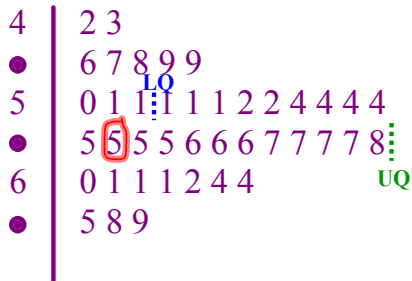


BOX and WHISKER PLOTS

Section 17.2 notes

EXAMPLE Construct a box-and-whisker plot for the following data.

Ages of first 41 presidents at the time each took office



Find the **lower and upper extreme values**.

Lower = 42

Upper = 69

4/2 means
age of 42

Find the **median**. Median = 55

Find the **lower quartile and upper quartile**.

-Do NOT include the median

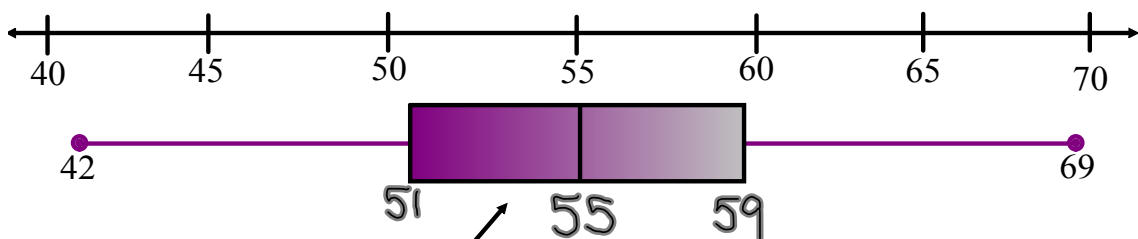
-Lower Quartile is the median of the lower half

-Upper Quartile is the median of the upper half

$$\frac{58+60}{2}$$

Lower quartile = 51

Upper quartile = 59



50% of the data is within the box

Range is the difference between the LE and the UE

$$69 - 42 = 27$$

Interquartile Range (IQR) is the difference between the UQ and the LQ

$$59 - 51 = 8$$

Outliers - Not all books define the same

Any data whose distance is greater than $(1.5 \times \text{IQR})$ away from the UQ and less than $(1.5 \times \text{IQR})$ away from the LQ

$$1.5 \times \text{IQR} = (1.5)(8) = 12$$

$$\text{LQ} - 12 = 51 - 12 = 39$$

$$\text{UQ} + 12 = 59 + 12 = 71$$

So any data below 39 or above 71 is an outlier.

Thus, there are no outliers for this set of data.

Homework

p651 #1-7 odd