

Charts

Scatter Charts

Recommended Charts in Excel

Line Charts

Bar Charts and Column Charts

A Note on Pie Charts and
Three-Dimensional Charts

Bubble Charts

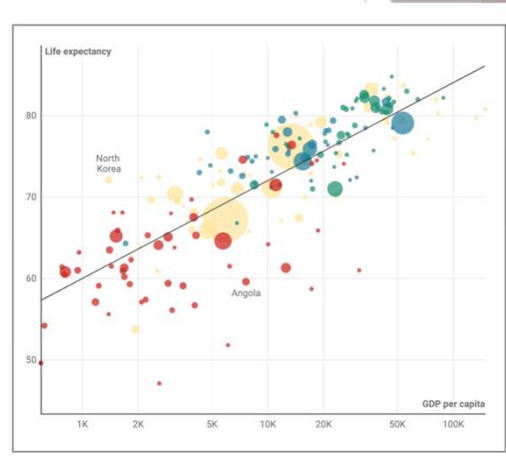
Heat Maps

Additional Charts for Multiple
Variables

PivotCharts in Excel

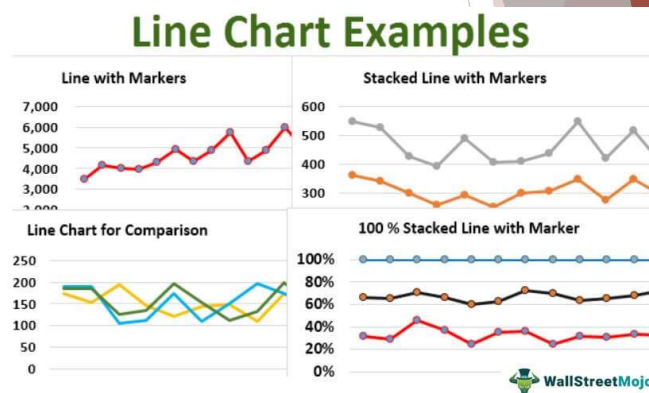
Charts

- ▶ **Charts** (or graphs): Visual methods of displaying data.
- ▶ **Scatter chart:**
 - ▶ Graphical presentation of the relationship between two quantitative variables.
- ▶ **Trendline:**
 - ▶ A line that provides an approximation of the relationship between the variables.



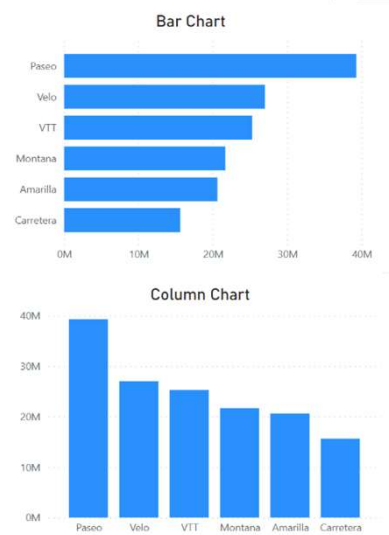
Charts

- ▶ **Line chart:** A line connects the points in the chart.
 - ▶ Useful for time series data collected over a period of time (minutes, hours, days, years, etc.).



Charts

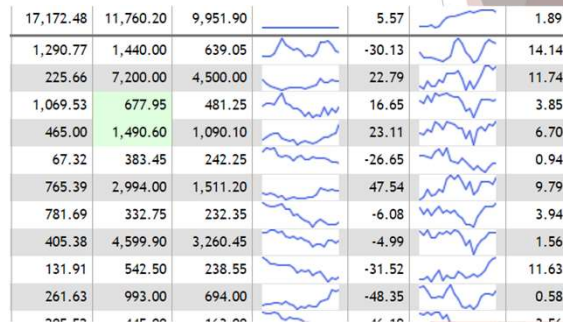
- ▶ **Bar Charts:**
 - ▶ Use horizontal bars to display the magnitude of the quantitative variable.
- ▶ **Column Charts:**
 - ▶ Use vertical bars to display the magnitude of the quantitative variable.
- ▶ Bar and column charts are very helpful in making comparisons between categorical variables.



