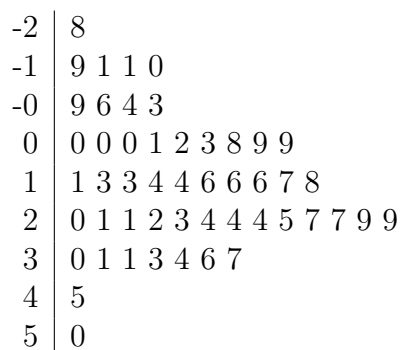


1 point for taking in the quiz

STAT 226, Section D—Quiz 3 (4 pts.)

Stocks are risky. The stemplot below is showing the annual percent returns on some American common stocks from 1906 to 1956.



(stems are tens of percents) \Rightarrow **this implies that** $-2 | 8 = -28\%$

This question is based on Example 1.14 on page 43 in your textbook, and AYK exercise 1.53.

- (i) Give the five number summary for this data set.

There are 50 observations, already ordered from the smallest (MIN=-28%) to the largest (MAX=50%).

This means that the median is going to be the average of the 25th and 26th observations. Since these are both equal to 16%, the median equals 16%.

The first quartile (Q_1) is the 13th observation (thus $Q_1=1\%$) and the third quartile (Q_3) is the 38th observation (thus $Q_3 = 27\%$).

The five number summary is -28%, 1%, 16%, 27%, 50%.

- (ii) Assume that during the 1957-2007 interval the annual percentages would follow exactly the same pattern as the one above, except they will all increase by 0.45 percent. What would the IQR of the annual percent returns on these stocks be for the interval between 1957 and 2007?

If all observations increase by the same amount (0.45% in this case), then both Q_1 and Q_3 will increase by the same amount. Which means that the Interquartile Range ($IQR=Q_3-Q_1$) will remain unchanged. From part (i) we have that $IQR=27\%-1\%=26\%$.