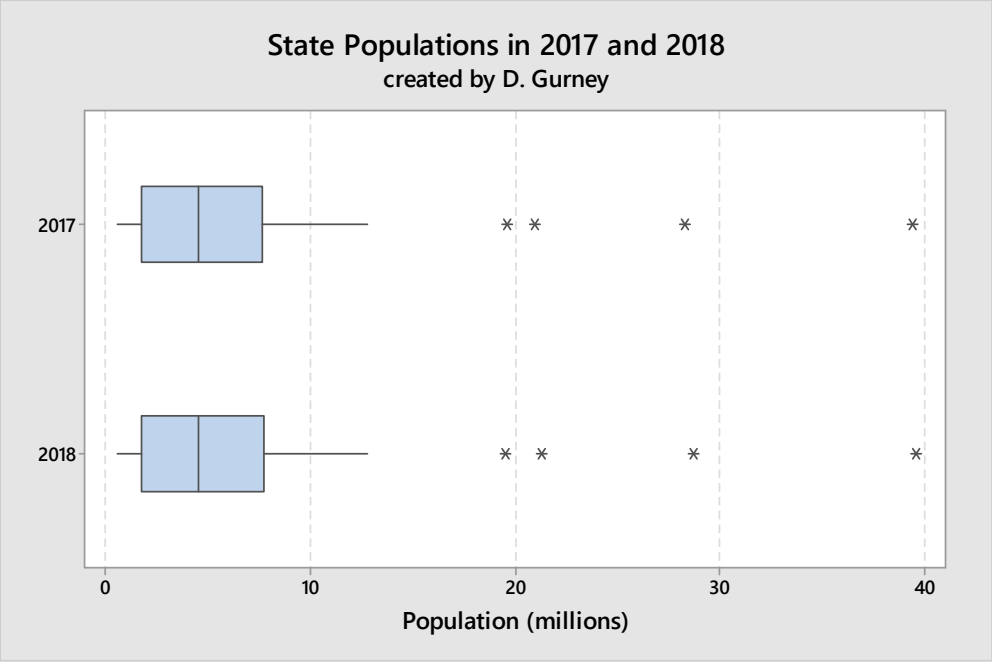
Side-by-side Boxplot Analysis

When analyzing a side-by-side boxplot, after noting the positions of any outliers marked on the graph, the following questions should be answered. They may be answered in any order.

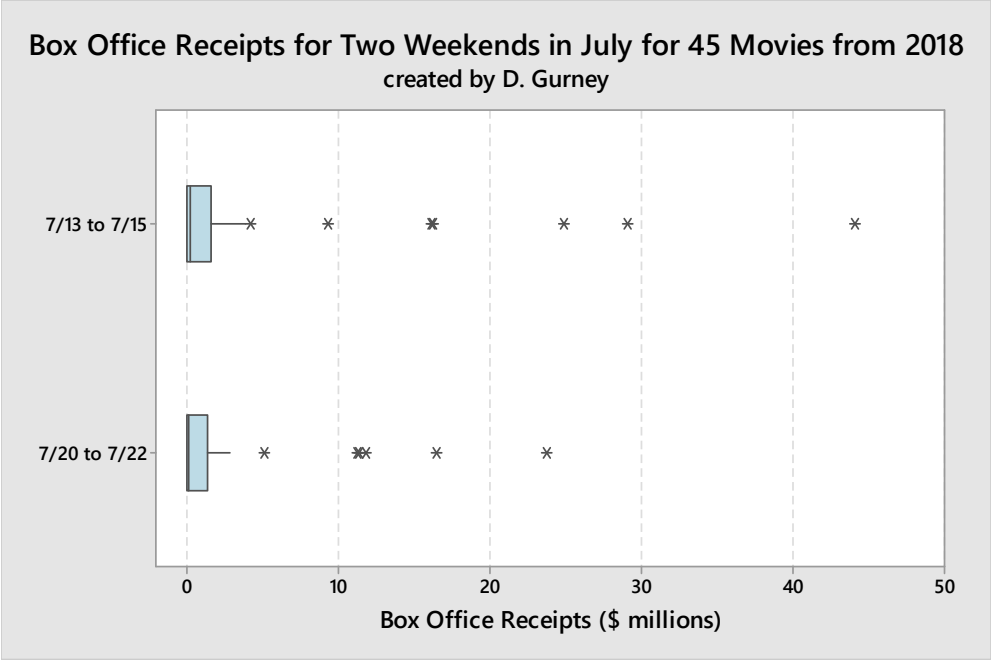
- Which boxplot has the biggest value?
- Which boxplot has the smallest value?
- Which boxplot has the largest range?
- Which boxplot has the largest interquartile range?
- Which boxplot has the largest median?
- Which boxplot is more skewed?