Charts

Sparkline: Special type of line chart:

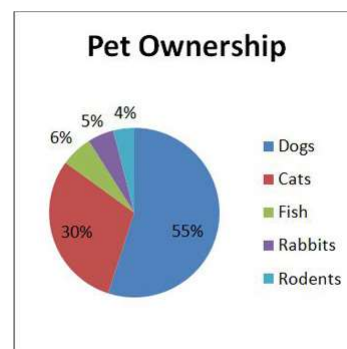
- ▶ Minimalist type of line chart that can be placed directly into a cell in Excel.
- ▶ Contains no axes; they display only the line for the data.
- ▶ Takes up very little space and can be effectively used to provide information on overall trends for time series data.



Charts

▶ Pie chart:

- ▶ Common form of chart used to compare categorical data.
- ▶ Try to avoid 3-D pie charts
- ▶ 3-D Charts:
 - ▶ Lower data-ink ratio
 - ▶ Make it harder to read sometimes
 - ▶ Not necessary when a 2-D graph will do



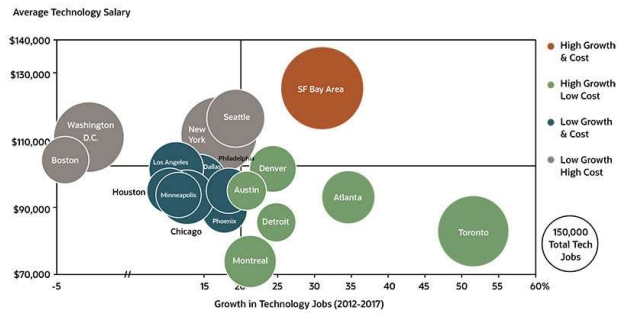
Charts

► Bubble chart:

- Graphical means of visualizing three variables in a two-dimensional graph
- Sometimes is a preferred alternative to a 3-D graph.

Technology Markets In North America

While San Francisco is still the largest market for technology jobs, Toronto is the fastest growing and it offers companies significantly lower wage costs.



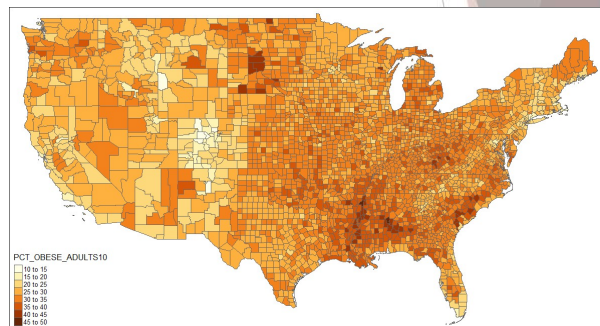
Charts

► Heat map:

- A two-dimensional graphical representation of data
- Uses different shades of color to indicate magnitude.

Heat Map in Excel

	A	B	C	D	E	F	G	H	I
1									
2	Average precipitation by decade, inch								
3	City	1940	1950	1960	1970	1980	1990	2000	2010
4	Portland	38.37	41.21	40.82	46.54	45.70	45.71	50.33	48.95
5	Burlington	33.38	34.26	33.04	35.76	36.61	35.74	37.86	39.60
6	Albany	32.94	36.13	30.90	40.10	37.44	38.23	42.26	41.86
7	Philadelphia	41.40	40.84	38.06	43.36	40.85	39.91	43.74	48.49
8	Washington	41.95	39.56	36.47	40.99	38.40	38.65	42.09	43.21
9	Lynchburg	41.38	38.89	34.70	46.15	41.86	41.82	40.92	42.73
10	Savannah	51.36	49.06	51.16	48.92	47.63	52.29	43.91	47.82
11	Raleigh	46.31	43.09	39.59	42.62	42.08	44.43	43.41	49.79
12	Nashville	46.31	46.85	45.60	53.49	42.76	47.96	50.97	52.57
13	Atlanta	49.63	44.40	51.08	50.39	50.84	49.37	48.85	51.47
14	Pensacola	68.18	63.37	61.40	61.79	63.32	68.14	64.31	73.99
15	Birmingham	53.25	49.24	56.65	57.59	49.55	54.83	56.75	56.58
16	Miami	66.14	59.38	59.65	53.93	54.72	67.46	63.57	69.38
17	Buffalo	35.08	38.03	34.06	40.41	41.30	39.94	40.08	42.15
18	Pittsburgh	38.00	37.05	33.86	38.41	38.52	36.77	38.57	42.97
19	Detroit	32.51	31.25	30.72	31.49	34.64	32.65	33.05	37.00
20	Columbus	37.41	35.01	36.67	39.33	38.28	37.89	41.63	44.49
21	Louisville	43.83	40.43	42.99	47.23	43.00	47.23	50.09	53.69
22	Madison	30.33	31.55	29.13	31.46	31.78	35.42	36.19	39.78
23	Chicago	34.35	33.79	35.26	37.32	38.63	34.41	37.62	41.78
24	Indianapolis	39.07	39.16	37.94	40.24	41.70	40.91	44.61	45.32

