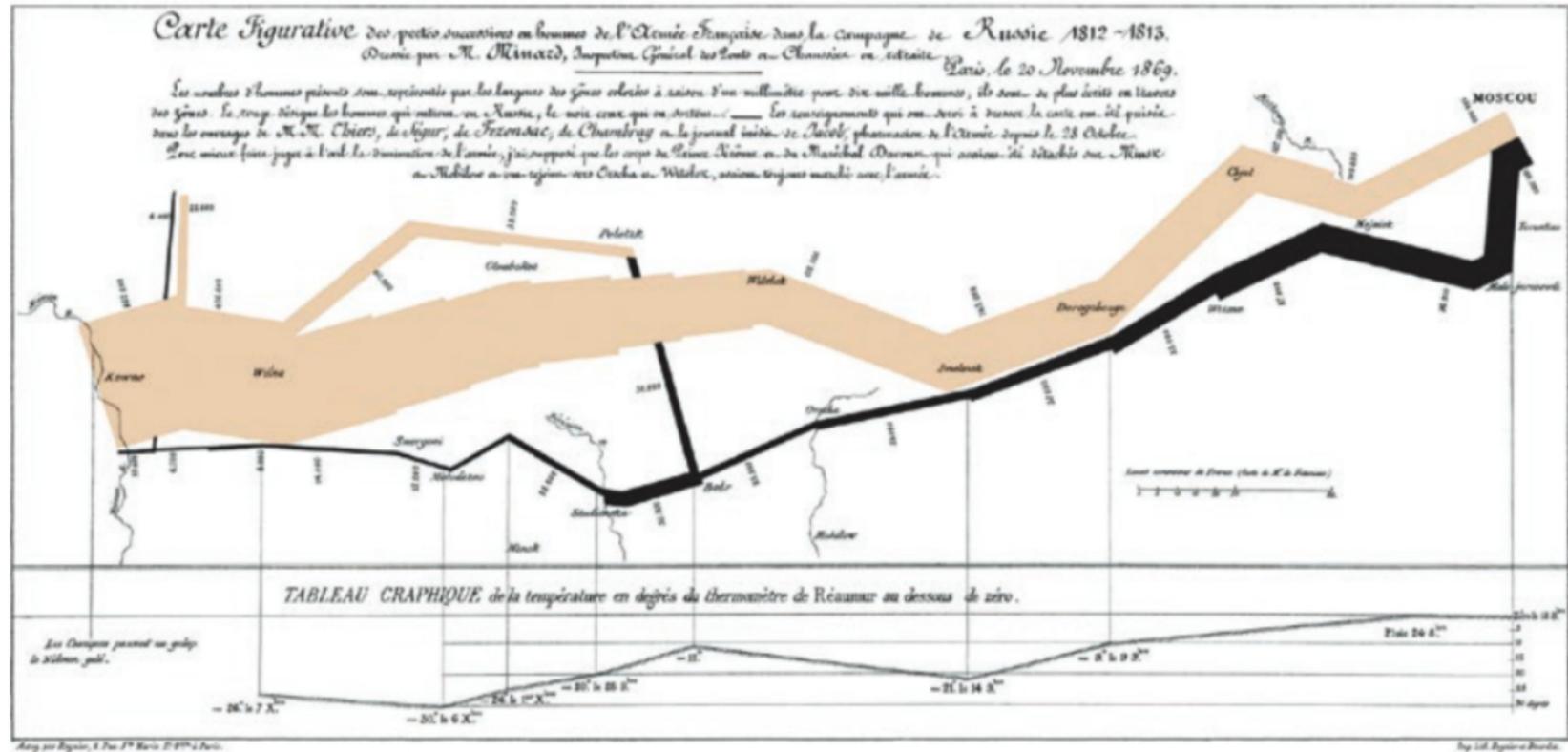


3

CHAPTER Visualizing Data

3.1 Frequency Distributions

3.2 Displaying Qualitative Data Graphically



Frequency Distribution

A **frequency distribution** is a summary technique that organizes data into classes and provides in tabular form a list of the classes along with the number of observations in each class.