Example 1



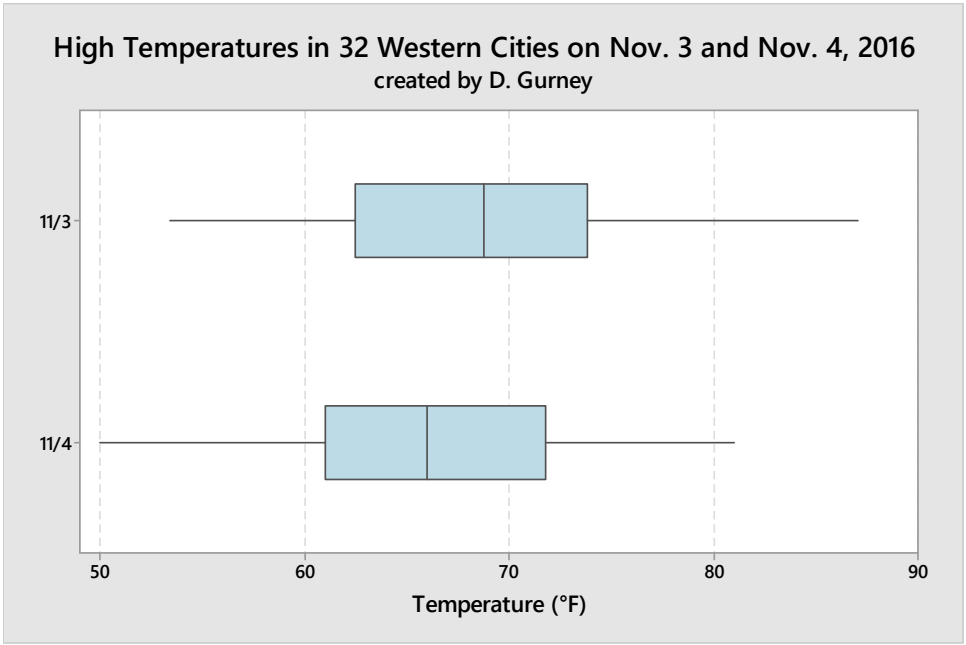
The population data for 2017 and 2018 is very similar. Each has four outliers marked on the right side starting at about 19 million. The medians, minimums and maximums are about the same. The ranges and interquartile ranges are about the same. Both are right skewed about the same amount since the right whiskers are about the same amount longer than the left whiskers.