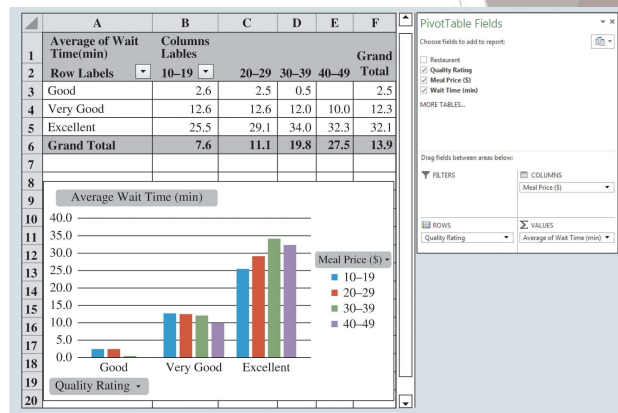


Charts

PivotCharts in Excel:

PivotChart:

- Summarize and analyze data with both a crosstabulation and charting
- Excel pairs PivotCharts with PivotTables.

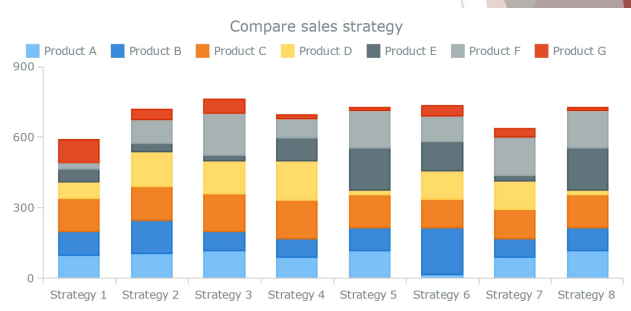


Charts

Additional Charts for Multiple Variables:

► Stacked-column chart:

- Allows the reader to compare the relative values of quantitative variables for the same category in a bar chart.
- Sometimes other charts (i.e. clustered bar charts are preferred)
 - Clustered bar charts are typically easier to read

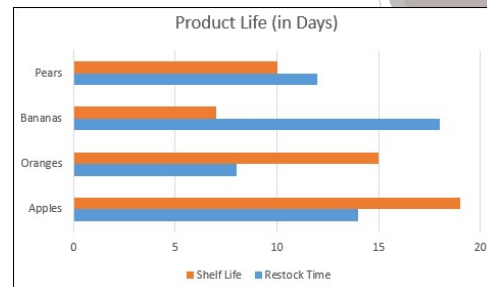


Charts

Additional Charts for Multiple Variables:

► **Clustered-column (or bar) chart:**

- An alternative chart to stacked-column chart for comparing quantitative variables.
- Do you think they are easier to read?