DEFINITION

Table 3.1.1 - Population of Individual States in 2010 and 2016

Geographic Area	Population Estimate		Change, 2010 to 2016	
	April 1, 2010	July 1, 2016	Number	Percent
Alabama	4,780,131	4,863,300	83,169	1.7
Alaska	710,249	741,894	31,645	4.5
Arizona	6,392,301	6,931,071	538,770	8.4
Arkansas	2,916,025	2,988,248	72,223	2.5
California	37,254,522	39,250,017	1,995,495	5.4
Colorado	5,029,324	5,540,545	511,221	10.2
...				

Frequency Distribution of Responses

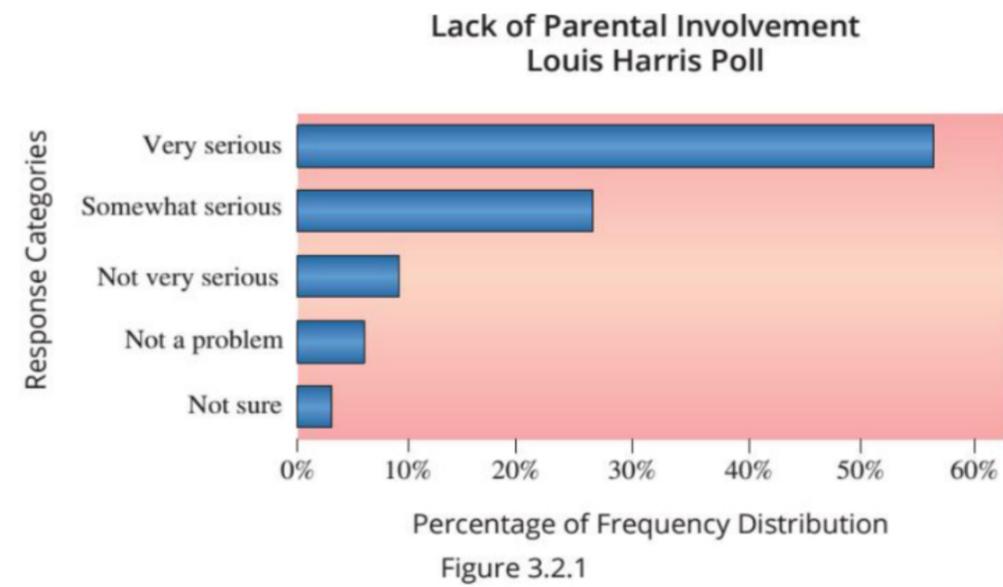
In general, how would you rate the quality of American public schools?

Excellent	462
Pretty good	288
Only fair	225
Poor	225
Not sure	50

Frequency Distribution of Responses	
<i>In general, how would you rate the quality of American public schools?</i>	
Excellent	462
Pretty good	288
Only fair	225
Poor	225
Not sure	50

Total 1250

Relative Frequency Distribution of Responses	
<i>In general, how would you rate the quality of American public schools?</i>	
Excellent	37%
Pretty good	23%
Only fair	18%
Poor	18%
Not sure	4%



Frequency Distribution of Responses	
<i>How serious is a lack of parental involvement with a child's education?</i>	
Very serious	700
Somewhat serious	325
Not very serious	112
Not a problem	75
Not sure	38

