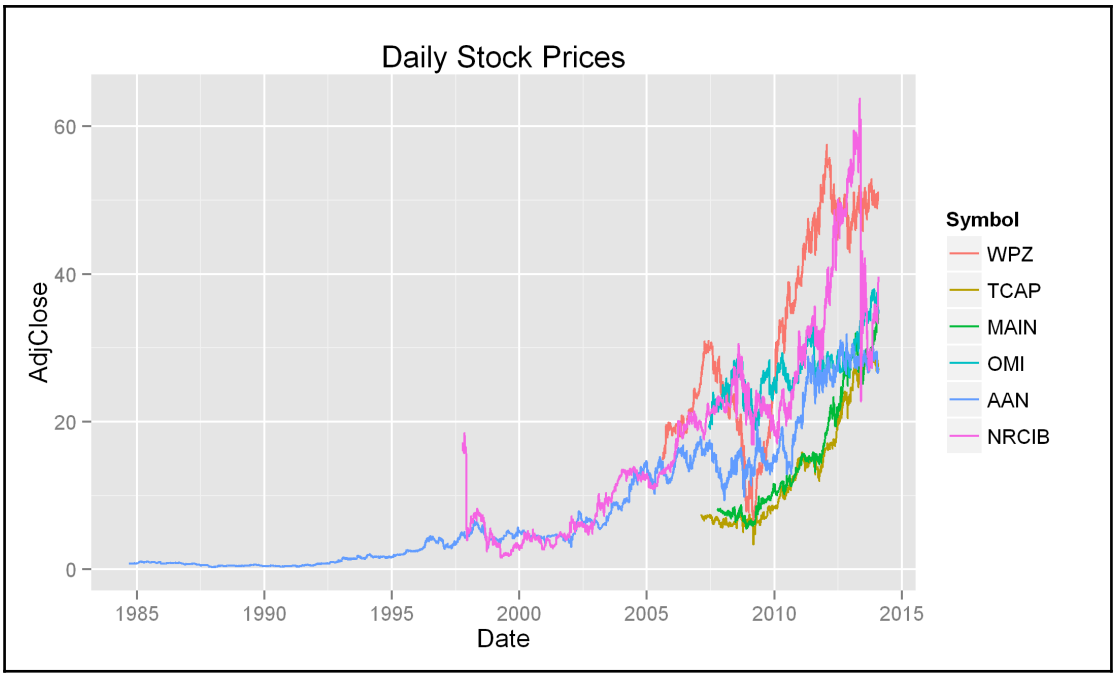

Sector Avg Prices
Sector_Avg_Price
0
25
50
75
Basic Materials
Conglomerates
Consumer Goods
Financial
Healthcare
Industrial Goods
Services
Technology
Utilities
Sector
Sector
Basic Materials
Conglomerates
Consumer Goods
Financial
Healthcare
Industrial Goods
Services
Technology
Utilities

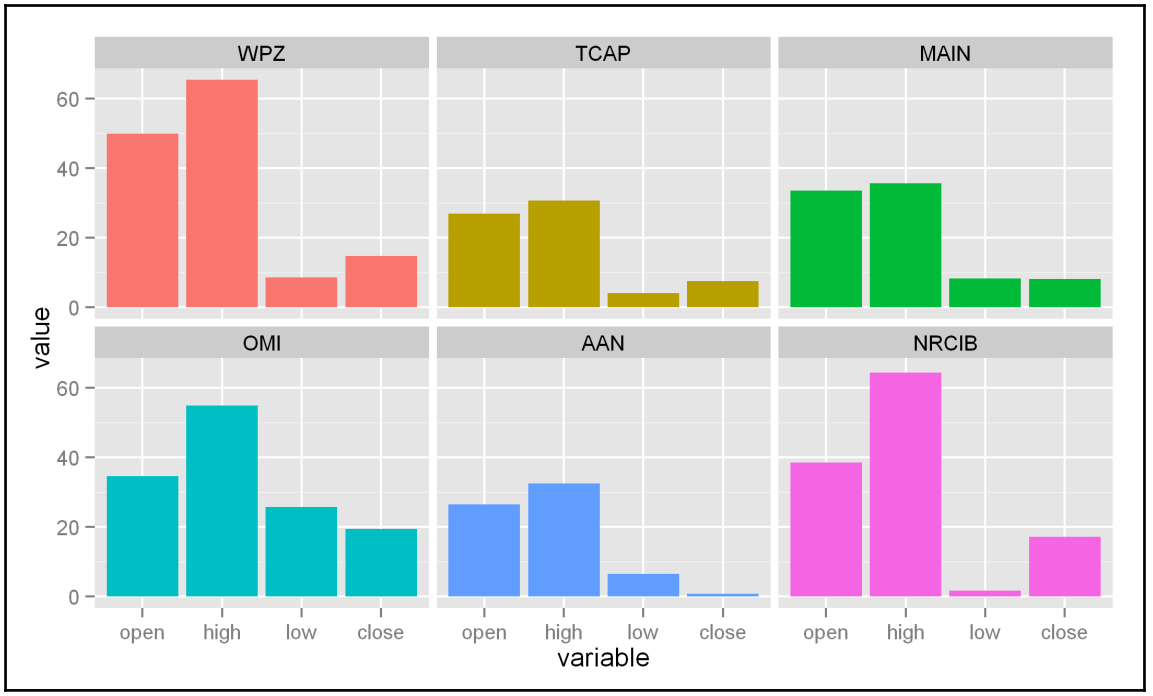

Industry Avg Prices
Industry_Avg_Price
2000
1500
1000
500
0
Accident & Health Insurance
Asset Management
Closed-End Fund - Debt
Closed-End Fund - Equity
Closed-End Fund - Foreign
Credit Services
Diversified Investments
Exchange Traded Fund
Foreign Money Center Banks
Foreign Regional Banks
Insurance Brokers
Investment Brokerage - National
Investment Brokerage - Regional
Life Insurance
Money Center Banks
Mortgage Investment
Property & Casualty Insurance
Property Management
Real Estate Development
Regional - Mid-Atlantic Banks
Regional - Midwest Banks
Regional - Northeast Banks
Regional - Pacific Banks
Regional - Southeast Banks
Regional - Southwest Banks
REIT - Diversified
REIT - Healthcare Facilities
REIT - Hotel/Motel
REIT - Industrial
REIT - Office
REIT - Residential
REIT - Retail
Savings & Loans
Surety & Title Insurance
Industry