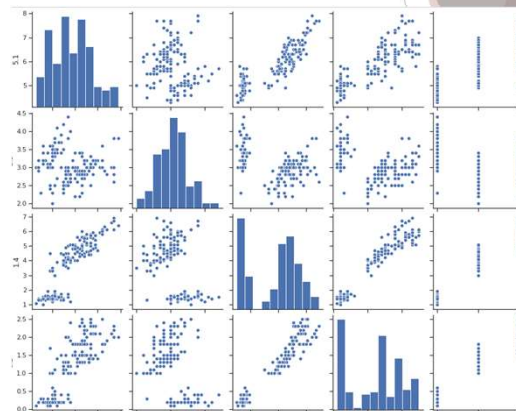


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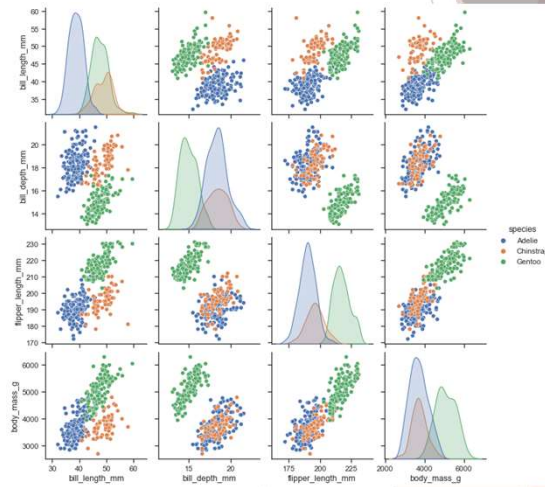
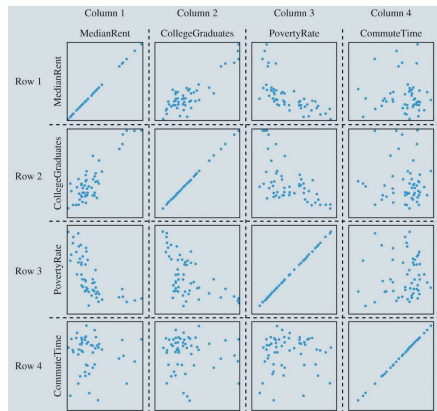
Additional Charts for Multiple Variables:

► **Scatter-chart matrix:**

- Useful chart for displaying multiple variables.
- Shows relationship between 2 variables on the peripheral
- On the diagonal:
 - Histograms/distributions, or
 - Relationships between variables and themselves
- UNFORTUNATELY - Can't make these in Excel.



Scatter-Chart Matrix



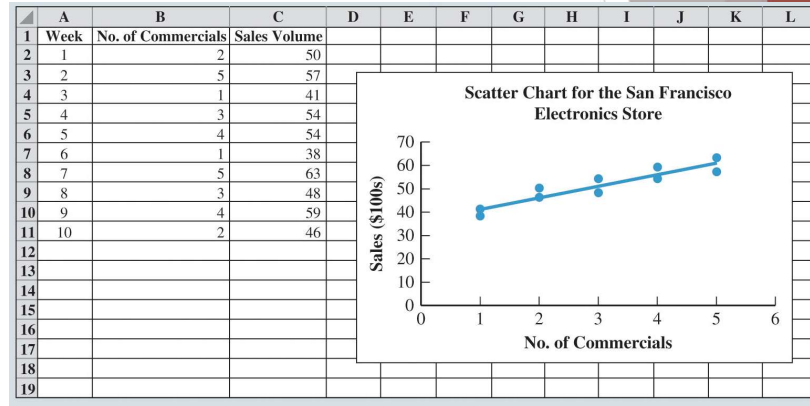
Charts in Excel

Table 3.8: Sample Data for the San Francisco Electronics Store

Week	No. of Commercials x	Sales (\$100s) y
1	2	50
2	5	57
3	1	41
4	3	54
5	4	54
6	1	38
7	5	63
8	3	48
9	4	59
10	2	46

Charts

Figure 3.17: Scatter Chart for the San Francisco Electronics Store



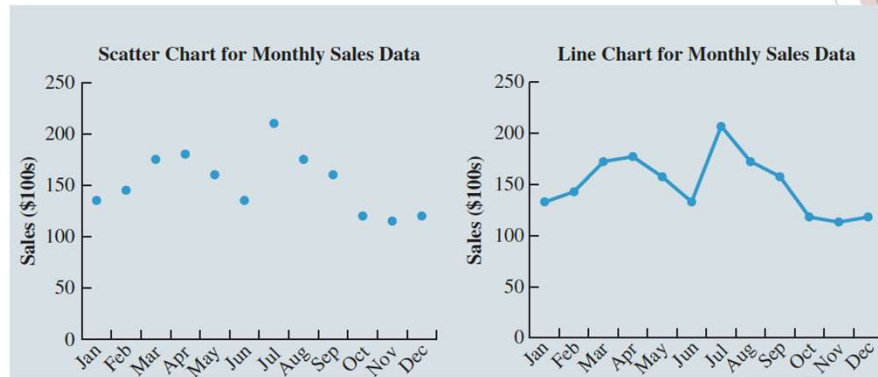
Charts

Table 3.9: Monthly Sales Data of Air Compressors at Kirkland Industries

Month	Sales (\$100s)
Jan	135
Feb	145
Mar	175
Apr	180
May	160
Jun	135
Jul	210
Aug	175
Sep	160
Oct	120
Nov	115
Dec	120

