Business Analytics Data Analysis & Decision Making 7th edition Albright Solutions Manual

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Business Analytics: Data Analysis and Decision Making, 7e
CHAPTER 2: Describing the Distribution of a Single Variable

Answers to Conceptual Questions
Note to Instructors: Student answers will vary. The responses here are intended to provide general guidance in terms of concepts that could be discussed.

C.1. The relevant population consists of all people (adults?) in the U.S. who would consider flying commercially. This might be discovered by a survey of a lot of people (several thousand?) that first asks whether they ever have flown or might fly in the future and then asks whether the fear of terrorist attacks would change their minds. Only the people responding "Yes" to the first question would remain in the sample for analyzing the second question.

C.2. The "number of children" is a count, so this is a discrete data type.

C.3. A histogram is typically relevant only for a continuous variable that is binned into discrete categories, so it isn't relevant here. But a column chart of counts in states *is* relevant, and it's a close relative to a histogram.

C.4. Depending on the difficulty of the exam, the shape could easily be skewed to the left, with the students who didn't study comprising the long left tail. But it could also be symmetric or even skewed to the right, with a few "brains" comprising the long right tail.

C.5. This should be a time series graph, which is really a scatterplot of the number of air conditioner sales versus time, with the "dots" connected.

C.6. The mean will be larger than the median, maybe considerably larger. This is because the large incomes in the right tail pull up the average, but they have no effect on the median.

C.7. This is true only if the distribution, or at least the middle 50% of it, is reasonably symmetric. If it's skewed to the right, say, the median will be closer to the 1st quartile than to the 3rd quartile. This is often clear in boxplots, where the median is *not* in the middle of the box.

C.8. The standard deviation, like the mean, is highly sensitive to outliers. Remember that in the definition of standard deviation, deviations from the mean are *squared*, so outliers on either side can really increase the standard deviation. As stated in the book, an accepted procedure when outliers are clearly present is to report measures such as the standard deviation *with* the outliers and *without* them.

C.9. There are basically two indications: (1) the median will be about in the middle of the box, indicating that the middle 50% of the distribution is symmetric, and (2) the lines (whiskers) and outliers on either side of the box will be similar, indicating that the more extreme observations are distributed about the same on the low side as on the high side.

C.10. It all depends. If these two salaries correspond to employees who are somehow outside the population of interest, such as top executives, it is fine to delete them. But if they aren't, then they shouldn't be deleted. For example, they might reveal a "shady" company salary policy and hence could represent the most interesting finding of the study.

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