Company Avg Prices
Price
Company

Screening stocks and analyzing historical prices

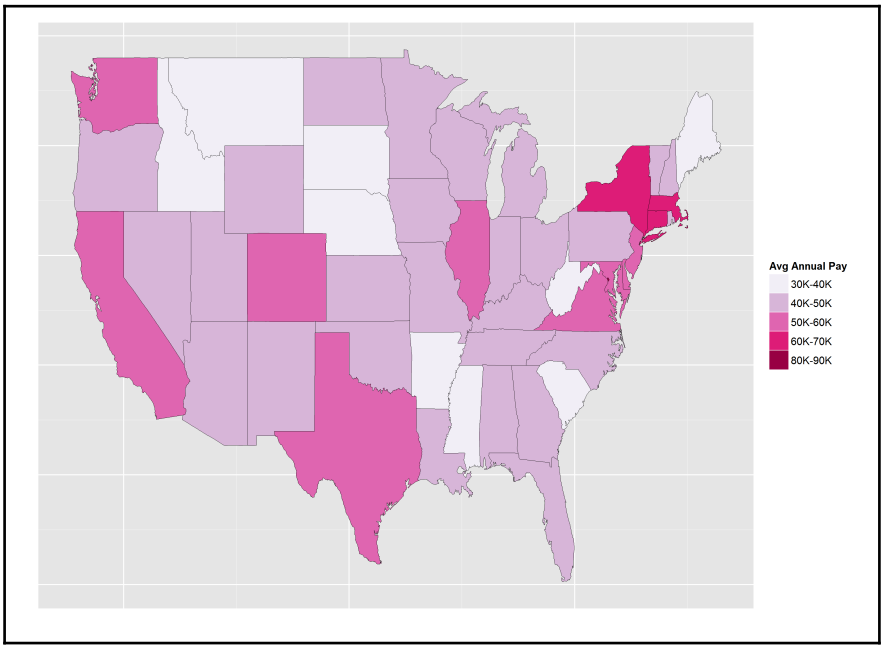


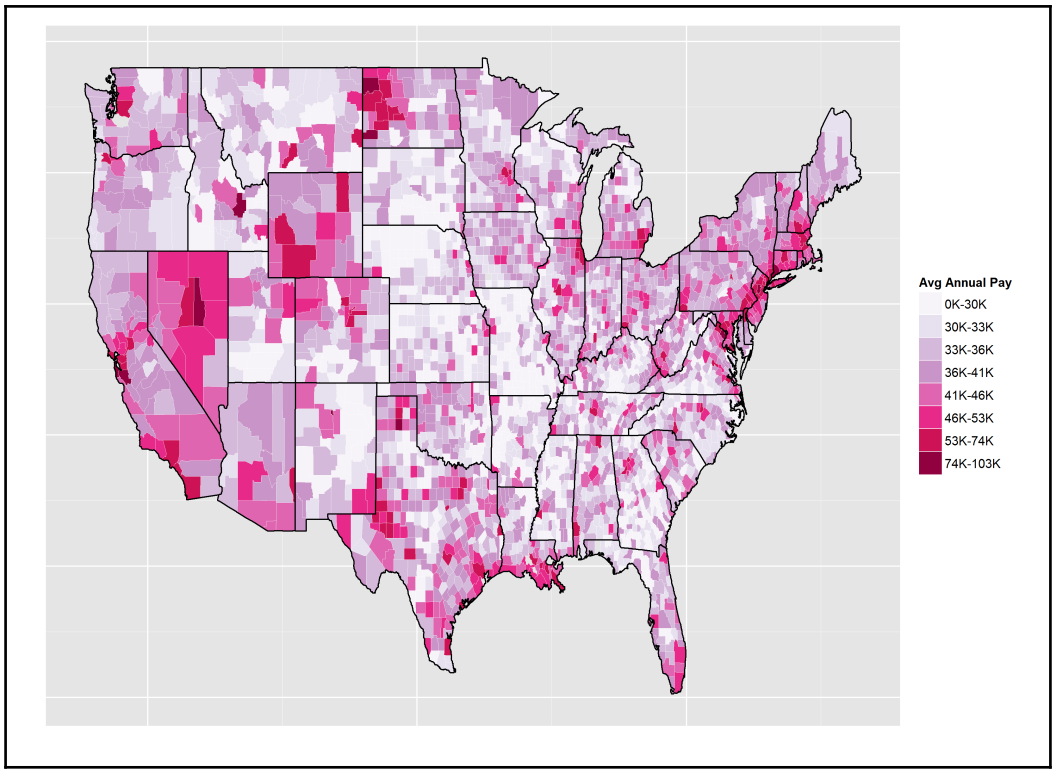

Daily Stock Prices
AdjClose
60
40
20
0
1985
1990
1995
2000
2005
2010
2015
Date
Symbol
WPZ
TCAP
MAIN
OMI
AAN
NRCIB


WPZ
TCAP
MAIN
OMI
AAN
NRCIB
value
60
40
20
0
open
high
low
close
variable

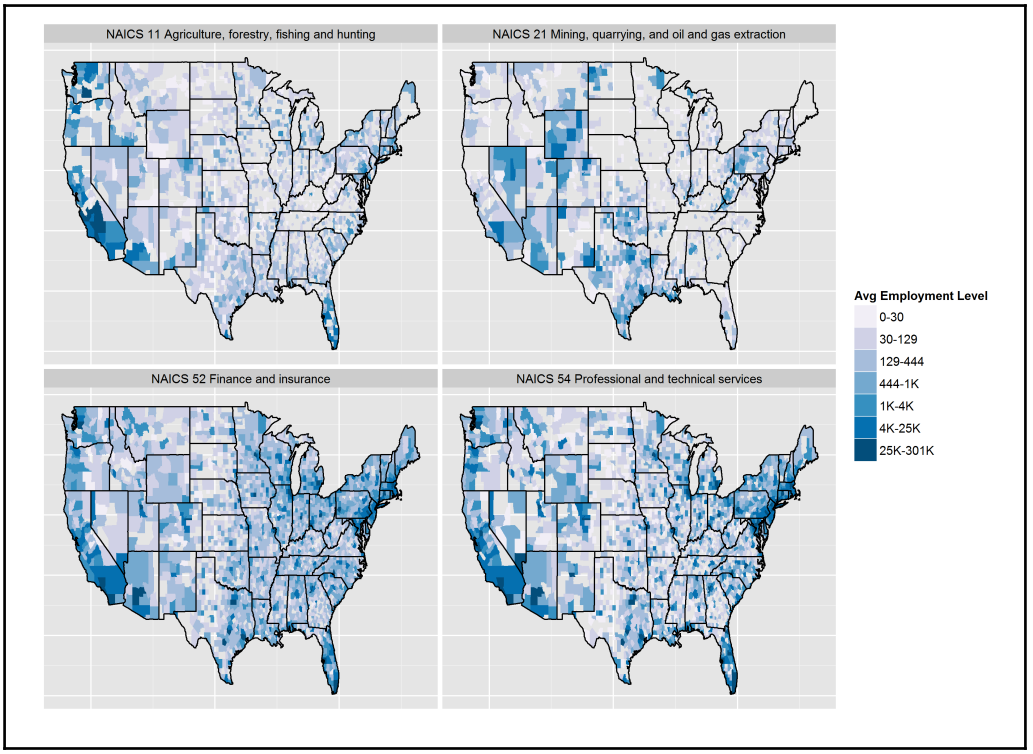
Chapter 5: Visually Exploring Employment Data