Charts

Figure 3.19: Scatter Chart and Line Chart for Monthly Sales Data at Kirkland Industries



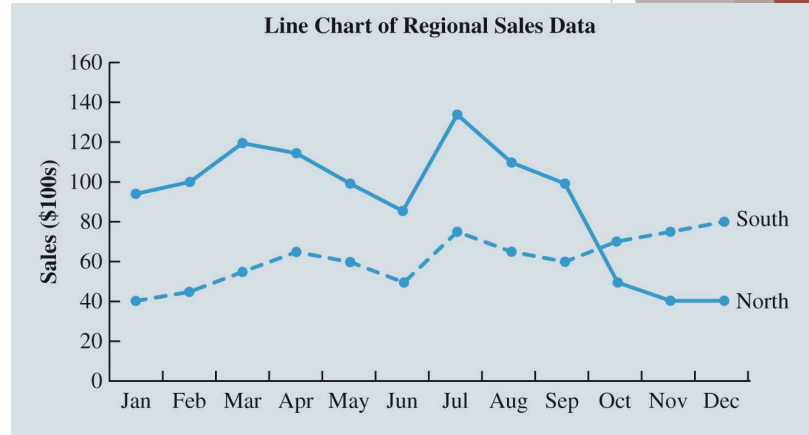
Charts

Table 3.10: Regional Sales Data by Month for Air Compressors at Kirkland Industries

Month	Sales (\$100s) North	Sales (\$100s) South
Jan	95	40
Feb	100	45
Mar	120	55
Apr	115	65
May	100	60
Jun	85	50
Jul	135	75
Aug	110	65
Sep	100	60
Oct	50	70
Nov	40	75
Dec	40	80

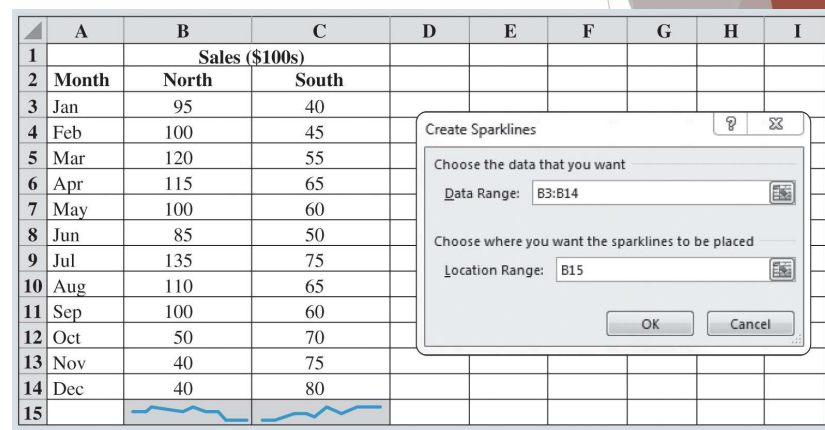
Charts

Figure 3.21: Line Chart of Regional Sales Data at Kirkland Industries



Charts

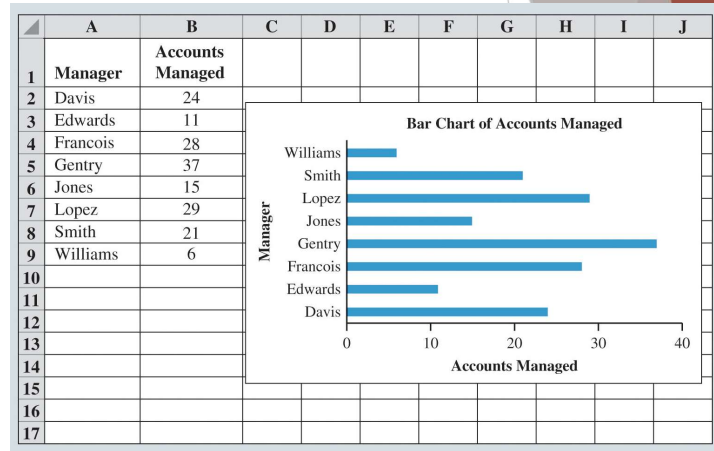
Figure 3.22: Sparklines for the Regional Sales Data at Kirkland Industries