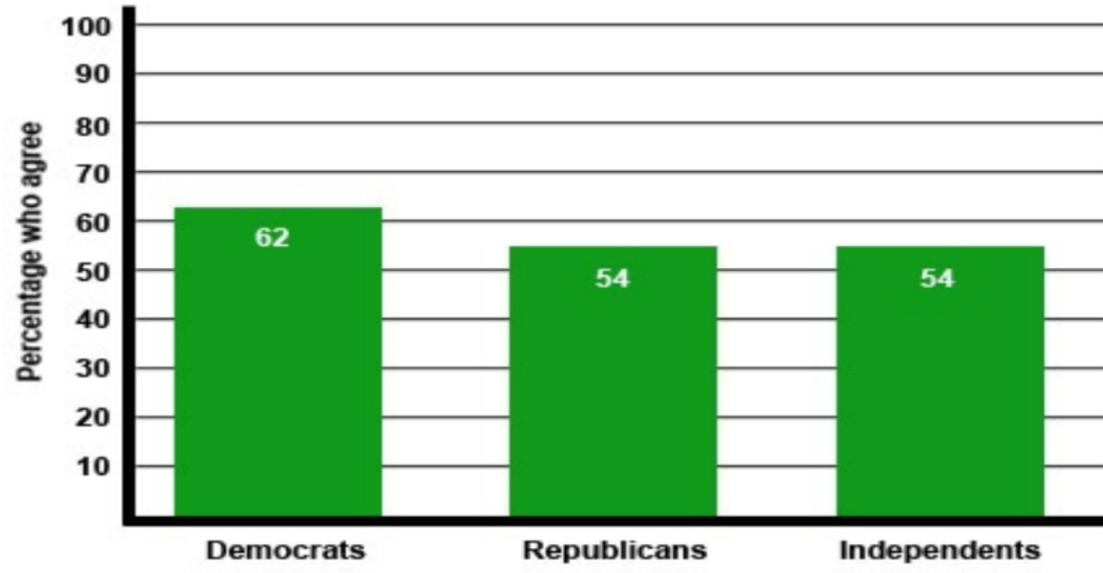
Relative Frequency Distribution of Responses	
<i>How serious is a lack of parental involvement with a child's education?</i>	
Very serious	56%
Somewhat serious	26%
Not very serious	9%
Not a problem	6%
Not sure	3%

the Court



RESULTS BY PARTY: CNN/USA Today/Gallup Poll
Margin of error: +/- 7%

Question 2: Based on what you have heard or read about the case, do you agree with the court's decision to have the feeding tube removed?



- Bar charts can be constructed horizontally or vertically. Customarily, horizontal orientation is used for categories that are descriptively labeled, and vertical (or columnar) orientation is used for categories that are numerical. It is important to remember that this idea is only a suggestion. If you believe that a vertical bar chart is more appealing, use it.
- If the categories have some associated order, they maintain that order in the bar chart. Otherwise, the categories may be listed alphabetically, in either ascending or descending order, or in some other pattern related to the nature of the data.
- Miscellaneous or “other” categories should be listed at the bottom of the chart (if oriented horizontally) or at the far right (if oriented vertically).



