EXERCISES

1. The video mentioned the fact that soldiers are bulking up along with the rest of America. Even so, soldiers are expected to be physically fit. Suggest several quantitative variables that you might use to measure fitness. Keep in mind that each of your variables must produce a number that represents fitness.

2. Below are the number of home runs that Babe Ruth hit in each of his 15 years with the New York Yankees, 1920 – 1934.

54	59	35	41	46
25	47	60	54	46
49	46	41	34	22

a. Make a stemplot of the home run data. Then use your stemplot to answer questions (b) and (c).

b. Describe the shape of the distribution. Is it roughly symmetric or not? Is it unimodal (single peak) or multimodal (more than one peak)?

c. What is the center (this is the number of home runs the Babe hit in a typical year)?

d. Ruth's record of 60 home runs in 1927 stood for more than 30 years. Is 60 an observation that falls outside the pattern of the other observations and hence could be considered an outlier?

3. The SAT is a standardized test for college admissions that is widely used in the United States. Table 2.1 contains the average score for each state on the Critical Reading, Math, and Writing sections of the SAT for 2010-11.

(See table on next page...)

State	Critical Reading	Math	Writing	Percent	State	Critical Reading	Math	Writing	Percent
Alabama	546	541	536	8	Montana	539	537	516	26
Alaska	515	511	487	52	Nebraska	585	591	569	5
Arizona	517	523	499	28	Nevada	494	496	470	47
Arkansas	568	570	554	5	New Hampshire	523	525	511	77
California	499	515	499	53	New Jersey	495	516	497	78
Colorado	570	573	556	19	New Mexico	548	541	529	12
Connecticut	509	513	513	87	New York	485	499	476	89
Delaware	489	490	476	74	North Carolina	493	508	474	67
District of Columbia	469	457	459	79	North Dakota	586	612	561	3
Florida	487	489	471	64	Ohio	539	545	522	21
Georgia	485	487	473	80	Oklahoma	571	565	547	6
Hawaii	479	500	469	64	Oregon	520	521	499	56
Idaho	542	539	517	20	Pennsylvania	493	501	479	73
Illinois	599	617	591	5	Rhode Island	495	493	489	68
Indiana	493	501	475	68	South Carolina	482	490	464	70
Iowa	596	606	575	3	South Dakota	584	591	562	4
Kansas	580	591	563	7	Tennessee	575	568	567	10
Kentucky	576	572	563	6	Texas	479	502	465	58
Louisiana	555	550	546	8	Utah	563	559	545	6
Maine	469	469	453	93	Vermont	515	518	505	67
Maryland	499	502	491	74	Virginia	512	509	495	71
Massachusetts	513	527	509	89	Washington	523	529	508	57
Michigan	583	604	573	5	West Virginia	514	501	497	17
Minnesota	593	608	577	7	Wisconsin	590	602	575	5
Mississippi	564	543	553	4	Wyoming	572	569	551	5
Missouri	592	593	579	5					

Table 2.1: Average SAT Scores by State 2010-2011.

a. Make a stemplot of the 51 average SAT Critical Reading scores.

b. Based on your stemplot in (a), describe the overall shape of the distribution of SAT Critical Reading scores. Approximate the center. Are there any outliers?

c. Make a back-to-back stemplot of the SAT Math and SAT Writing scores.

d. Based on your stemplot in (c) compare the distributions of the SAT Math and SAT Writing scores. Compare shape, center, and spread.

4. A local television station gathered data on the ages of viewers of ACTION, a program aimed at a young audience. The ages in years as reported by the rating service were as follows:

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35.3   17.0   23.7   6.4    5.6    12.1   50.4   14.7   10.5
55.5   23.7   33.4   11.2   22.7   20.4   12.6   9.8    14.8
10.1   65.2   52.3   9.8    16.2   19.7   18.6   24.7   120.0
15.3   48.6   26.3   21.4   12.1   17.3   60.9   6.2    13.1
31.5   20.9   16.6   8.1    30.9   42.0   50.9   27.7
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Make a stemplot of the age distribution. As a first step, truncate the number by discarding the digit after the decimal point. Then, describe the main features of the distribution.