Charts

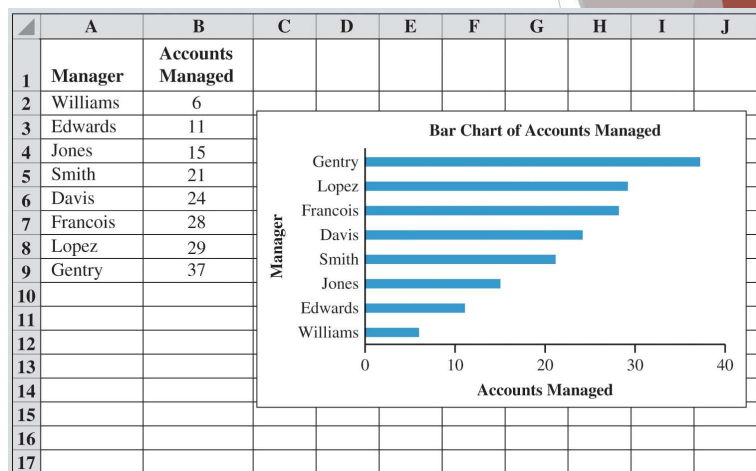
Figure 3.23: Bar Charts for Accounts Managed Data

Gentry manages the greatest number of accounts and Williams the fewest.



