EXERCISES

Table 3.3 is needed for Exercises 1 – 3.

State	Total	65 and older	Percent 65 and older	State	Total	65 and older	Percent 65 and older
Alabama	4,780	658	13.80%	Montana	989	147	14.90%
Alaska	710	55	7.70%	Nebraska	1,826	247	13.50%
Arizona	6,392	882	13.80%	Nevada	2,701	324	12.00%
Arkansas	2,916	420	14.40%	New Hampshire	1,316	178	13.50%
California	37,254	4,247	11.40%	New Jersey	8,792	1,186	13.50%
Colorado	5,029	550	10.90%	New Mexico	2,059	272	13.20%
Connecticut	3,574	507	14.20%	New York	19,378	2,618	13.50%
Delaware	898	129	14.40%	North Carolina	9,535	1,234	12.90%
District of Columbia	602	69	11.50%	North Dakota	673	97	14.40%
Florida	18,801	3,260	17.30%	Ohio	11,537	1,622	14.10%
Georgia	9,688	1,032	10.70%	Oklahoma	3,751	507	13.50%
Hawaii	1,360	195	14.30%	Oregon	3,831	534	13.90%
Idaho	1,568	195	12.40%	Pennsylvania	12,702	1,959	15.40%
Illinois	12,831	1,609	12.50%	Rhode Island	1,053	152	14.40%
Indiana	6,484	841	13.00%	South Carolina	4,625	362	7.80%
Iowa	3,046	453	14.90%	South Dakota	814	117	14.40%
Kansas	2,853	376	13.20%	Tennessee	6,346	853	13.40%
Kentucky	4,339	578	13.30%	Texas	25,146	2,602	10.30%
Louisiana	4,533	558	12.30%	Utah	2,764	249	9.00%
Maine	1,328	211	15.90%	Vermont	626	91	14.50%
Maryland	5,774	708	12.30%	Virginia	8,001	977	12.20%
Massachusetts	6,548	903	13.80%	Washington	6,725	828	12.30%
Michigan	9,884	1,362	13.80%	West Virginia	1,853	297	16.00%
Minnesota	5,304	683	12.90%	Wisconsin	5,687	777	13.70%
Mississippi	2,967	380	12.80%	Wyoming	564	70	12.40%
Missouri	5,989	838	14.00%				

Table 3.3. Count (in Thousands) of people over 65 by State and the District of Columbia in 2010.

1. How many people in your state are at least 65 years old? The answer varies from state to state. Table 3.3 gives the data for all 50 states and the District of Columbia for the year 2010.

a. Make a histogram for these data. Use class intervals of width 500,000.

b. Darken the bar in which your state's data value would fall. Does your state tend to have more or fewer residents 65 and older than the other states, or would you say that your state is close to typical?

c. Describe the overall shape of the distribution of age 65 and older. Identify any gaps in the distribution and potential outliers.

d. Redraw the histogram this time using class intervals of 1,000 thousand. What information is now hidden using this size of class intervals?

2. You would expect highly populated states to have higher numbers of residents over 65 than less populated states. But would the percentage of people 65 and over still be higher?

a. Make a histogram of the percentage of people over 65 in each state. Choose interval widths of 1%. Darken the bar in which your state's percentage would fall. Does your state tend to have a higher or lower percentage of residents 65 and older than the other states, or would you say that your state is close to typical?

b. Describe the overall shape of the distribution of percentages. Then identify any gaps in the distribution and potential outliers.

3. Finally, we consider the total population of the states.

a. Make a histogram of the total population of the states. Choose a class interval width that shows key features of the distribution.

b. Write a brief description of the most important features of the distribution of total number of state residents. Is the distribution roughly symmetric, clearly skewed, or neither? What states are unusual in their population sizes?

4. In a laboratory experiment, students were asked to estimate the breaking strength of wooden stakes. The dimensions of the stakes, measured in inches, were 8 × 1.5 × 1.5. From the experiment students found the load in pounds needed to break the stakes in a sample of 20 stakes. The class data, measurements of the breaking strength in hundreds of pounds, appear below.

166	161	115	120	159
165	155	151	163	160
156	164	118	152	168
144	166	164	161	160

a. Even though the wooden stakes were nearly identical, did the breaking strengths vary? Explain.

b. Make a histogram of these data. Use class intervals of width 5.

c. Which class interval(s) contained the most data?

d. Modify your histogram in (b) so that the scale on the vertical axis is the percent of the stakes whose breaking strength is in each class interval. How does the shape of your modified histogram compare to your histogram in (b)?

e. Write a short paragraph describing key features of the distribution of breaking strengths.