Visualizing geographical distributions of pay

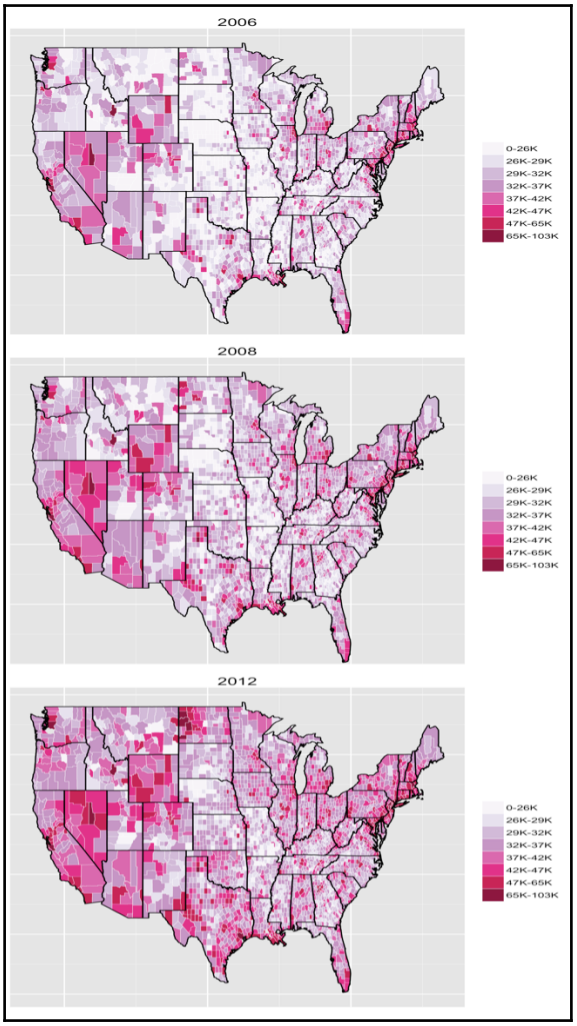



Avg Annual Pay
0K-30K
30K-33K
33K-36K
36K-41K
41K-46K
46K-53K
53K-74K
74K-103K

Exploring where the jobs are, by industry

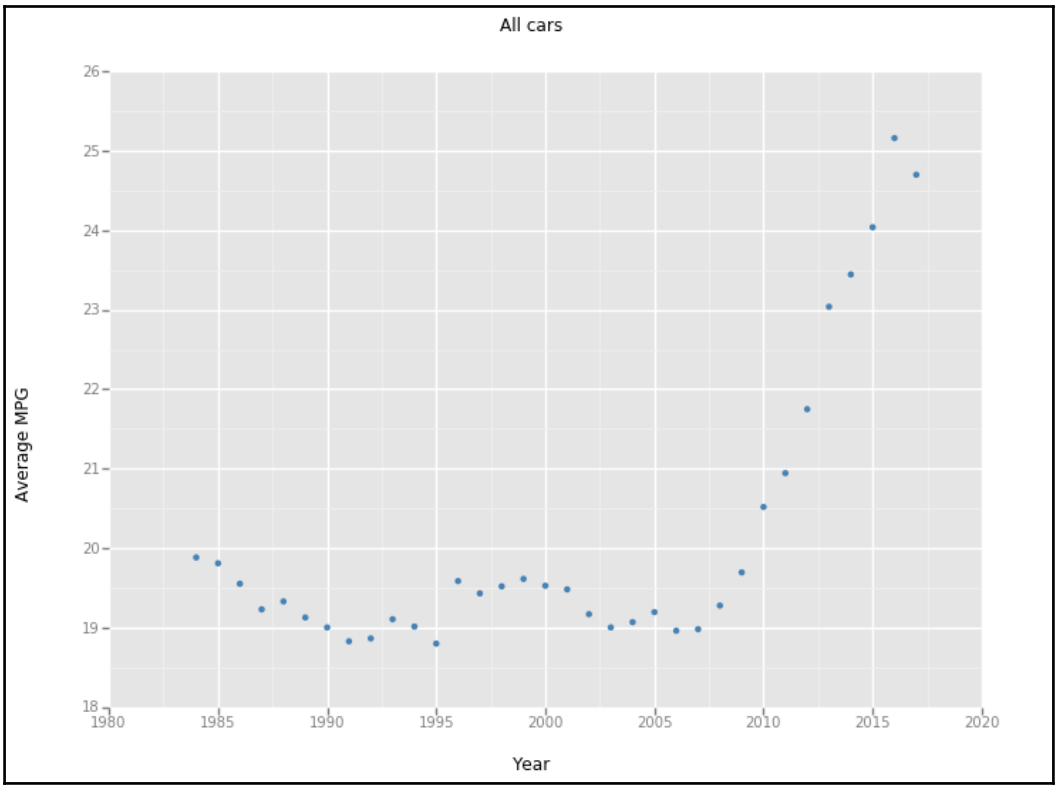


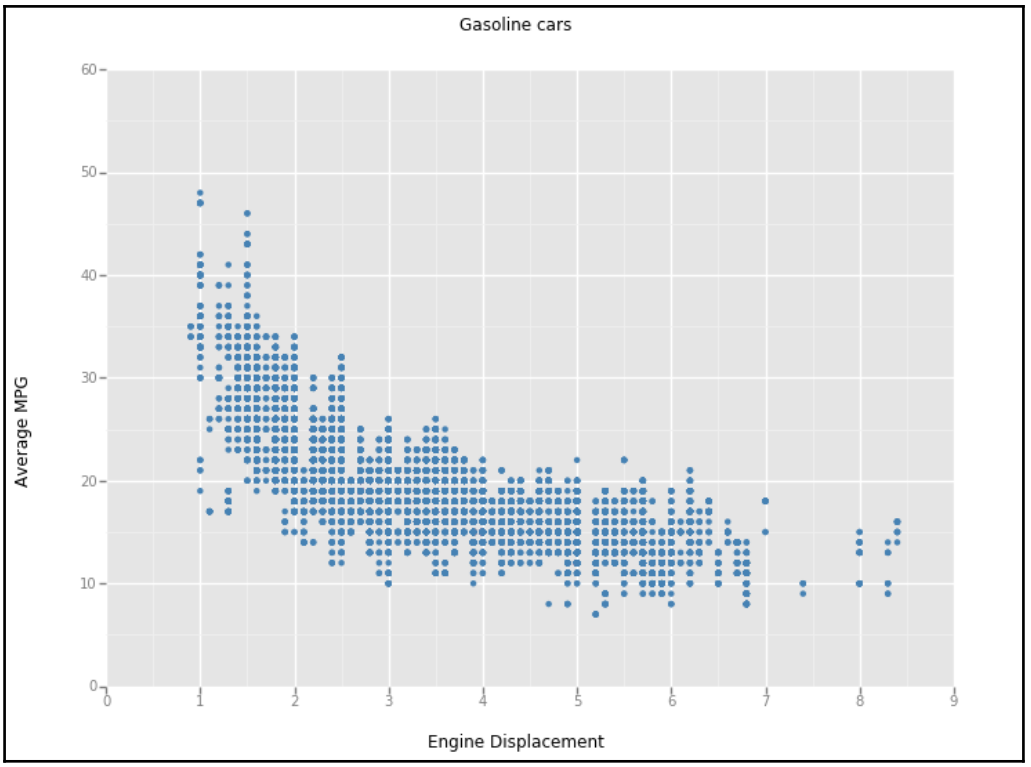
Animating maps for a geospatial time series