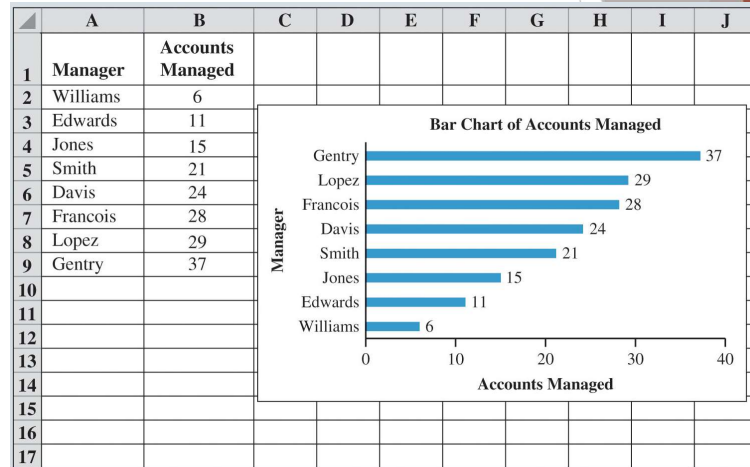
Charts

Figure 3.24: Sorted Bar Chart for Accounts Managed Data



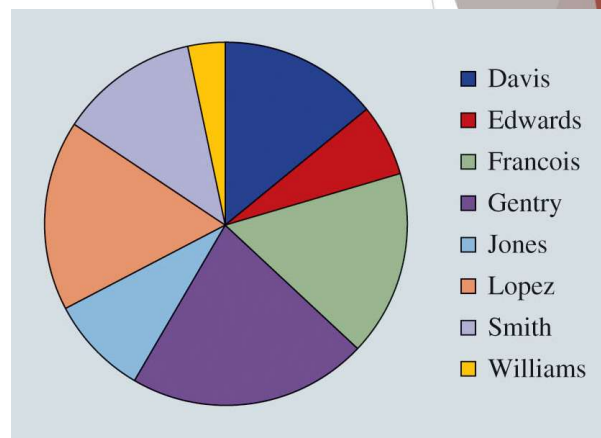
Charts

Figure 3.25: Bar Chart with Data Labels for Accounts Managed Data



Charts

Figure 3.26: Pie Chart of Accounts Managed



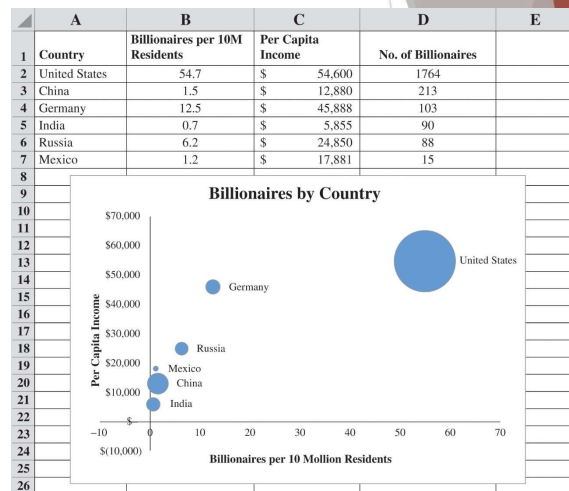
Charts

Table 3.11: Sample Data on Billionaires per Country

Country	Billionaires per 10M Residents	Per Capita Income	No. of Billionaires
United States	54.7	\$54,600	1,764
China	1.5	\$12,880	213
Germany	12.5	\$45,888	103
India	0.7	\$ 5,855	90
Russia	6.2	\$24,850	88
Mexico	1.2	\$17,881	15

Charts

Figure 3.27: Bubble Chart
Comparing Billionaires by Country



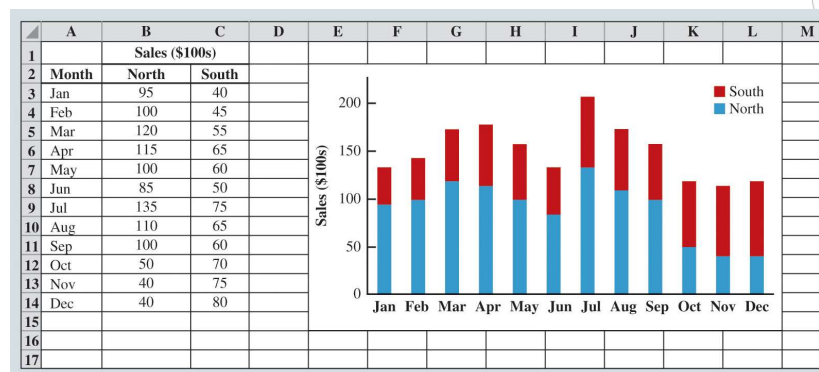
Charts

Figure 3.28: Heat Map and Sparklines for Same-Store Sales Data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	SPARKLINES
2	St. Louis	-2%	-1%	-1%	0%	2%	4%	3%	5%	6%	7%	8%	8%	
3	Phoenix	5%	4%	4%	2%	2%	-2%	-5%	-8%	-6%	-5%	-7%	-8%	
4	Albany	-5%	-6%	-4%	-5%	-2%	-5%	-5%	-3%	-1%	-2%	-1%	-2%	
5	Austin	16%	15%	15%	16%	18%	17%	14%	15%	16%	19%	18%	16%	
6	Cincinnati	-9%	-6%	-7%	-3%	3%	6%	8%	11%	10%	11%	13%	11%	
7	San Francisco	2%	4%	5%	8%	4%	2%	4%	3%	1%	-1%	1%	2%	
8	Seattle	7%	7%	8%	7%	5%	4%	2%	0%	-2%	-4%	-6%	-5%	
9	Chicago	5%	3%	2%	6%	8%	7%	8%	5%	8%	10%	9%	8%	
10	Atlanta	12%	14%	13%	17%	12%	11%	8%	7%	7%	8%	5%	3%	
11	Miami	2%	3%	0%	1%	-1%	-4%	-6%	-8%	-11%	-13%	-11%	-10%	
12	Minneapolis	-6%	-6%	-8%	-5%	-6%	-5%	-5%	-7%	-5%	-2%	-1%	-2%	
13	Denver	5%	4%	1%	1%	2%	3%	1%	-1%	0%	1%	2%	3%	
14	Salt Lake City	7%	7%	7%	13%	12%	8%	5%	9%	10%	9%	7%	6%	
15	Raleigh	4%	2%	0%	5%	4%	3%	5%	5%	9%	11%	8%	6%	
16	Boston	-5%	-5%	-3%	4%	-5%	-4%	-3%	-1%	1%	2%	3%	5%	
17	Pittsburgh	-6%	-6%	-4%	-5%	-3%	-3%	-1%	-2%	-2%	-1%	-2%	-1%	