Example 2



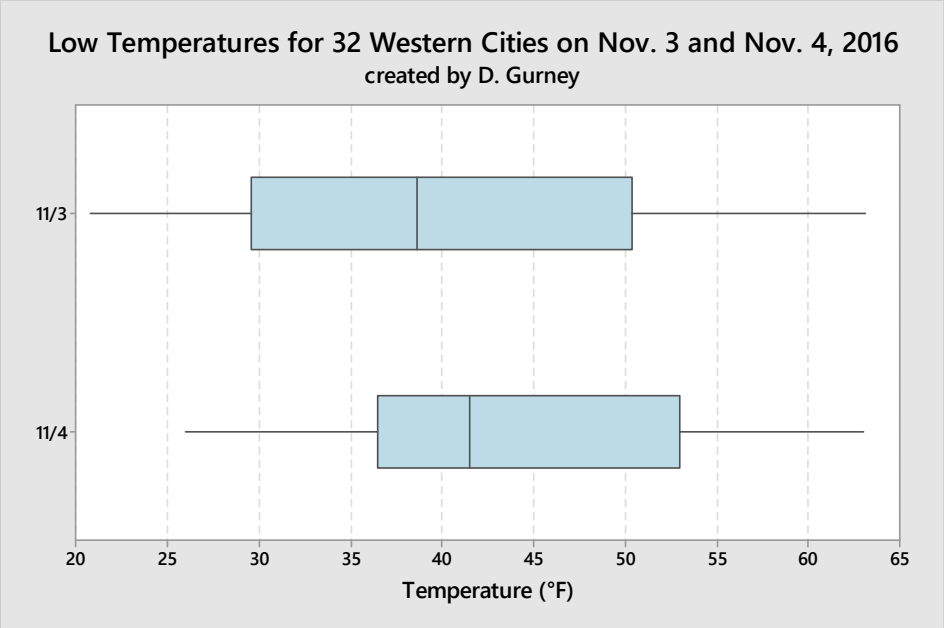
There are six outliers on the right for 7/13 to 7/15, and 5 outliers on the right for 7/20 to 7/22. Ignoring the outliers, both boxplots are skewed to the right, but 7/13 to7/15 is more skewed than 7/20 to 7/22. Notice that neither boxplot has a left whisker. The minimums for both boxplots are about the same. 7/13 to 7/15 has the largest maximum, the largest median, the largest range and largest interquartile range.

Example 3



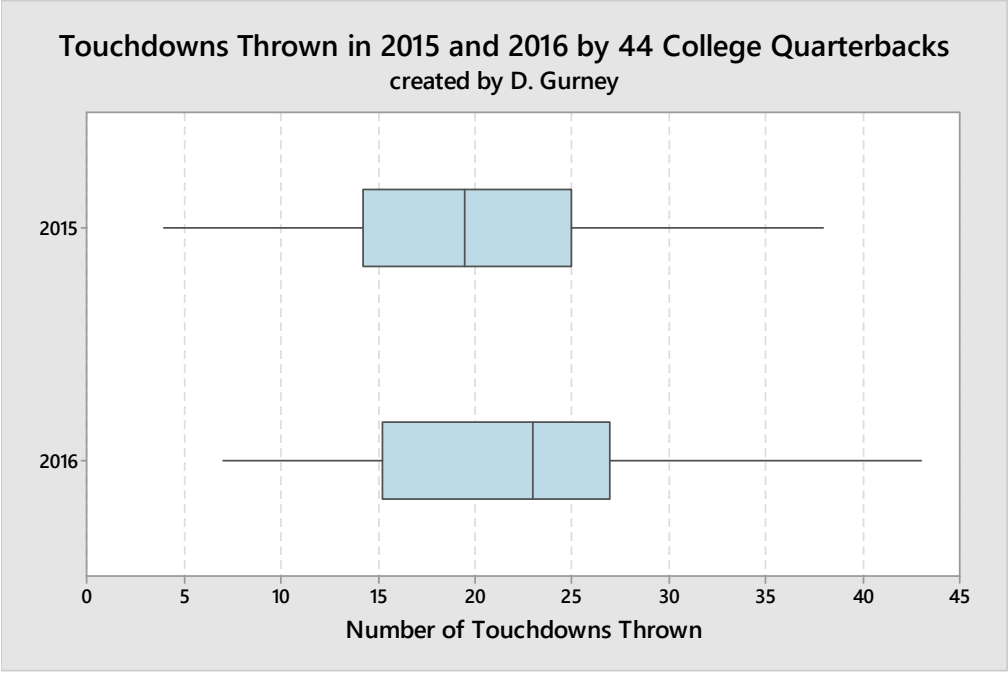
The boxplot for November 3rd had the largest maximum, the largest median, the largest range and the largest interquartile range. The boxplot for November 4th had the lowest minimum. The boxplot for November 3rd is more skewed.