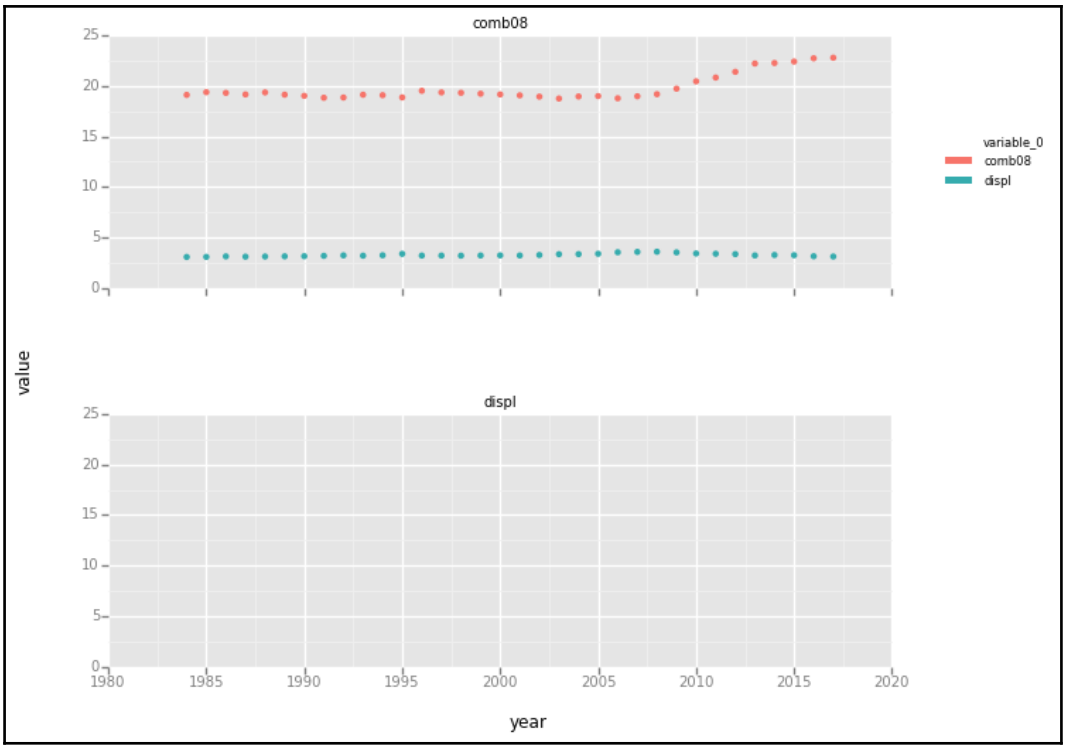


Chapter 6: Driving Visual Analyses with Automobile Data

Analyzing automobile fuel efficiency over time with Python

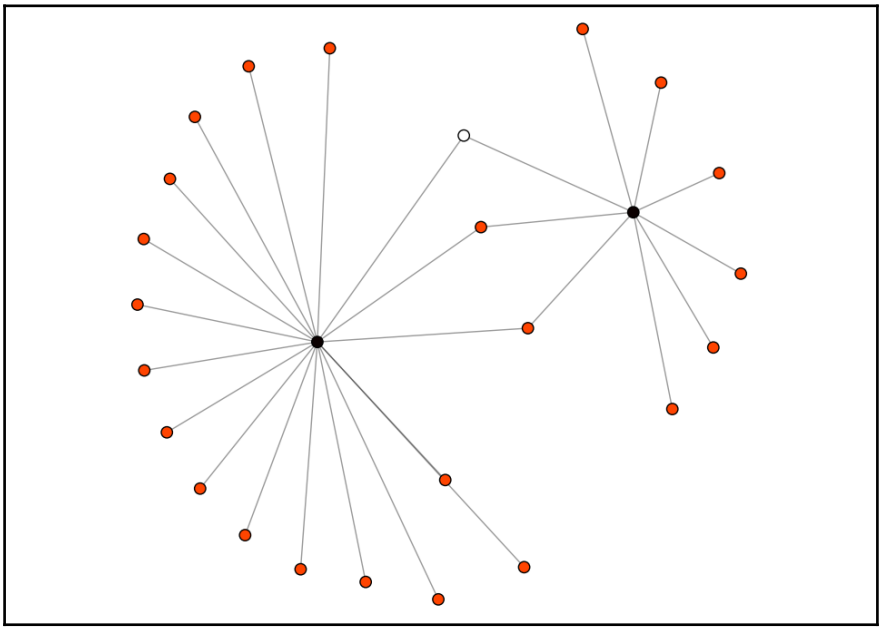


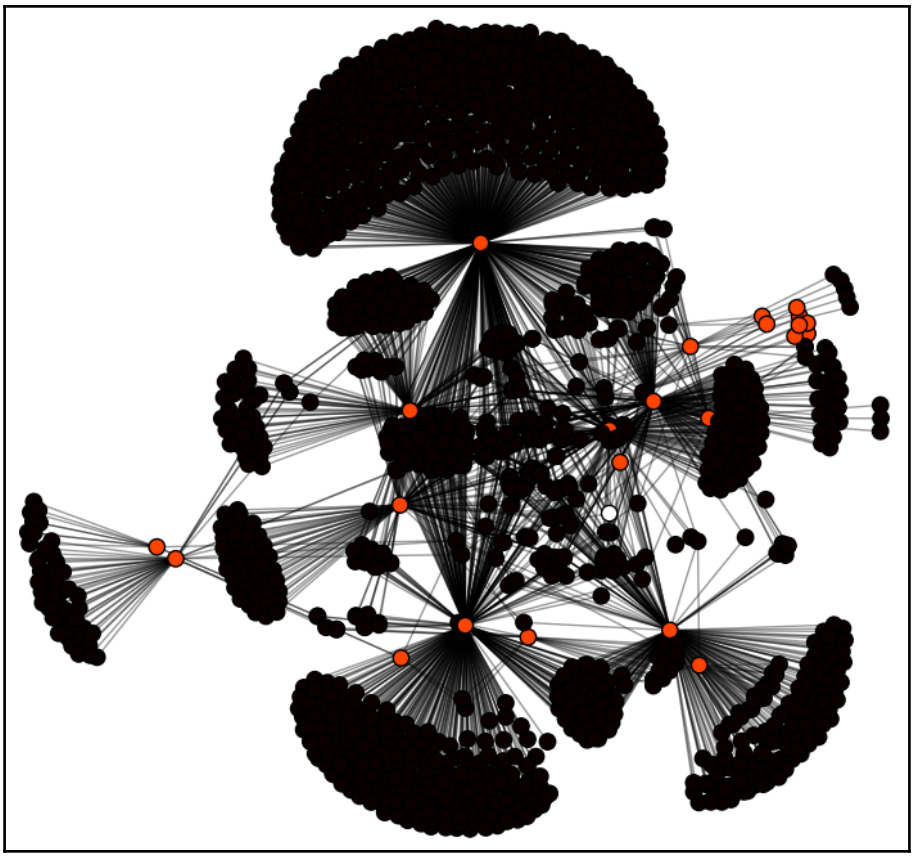

Gasoline cars
Average MPG
Engine Displacement
0
10
20
30
40
50
60
0
1
2
3
4
5
6
7
8
9


comb08
displ
value
year
variable_0
comb08
displ
0
5
10
15
20
25
1980
1985
1990
1995
2000
2005
2010
2015
2020