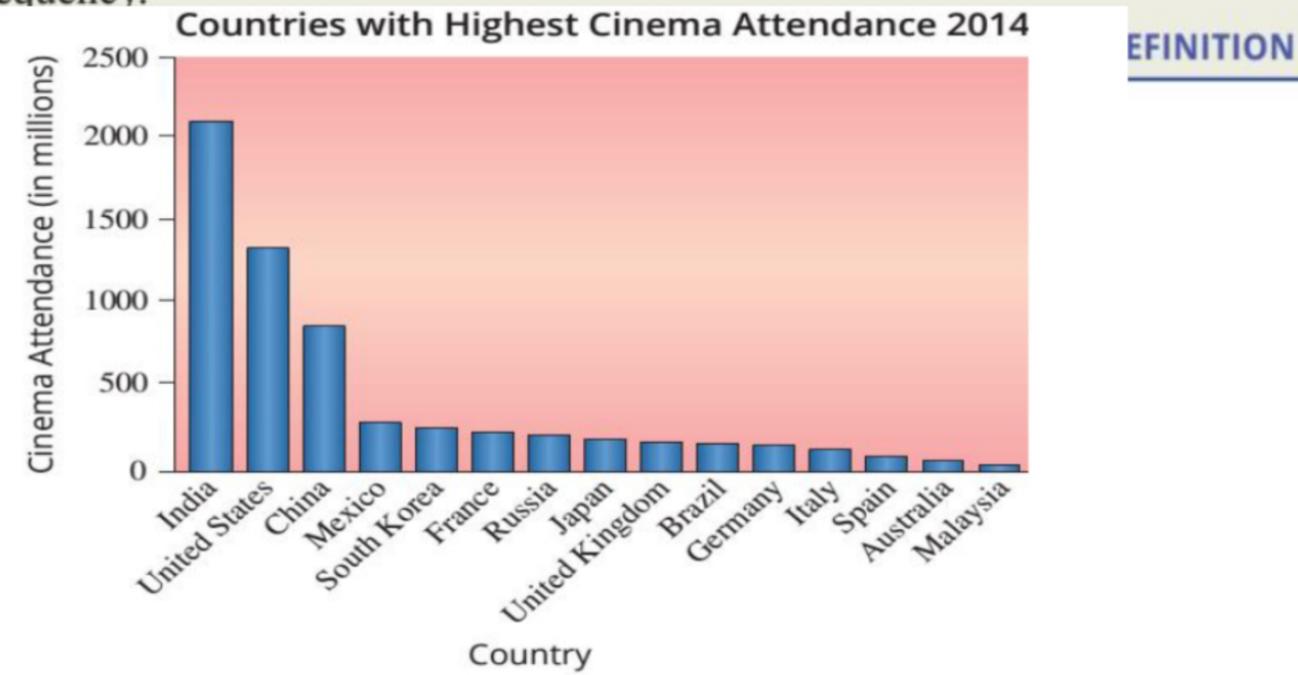
Figure 3.2.2



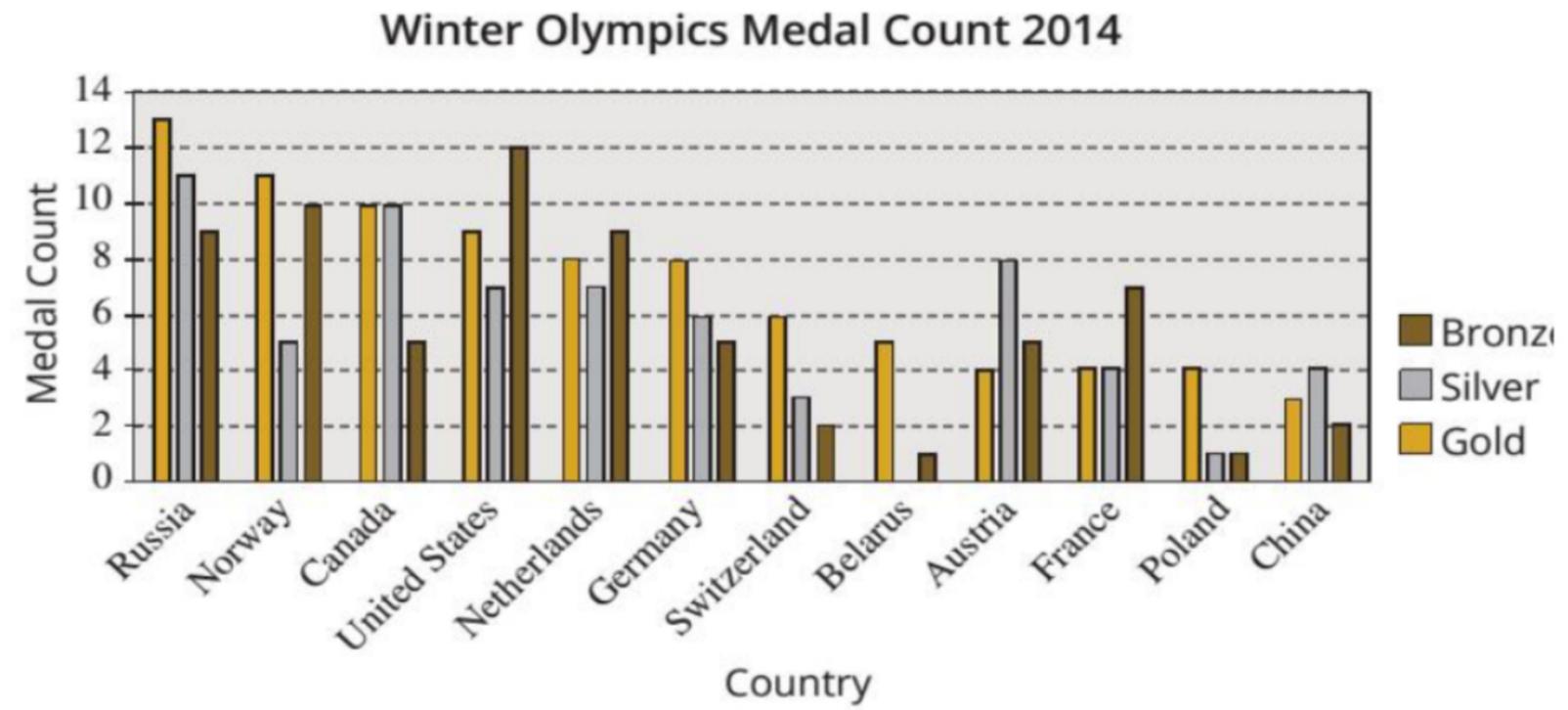
Figure 3.2.3

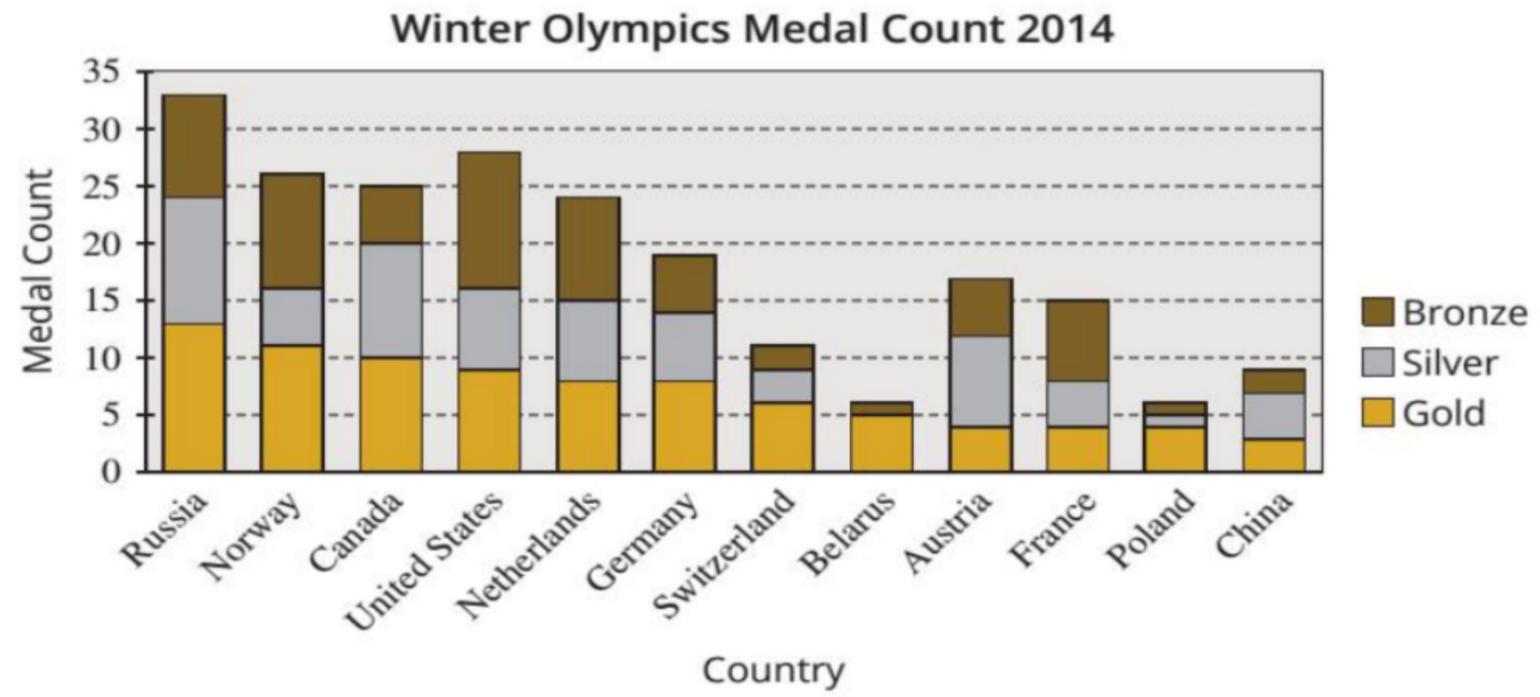
Pareto Chart

The **Pareto chart** is a bar graph whose bars are