Example 4



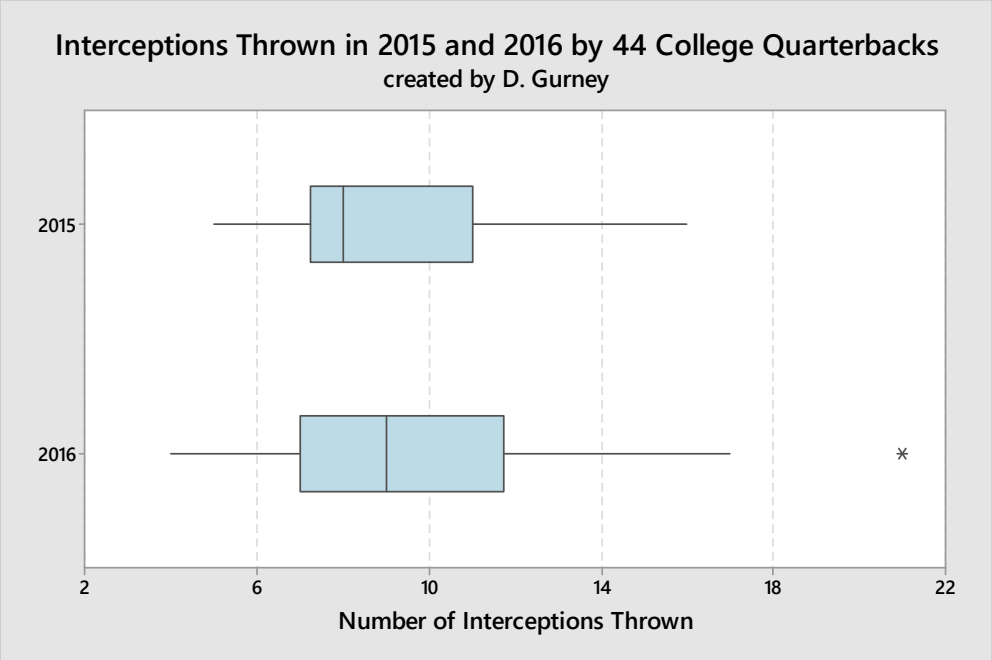
The maximums for November 3rd and November 4th are about the same. November 3rd has the largest range, the largest interquartile range, and the smallest minimum. The boxplot for November 4th has the largest median. The boxplot for November 3rd is more skewed.

Example 5



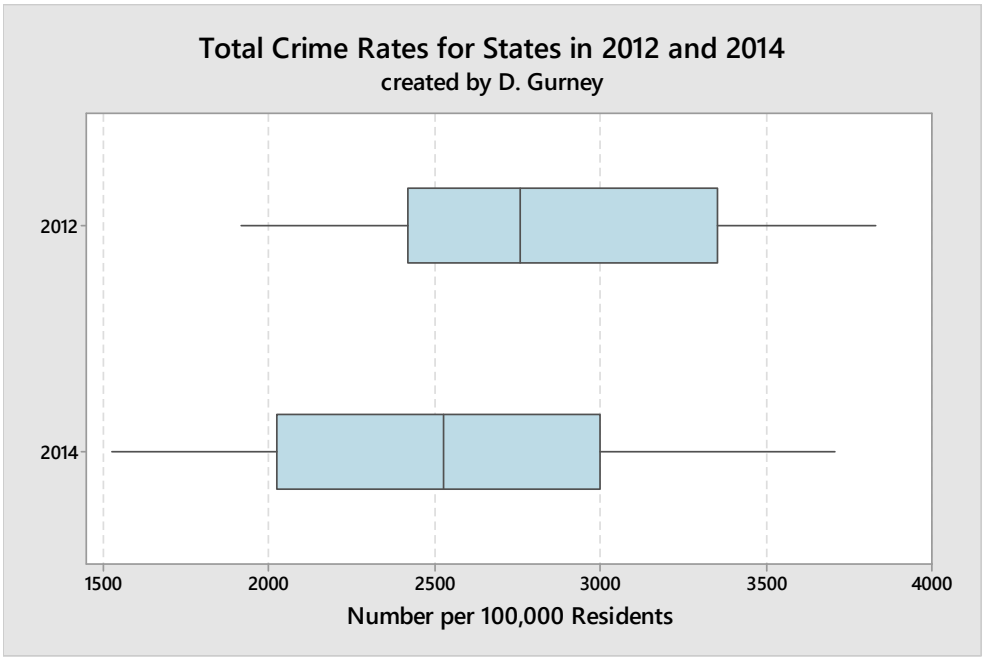
The boxplot for 2016 has the largest maximum, the largest median, the largest range and the largest interquartile range is in 2016. The boxplot for 2015 has the smallest minimum. The boxplot for 2016 is more skewed.