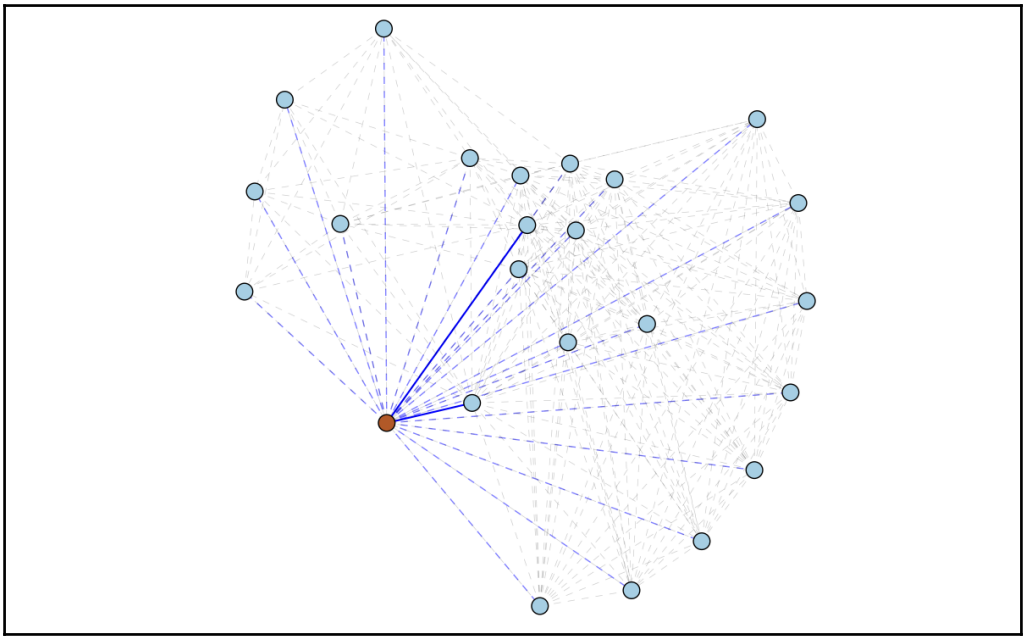
Chapter 7: Working with Social Graphs

Exploring subgraphs within a heroic network

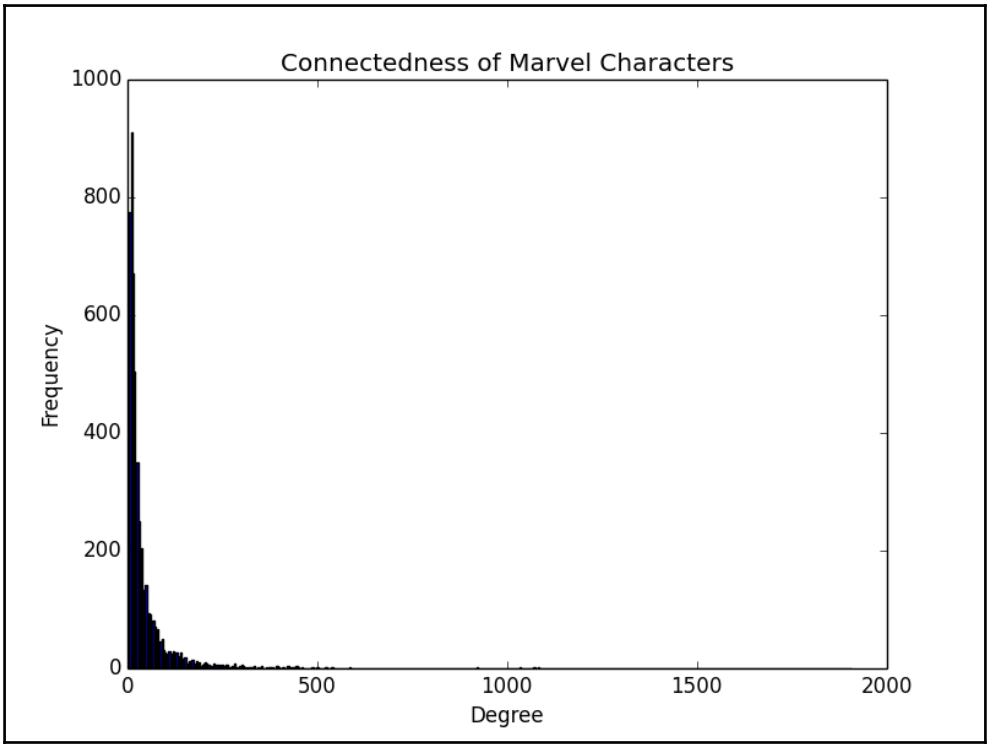


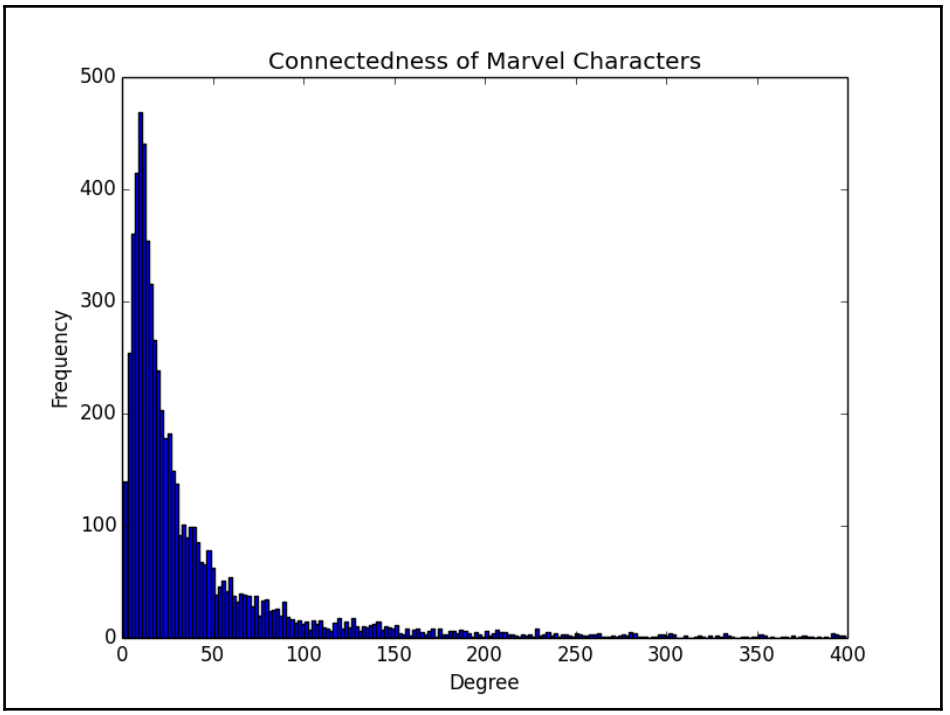


Finding strong ties

