

1. In 1997, there were 12,298,000 undergraduate students in U.S. colleges. According to the U.S. Department of Education, there were 127,000 American Indian or Alaskan Native, 737,000 Asian or Pacific Islander, 1,380,000 non-Hispanic black, 1,108,000 Hispanic, and 8,682,000 non-Hispanic white students. In addition, 265,000 foreign undergraduates were enrolled in U.S. colleges.
- (a) Each number, including the total, is rounded to the nearest thousand. Separate rounding may cause roundoff errors, so that the sum of the counts does not equal the total given. Are roundoff errors present in these data? Explain.

(b) Present the data in a graph.

2. How much oil wells in a given field will ultimately produce is key information in deciding whether to drill more wells. Here are the estimated total amounts of oil recovered from 64 wells in the Devonian Richmond Dolomite area of the Michigan basin, in thousands of barrels.

21.7	53.2	46.4	42.7	50.4	97.7	103.1	51.9	43.4	69.5	156.5	34.6	37.9
12.9	2.5	31.4	79.5	26.9	18.5	14.7	32.9	196.0	24.9	118.2	82.2	35.1
47.6	54.2	63.1	69.8	57.4	65.6	56.4	49.4	44.9	34.6	92.2	37.0	58.8
21.3	36.6	64.9	14.8	17.6	29.1	61.4	38.6	32.5	12.0	28.3	204.9	44.5
10.3	37.7	33.7	81.1	12.1	20.1	30.5	7.1	10.1	18.0	3.0	2.0	

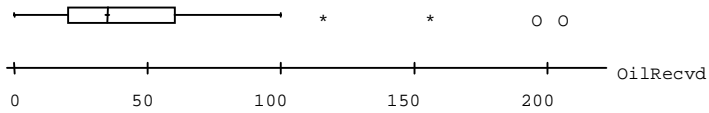
Descriptive statistics, a stemplot, and a boxplot are provided for these data on the next page. Use the information provided to describe the important features of this distribution.

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
OilRecvd	64	48.25	37.80	43.50	40.24	5.03
	MIN	MAX	Q1	Q3		
OilRecvd	2.00	204.90	21.40	60.75		

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14  0 000011111111111
(20) 0 22222223333333333333
30  0 444444455555555
16  0 6666667
 9  0 8899
 5  1 01
 3  1
 3  1 5
 2  1
 2  1 9
 1  2 0

```



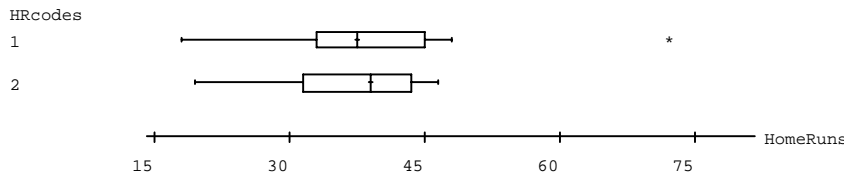
1. On September 24, 2006, Barry Bonds hit his 734<sup>th</sup> career home run and broke Hank Aaron's National League record. Does that make Bonds a better home run hitter? Perhaps we should compare their National League records up through 2004. Here are Bonds's numbers through 2004, arranged in increasing order:

16    19    24    25    25    33    33    33    34    34    37  
 37    40    42    45    45    46    46    49    73

Here are Aaron's National League numbers (1954–1974), arranged in increasing order:

13    20    24    26    27    29    30    32    34    34    38    39  
 39    40    40    44    44    44    44    45    47

Here are parallel boxplots for the two players (Bonds above and Aaron below):



- (a) Determine the five-number summaries for Bonds and Aaron.
- (b) Use the graph and your summary statistics to write a few sentences comparing Bonds and Aaron as home run hitters.

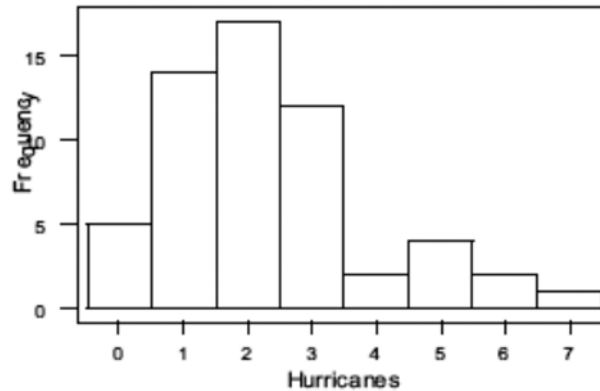
2. A Richmond television station used a questionnaire to gather data on the ages of viewers of *ACTION*, a program aimed at a young audience. Here is a Minitab stemplot of the data:

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6      0 566899
(16)  1 0012223445667789
20    2 00123346
12    3 0135
8     4 28
6     5 025
3     6 05
1     7
1     8
1     9
1    10
1    11
1    12 0
    
```

Describe the shape, center, and spread of the distribution. Comment on any other feature of the plot that needs to be addressed.

1. The histogram shows the number of major hurricanes that reached the East Coast of the United States from 1944 to 2000. Describe the shape, center, and spread of the distribution.



2. Hallux abducto valgus (call it HAV) is a deformation of the big toe that is not common in youth and often requires surgery. Doctors used X-rays to measure the angle (in degrees) of deformity in 38 consecutive patients under the age of 21 who came to a medical center for surgery to correct HAV. The angle is a measure of the seriousness of the deformity. Here are the data.

28 32 25 34 38 26 25 18 30 26 28 13 20  
21 17 16 21 23 14 32 25 21 22 20 18 26  
16 30 30 20 50 25 26 28 31 38 32 21

- (a) Make a stemplot and give a numerical description of this distribution. Are there any outliers?

- (b) Write a brief discussion of the distribution of the angle of deformity among young patients needing surgery for this condition.