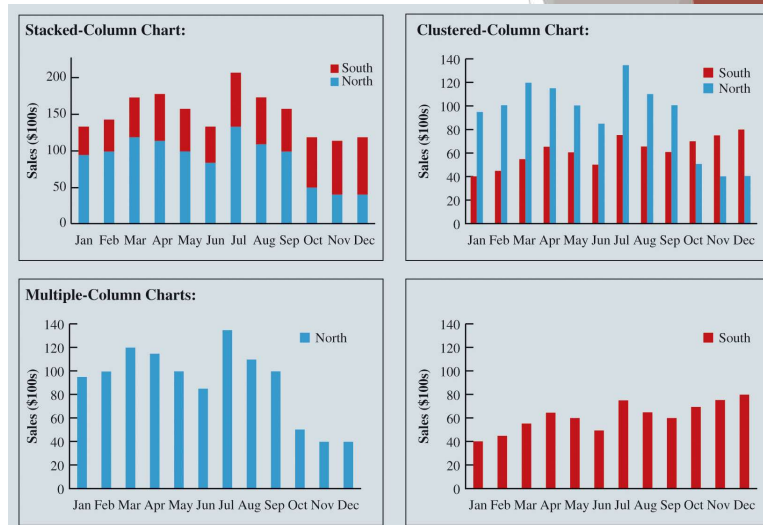
Charts

Figure 3.29: Stacked-Column Chart for Regional Sales Data for Kirkland Industries



Charts

Figure 3.30: Comparing Stacked-, Clustered-, and Multiple-Column Charts for the Regional Sales Data for Kirkland Industries



Charts

Table 3.12: Data for New York City Sub-boroughs

Area	Median Monthly Rent (\$)	Percentage College Graduates (%)	Poverty Rate (%)	Travel Time (min)
Astoria	1,106	36.8	15.9	35.4
Bay Ridge	1,082	34.3	15.6	41.9
Bayside/Little Neck	1,243	41.3	7.6	40.6
Bedford Stuyvesant	822	21.0	34.2	40.5
Bensonhurst	876	17.7	14.4	44.0
Borough Park	980	26.0	27.6	35.3

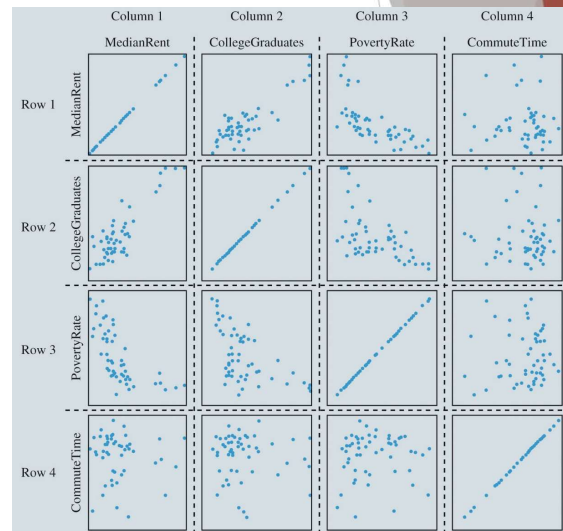
Charts

Table 3.12: Data for New York City Sub-boroughs (cont.)

Area	Median Monthly Rent (\$)	Percentage College Graduates (%)	Poverty Rate (%)	Travel Time (min)
Brooklyn Heights/Fort Greene	1,086	55.3	17.4	34.5
Brownsville/Ocean Hill	714	11.6	36.0	40.3
Bushwick	945	13.3	33.5	35.5
Central Harlem	665	30.6	27.1	25.0
Chelsea/Clinton/Midtown	1,624	66.1	12.7	43.7
Coney Island	786	27.2	20.0	46.3

Charts

Figure 3.31: Scatter-Chart Matrix for New York City Rent Data



Charts

Figure 3.32: PivotTable and PivotChart for the Restaurant Data