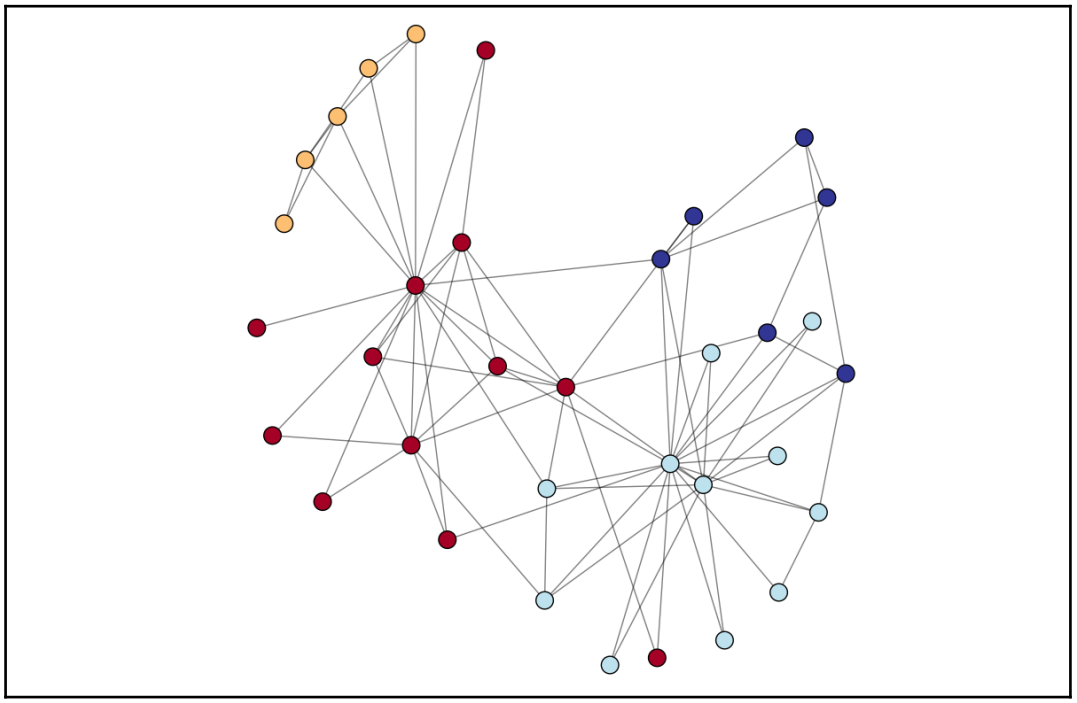


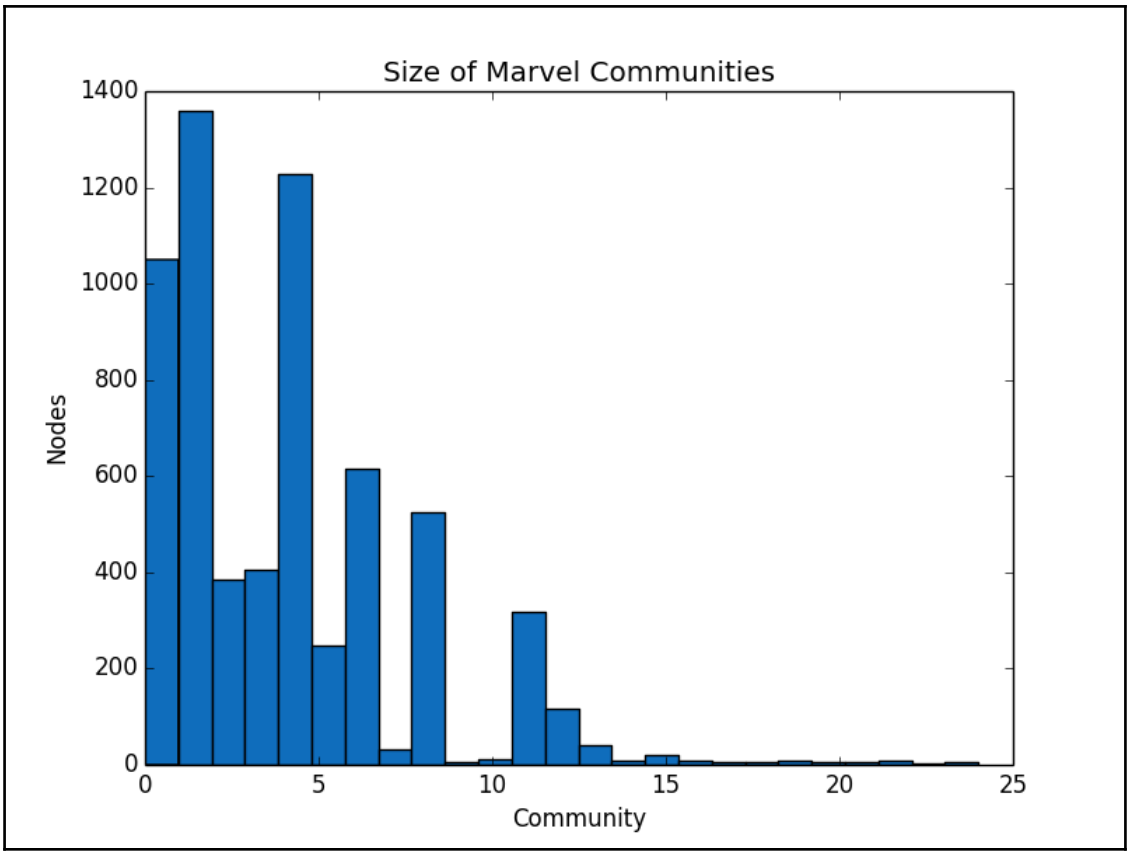
Finding key players

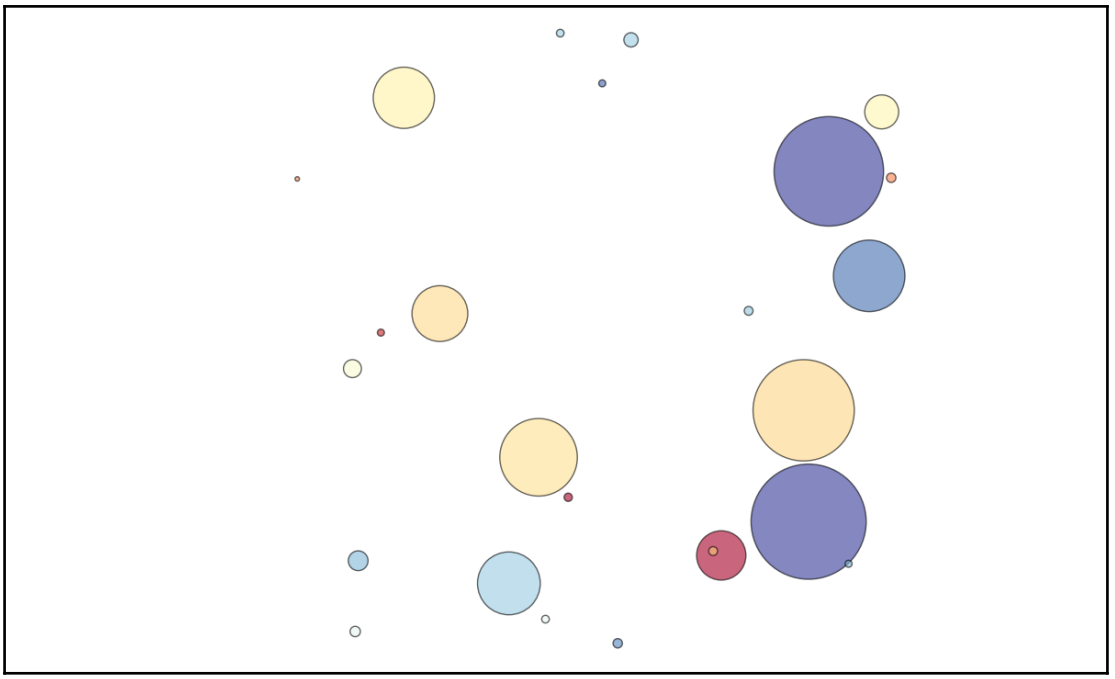



Connectedness of Marvel Characters
Frequency
Degree
0
100
200
300
400
500
0
50
100
150
200
250
300
350
400

