

Here are the weekly payrolls for two imaginary restaurants, Mooseburgers and McTofu.

1. Find the 5-number summaries.

Statistic	M-burgers	McTofu
Min		
Q1		
Median		
Q3		
Max		

Mooseburgers		McTofu	
Al	\$123	Ken	\$110
Boris	\$136	Latisha	\$115
Connie	\$144	Maria	\$130
Dwight	\$150	Nate	\$100
Ernie	\$110	Otto	\$120
Francois	\$131	Pablo	\$146
Gloria	\$140	Quentin	\$117
Horace	\$160	Rosa	\$129
Isaac	\$120	Sally	\$360
Juan	\$130	Ted	\$132
		Uta	\$107

2. Create parallel boxplots. Label your graph clearly.

3. Write a few sentences comparing the distributions.

4. Which restaurant pays the higher average salary?

5. Why is the mean salary misleading?

6. At which restaurant would you rather work? Give a sound statistical justification for your decision.

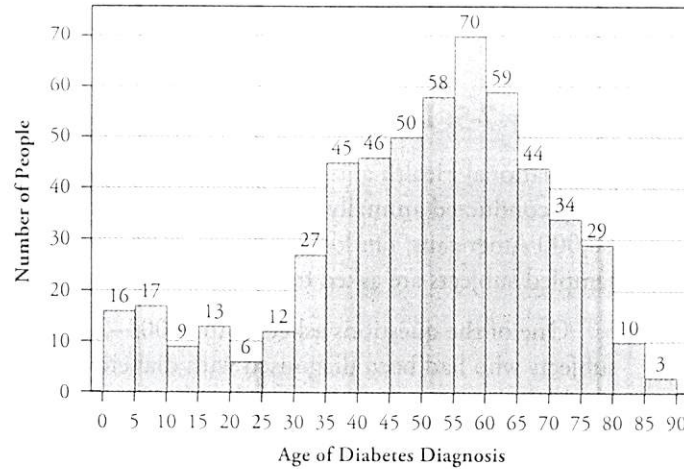
Exercise 9-20: Monthly Temperatures
9-20, 26-12, 27-12

The following table reports the average monthly temperatures for San Francisco, California, and for Raleigh, North Carolina:

	Raleigh	San Francisco
Jan	39	49
Feb	42	52
Mar	50	53
Apr	59	56
May	67	58
Jun	74	62
Jul	78	63
Aug	77	64
Sep	71	65
Oct	60	61
Nov	51	55
Dec	43	49

- Create dotplots (on the same scale and axis) to compare these temperature distributions for the two cities. (Ignore the month information in your dotplots.)
- Calculate the median value of these temperatures for each city. Mark the medians on the respective dotplots. Are these medians fairly close?
- Because the centers of these distributions are very close, can you conclude that there is not much difference between these two cities with regard to monthly temperatures? Explain.
- Which city appears to have more variability in its monthly temperatures?
- Calculate the range of monthly temperatures for these two cities, and comment on how the ranges compare.
- Repeat part e with interquartile range.
- Repeat part e with mean absolute deviation.
- Repeat part e with standard deviation.

The following histogram displays the distribution of ages at which the 548 survey subjects were diagnosed with diabetes. Note that the endpoints of the subintervals are reported. For example, the first subinterval indicates that 16 people were diagnosed with diabetes before age 5, and the second subinterval represents the 17 people who were at least 5 years of age but younger than 10 years of age when they were diagnosed with diabetes. (A person aged 5 years would appear in the 5–10 interval, not the 0–5 interval.)



- c. How many and what proportion of the 548 people were diagnosed with diabetes before the age of 20?
- d. How many and what proportion of the 548 people were diagnosed with diabetes at age 65 or older?
- e. Comment on the shape, center, and spread of the distribution of these ages of diagnosis.

