

# Statistics:

## Data Exploration

### The Ages of the Presidents of the United States at the time of their Inaugurations

1. George Washington	57
2. John Adams	61
3. Thomas Jefferson	57
4. James Madison	57
5. James Monroe	58
6. John Q. Adams	57
7. Andrew Jackson	61
8. Martin Van Buren	54
9. William Henry Harrison	68
10. John Tyler	51
11. James K. Polk	49
12. Zachary Taylor	64
13. Millard Fillmore	50
14. Franklin Pierce	48
15. James Buchanan	65
16. Abraham Lincoln	52
17. Andrew Johnson	56
18. Ulysses Grant	46
19. Rutherford B. Hayes	54
20. James A. Garfield	49
21. Chester A. Arthur	50
22. Grover Cleveland	47
23. Benjamin Harrison	55
24. Grover Cleveland	55
25. William McKinley	54
26. Theodore Roosevelt	42
27. William Howard Taft	51
28. Woodrow Wilson	56
29. Warren G. Harding	55
30. Calvin Coolidge	51
31. Herbert Hoover	54
32. Franklin D. Roosevelt	51
33. Harry S. Truman	60
34. Dwight D. Eisenhower	62
35. John F. Kennedy	43
36. Lyndon B. Johnson	55
37. Richard M. Nixon	56
38. Gerald Ford	61
39. Jimmy Carter	52
40. Ronald W. Reagan	69
41. G. H. W. Bush	64
42. Bill Clinton	46
43. G. W. Bush	54
44. Barack H. Obama	47

### Exploring Presidential Data

Use separate sheets of paper to answer the questions. You can do the work by hand, or on a computer. Be sure that all instructions are followed; answer in complete sentences (as in a report).

- List the minimum, Q1, median, Q3, and the maximum?
- Are there any outliers? Show all your work. List any low or high outliers. If there are none, just write, "No outliers."
- Based on the information gathered in questions 1 and 2, construct a *modified* box-and-whiskers plot.
- What is the mean and standard deviation of this data?
- Is the data *normal*? To check:
  - draw a normal curve using the values from question 4, and
  - fill in the appropriate values along the x-axis. Now,
  - count the number of presidents who fit in each "bin," and write this number in the bin. Then,
  - divide each number you wrote in the bins by 44 (the total number of presidents). This gives you the **actual** percentages.

### Are the actual percentages close to the 68-95-99 Rule?

Keep in mind: "close" will have to be a judgment call. No *real* data is perfectly normal. The question is: it is "close enough"? Justify your answer by explaining your reasoning in detail.