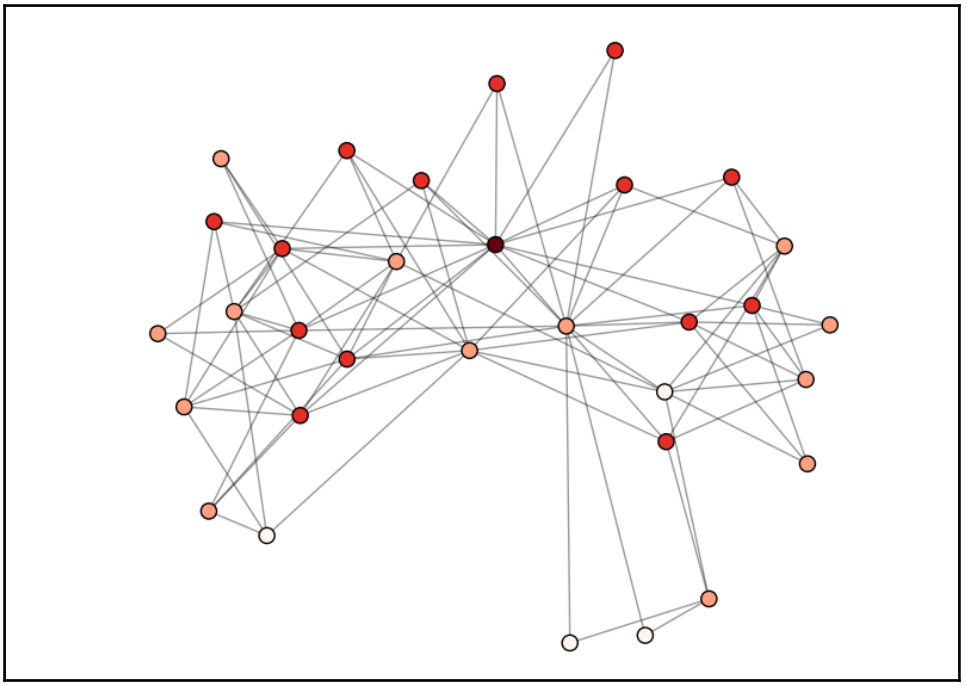
Clustering and community detection in social networks



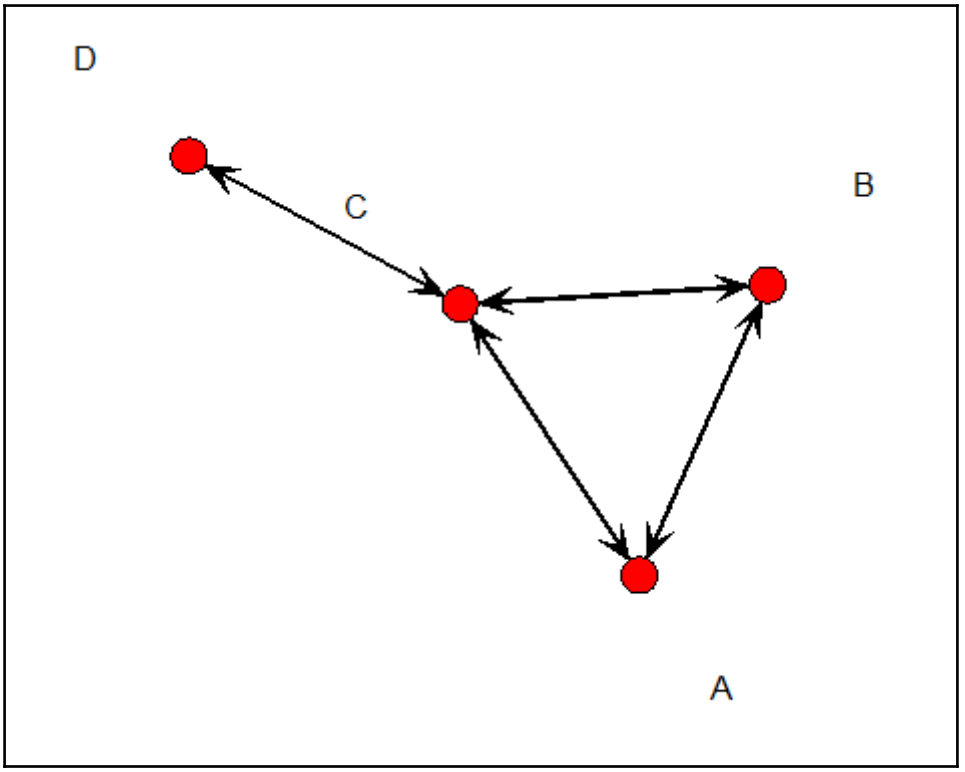

Size of Marvel Communities
Nodes
Community
0
200
400
600
800
1000
1200
1400
0
5
10
15
20
25