arranged in decreasing order of frequency.



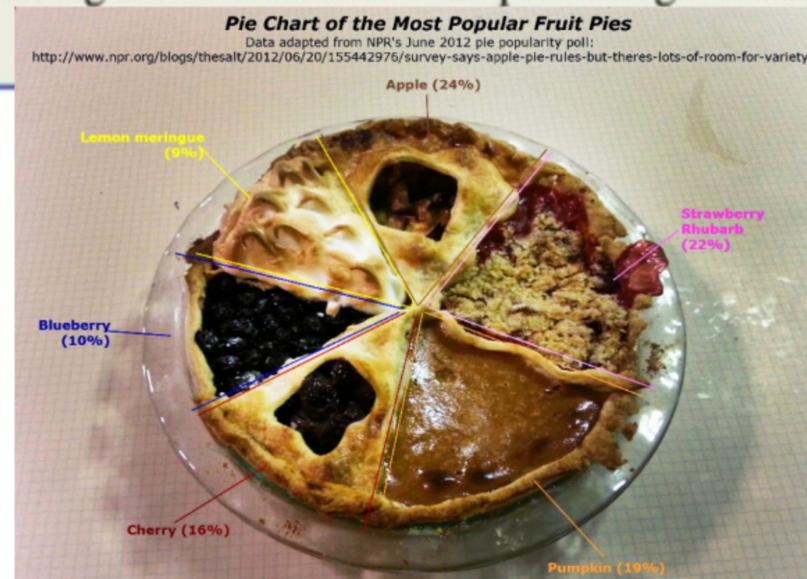
DEFINITION





Pie Chart

A **pie chart** (or **circle graph**) is a graph used to display categorical data as slices of a circle. The size of each slice is proportional to the amount or frequency in each category. The proportion of the total that each slice represents is often displayed as a percentage on the chart. These percentages should total 100%.