Example 6



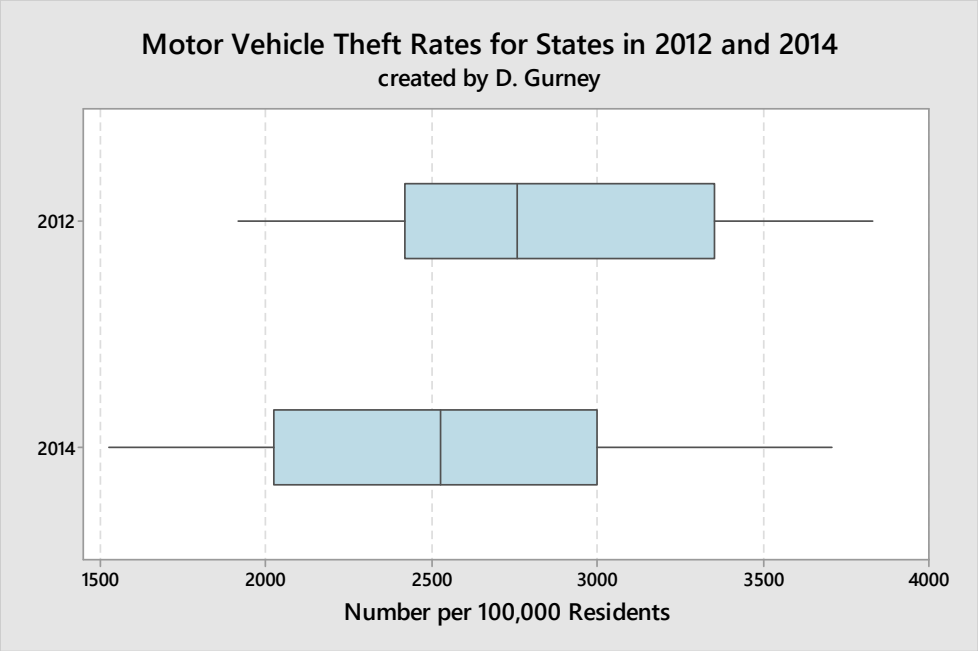
The boxplot for 2016 has an outlier at about 21. Ignoring this outlier, the boxplot for 2016 has the largest maximum, the largest median, the largest range, the largest interquartile range, and the smallest minimum. The boxplot for 2015 is more skewed.

Example 7



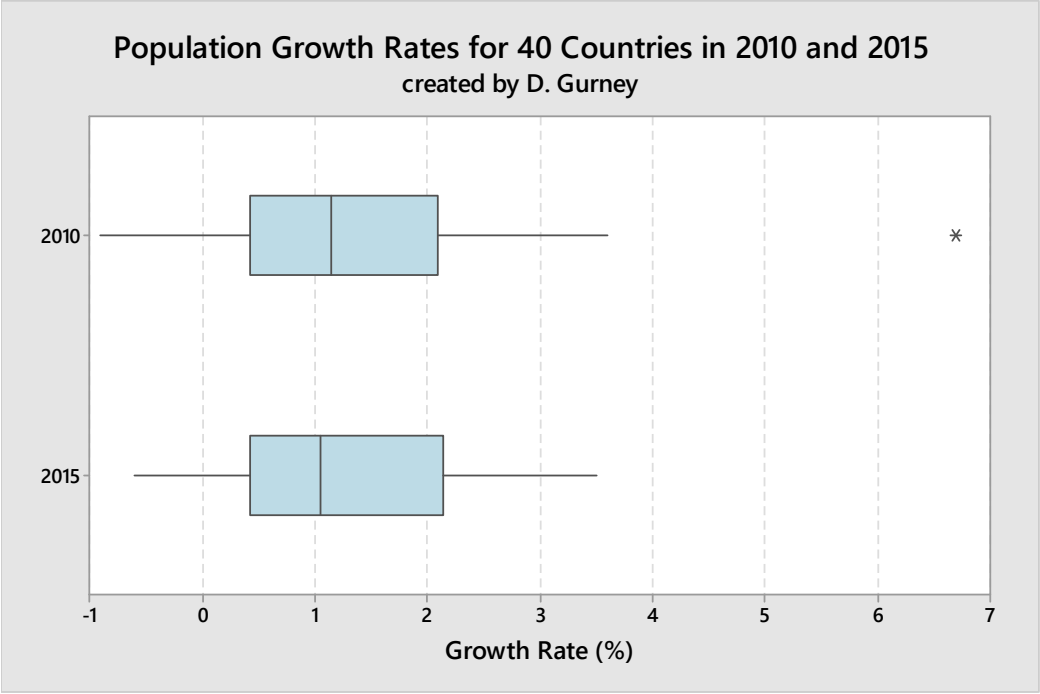
The boxplot for 2012 has the largest maximum and the largest median. The boxplot for 2014 has the largest range, the largest interquartile range, and the smallest minimum. The boxplot for 2014 is more skewed.