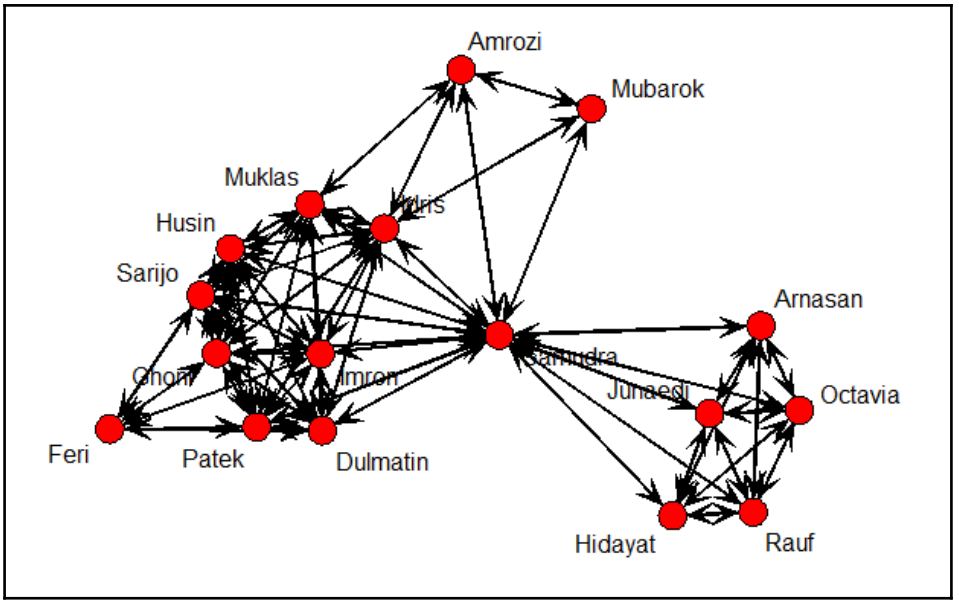


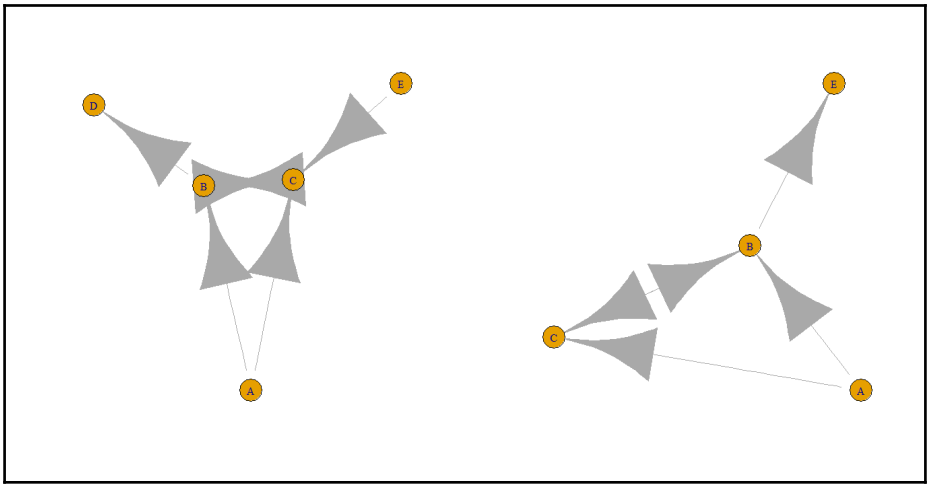
Visualizing graphs



Social networks in R

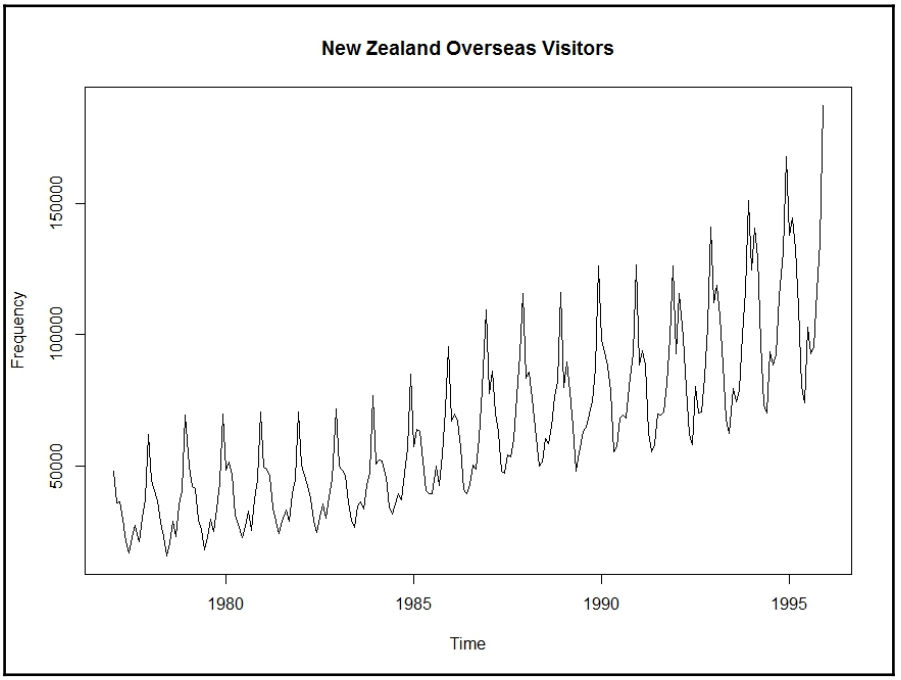


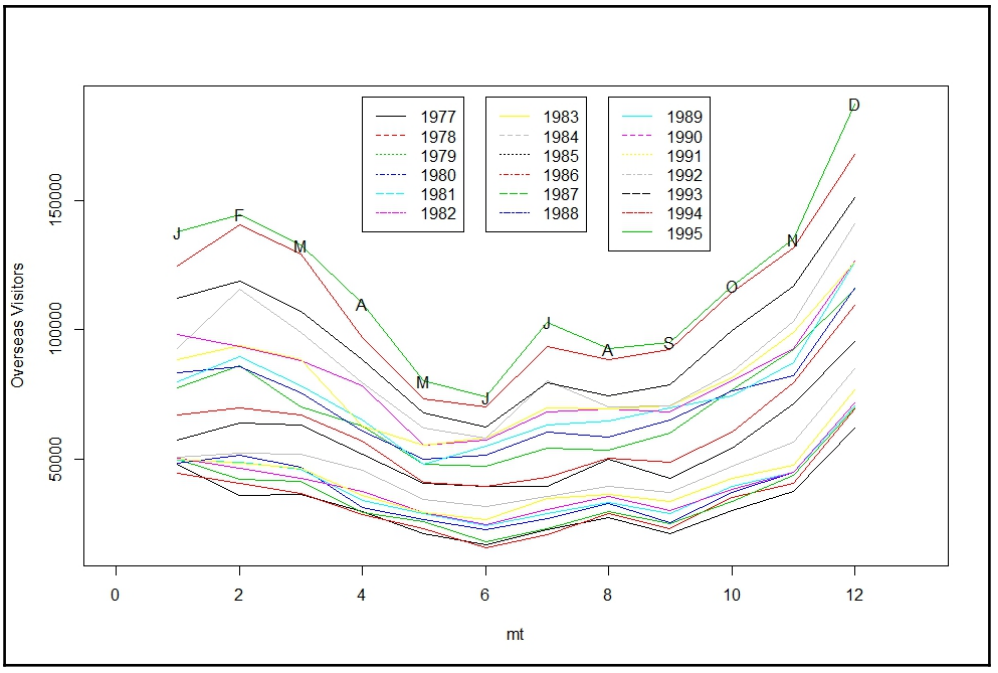

Amrozi
Mubarok
Muklas
Idris
Husin
Sarijo
Arnasan
Samudra
Ghoni
Imron
Junaedi
Octavia
Feri
Patek
Dulmatin
Hidayat
Rauf

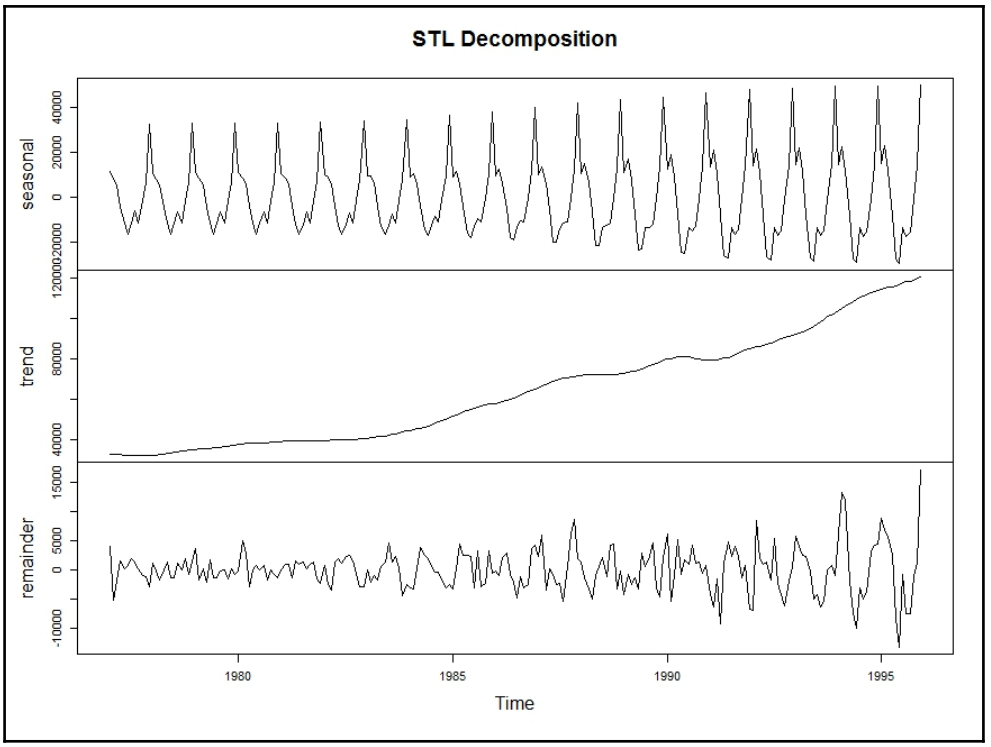

D
E
B
C
A
E
B
C
A

Chapter 10: Forecasting New Zealand Overseas Visitors

Visualizing time series data




1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
J
F
M
A
M
J
J
A
S
O
N
D
Overseas Visitors
50000
100000
150000
0
2
4
6
8
10
12
mt


STL Decomposition
seasonal
trend
remainder
-10000
0
5000
15000
40000
80000
120000
-20000
0
20000
40000
1980
1985
1990
1995
Time

Chapter 11: German Credit Data Analysis

Fitting the logistic regression model