DEFINITION

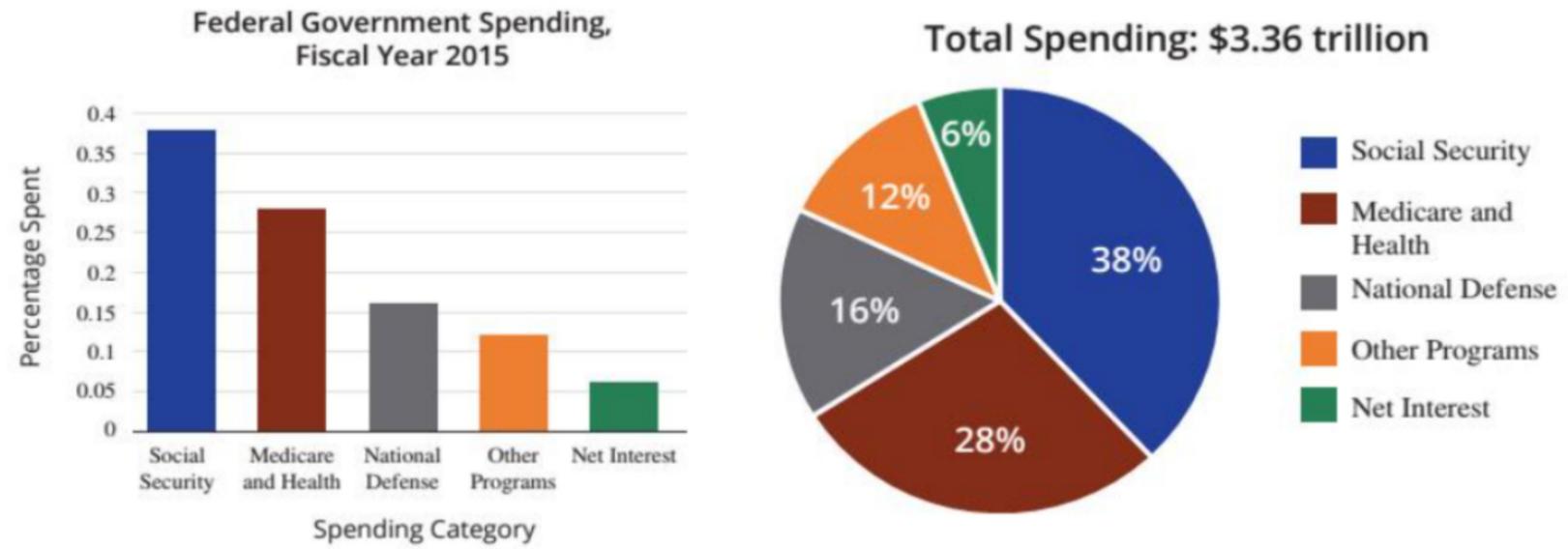


Figure 3.2.9

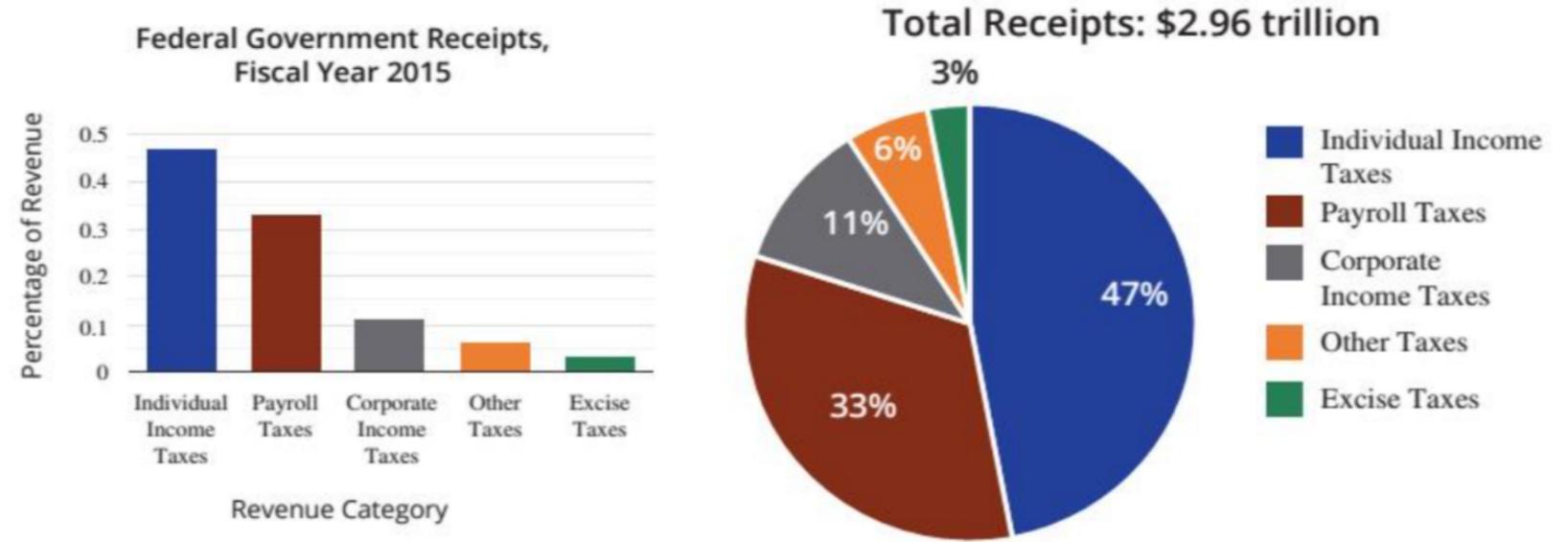


Figure 3.2.10

Percentage of Sales
(5 Employees)