Example 8



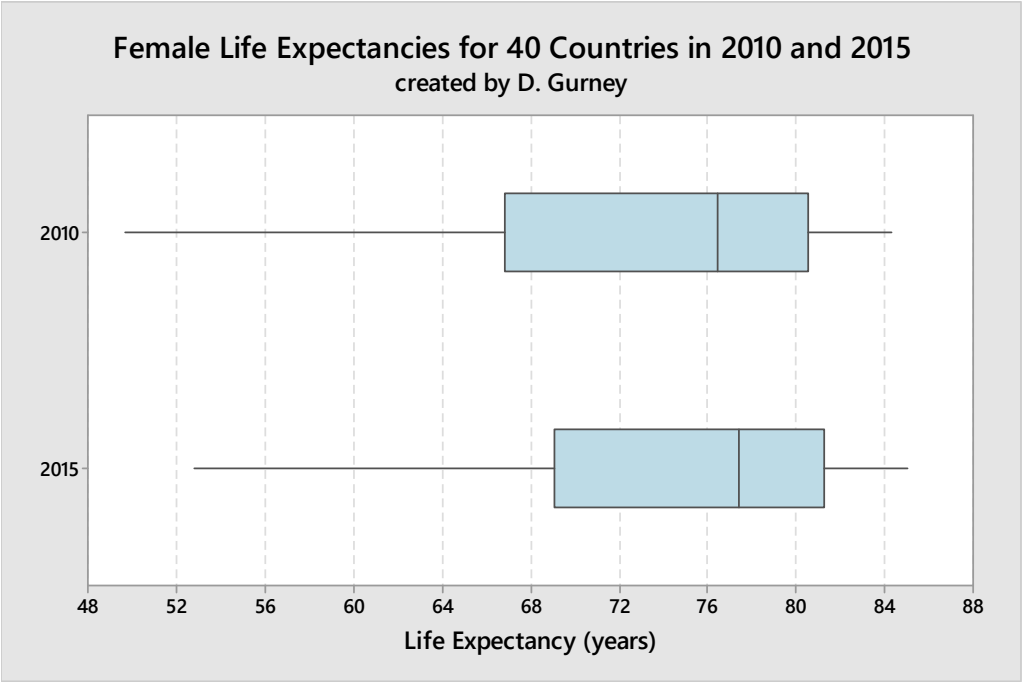
The boxplot for 2012 has the largest maximum and the largest median. The boxplot for 2014 has the largest range, the largest interquartile range, and smallest minimum. The boxplot for 2014 is more skewed.

Example 9



The boxplot for 2010 has an outlier at about 6.7%. Ignoring this outlier, 2010 has the largest maximum, the largest median, the largest range and the smallest minimum. The boxplot for 2015 has the largest interquartile range, and is slightly more skewed.

Example 10



The boxplot for 2015 has the largest maximum and the largest median. The boxplot for 2010 has the largest range, the largest interquartile range and the smallest minimum. The boxplot for 2010 is more skewed.