~~f.~~ Use the Histogram Bin Width applet to create a histogram for these data. [The data are stored in the file Diabetes, so you can simply copy and paste the data (and variable name) using the **Edit/Paste Data** button.] What bin width does the applet automatically use? How does this compare to the preceding histogram? How does this affect the appearance of the histogram?

Ruler	Reign	Ruler	Reign
Geoffrey		Edward VI	6
William I	21	Mary I	5
William II	13	Elizabeth I	44
Henry I	35	James I	22
Stephen	19	Charles I	24
Henry II	35	Charles II	25
Richard I	10	James II	3
John	17	James II	3
Henry III	56	William III	13
Edward I	35	Mary II	6
Edward II	20	Anna	12
Edward III	50	George I	13
Richard II	22	George II	33
Henry IV	13	George II	59
Henry V	9	George IV	10
Henry VI	39	William IV	7
Edward IV	22	Victoria	63
Edward V	0	Edward VII	9
Richard III	2	George V	25
Henry VII	24	Edward VIII	1
Henry VIII	38	George VI	15

- Who had the longest reign? How long was the reign?
- What is the shortest reign? Who ruled the shortest time? What do you think this value really means?
- Produce a stemplot of these reign lengths.
- Based on this stemplot, describe the shape (symmetric, skewed to left, skewed to right) of the distribution of rulers' lengths of reign.

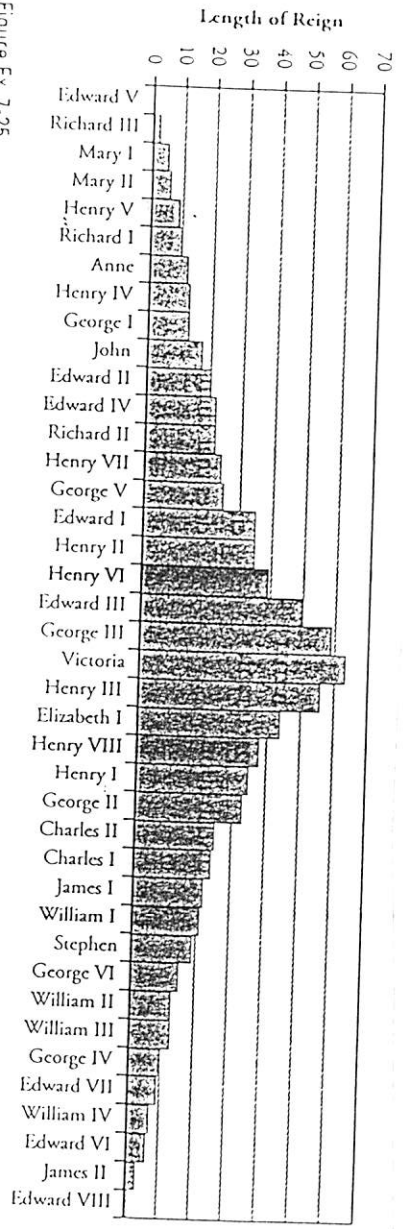


Figure Ex. 7-25

- Determine a value such that half of these 40 rulers reigned longer and half reigned less long.
- Determine a value such that one-fourth of the rulers reigned less long. Then find a value such that one-fourth of the rulers reigned longer.

Exercise 7-25: British Monarchs' Reigns 7-24, 7-25

Reconsider the data from Exercise 7-24 on the length of reigns for British monarchs, and then examine the graph in Figure Ex. 7-25 below.

- Is this a legitimate histogram of the distribution of lengths of reign for British monarchs? Explain.
- This graph suggests that the distribution of lengths of British monarchs' reigns is quite symmetric. Is this an accurate impression? Explain.

Exercise 7-24: British Monarchs' Reigns 7-24, 7-25

The following table records the lengths of reign (calculated as the year of taking the throne subtracted from the year of leaving the throne) for the rulers of England and Great Britain beginning with William the Conqueror in 1066:

READ HERE FIRST