

Thursday, September 13, 2018  
7:09 PM

**Classwork 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.

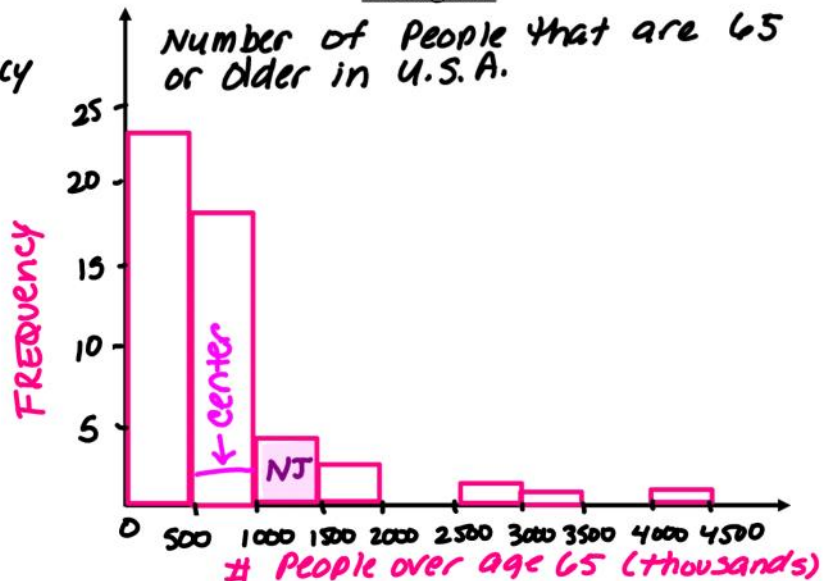
1. How many people in your state are at least 65 years old? The answer varies from state to state. Table 3.3 gives the data for all 50 states and the District of Columbia for the year 2010. **N.J. 1,186 thousand people**

a. Make a histogram for these data. Use class intervals of width 500,000. What would your first class interval be? **[0, 500)**

Frequency Distribution Table

Class	Tally	Frequency
[0, 500)		23
[500, 1000)		17
[1000, 1500)		4
[1500, 2000)		3
[2000, 2500)		0
[2500, 3000)		2
[3000, 3500)		1
[3500, 4000)		0
[4000, 4500)		1

Histogram



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?

*N.J. has 1,186 thousand people over age 65, which appears to be higher than most other states.*

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

**S** - The distribution is skewed to the right. There are two gaps – one between 2,000 thousand and 2,500 thousand and the other between 3,500 thousand and 4,000 thousand.

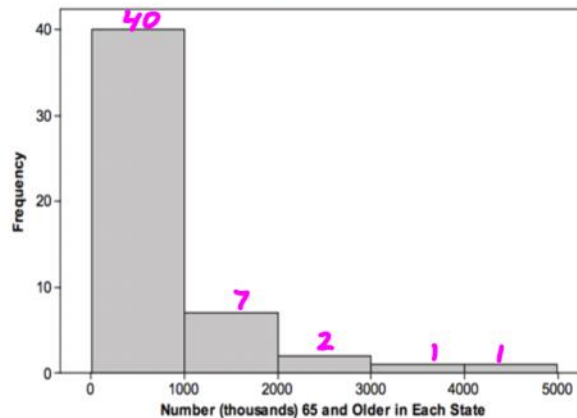
**O** - California with 4,247 thousand people 65 or over could be an outlier. Florida with 3,260 thousand, New York with 2,618 thousand, and Texas with 2,602 thousand might also be outliers (or they could simply be the tail of the overall pattern in the distribution).

**C** – center [ 500, 1000 )

**S** - spread 0 to 4500

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

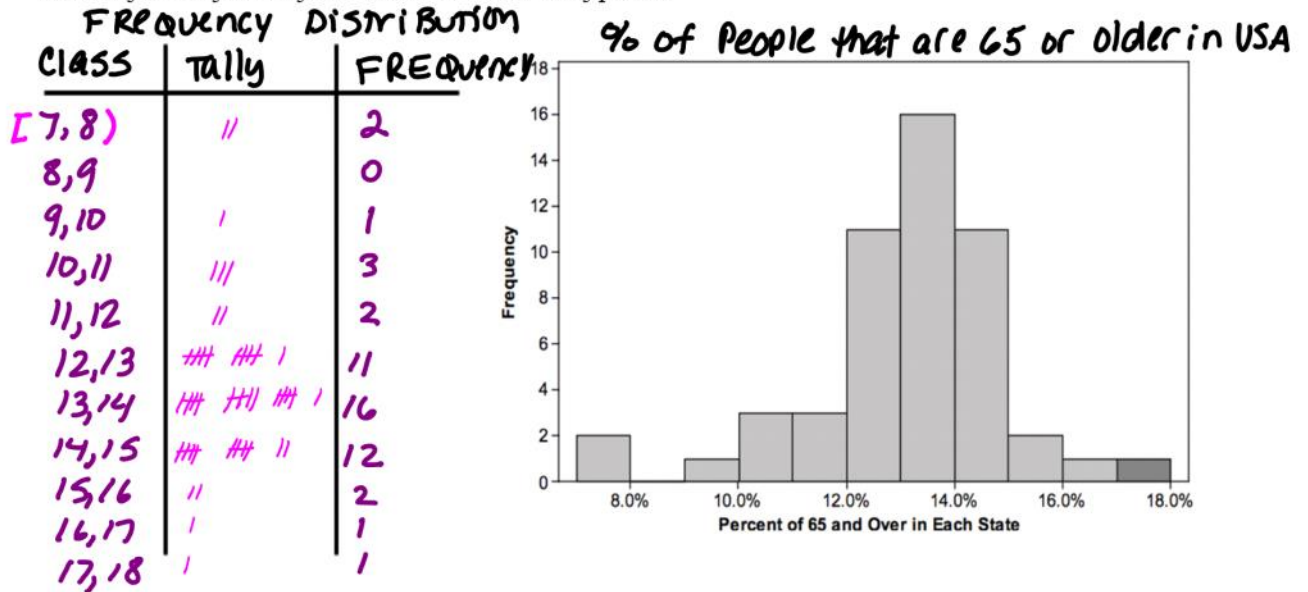
In the histogram below, the gaps in the data are hidden. However, you still can observe an overall pattern that is skewed to the right.



*\* Combine tallies from previous frequency distribution.*

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.

- shape*
- The overall pattern is roughly symmetric. *and unimodal.*
- outliers*
- There is a small gap – there are no percentages between 8% and 9%.
  - South Carolina (7.8%) and Alaska (7.7%) might be outliers. However, they really don't appear to be unusual values – the gap is small and these values are at the upper end of the class interval from 7% to 8%.

\* Center [13, 14)

\* Spread 7 to 18 %