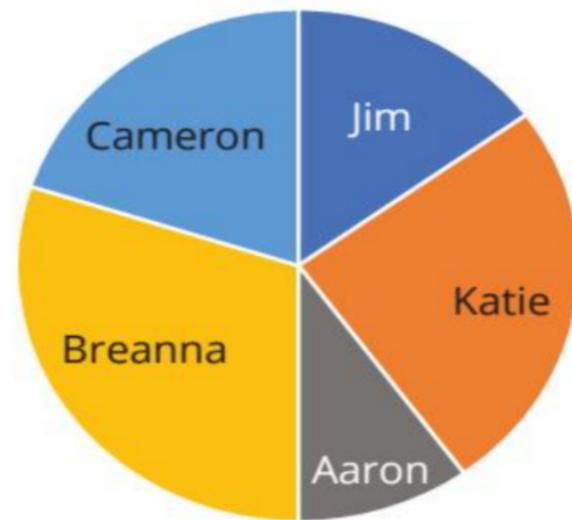


Figure 3.2.11

Percentage of Sales
(40 Employees)

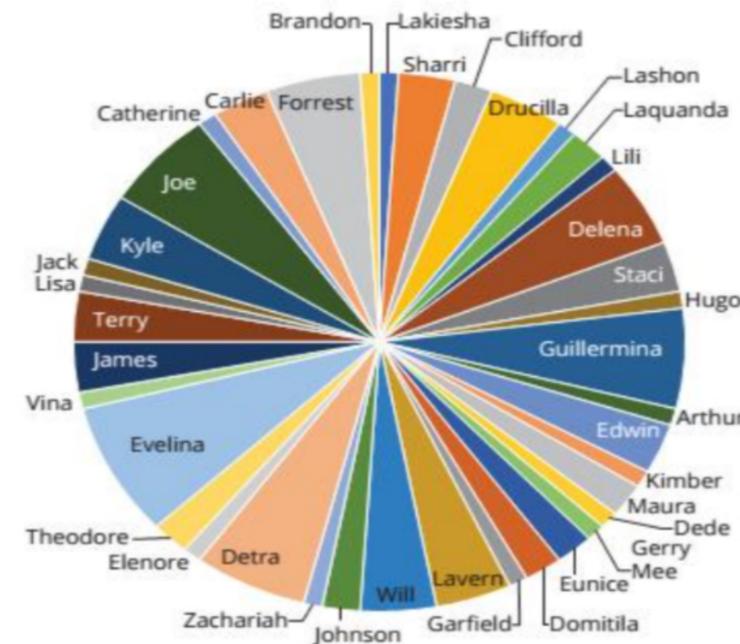


Figure 3.2.12

✘ What apps do users use each week?

