

ASS1

38. The file **P02_35.xlsx** contains data from a survey of 500 randomly selected households.

- a. Indicate the type of data for each of the variables included in the survey.
 - b. For each of the categorical variables in the survey, indicate whether the variable is nominal or ordinal, and why.
 - c. Create a histogram for each of the numeric variables in this data set. Indicate whether each of these distributions is approximately symmetric or skewed. Which, if any, of these distributions are skewed to the right? Which, if any, are skewed to the left?
 - d. Find the maximum and minimum debt levels for the households in this sample. e. Find the indebtedness levels at each of the 25th, 50th, and 75th percentiles. f. Find and interpret the interquartile range for the indebtedness levels of these households.
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44. The file **P02_44.xlsx** contains annual data on the percentage of people in the United States living below the poverty level.

- a. In which years of the sample has the poverty rate exceeded the rate that defines the third quartile of these data?
- b. In which years of the sample has the poverty rate fallen below the rate that defines the first quartile of these data?
- c. What is the typical poverty rate during this period?
- d. Create and interpret a time series graph for these data. How successful have Americans been recently in their efforts to win “the war against poverty”?

e. Given that this data set is a time series, discuss whether the measures requested in parts a-c are very meaningful at the current time.

47. Recall that HyTex Company is a direct marketer of technical products and that the file [Catalog Marketing.xlsx](#) contains recent data on 1000 HyTex customers.

a. Identify all customers in the data set who are 55 years of age or younger, female, single, and who have had at least some dealings with HyTex before this year. Find the average number of catalogs sent to these customers and the average amount spent by these customers this year.

b. Do any of the customers who satisfy the conditions stated in part a have salaries that fall in the bottom 10% of all 1000 combined salaries in the data set? If so, how many?

c. Identify all customers in the sample who are more than 30 years of age, male, homeowners, married, and who have had little if any dealings with HyTex before this year. Find the average combined household salary and the average amount spent by these customers this year.

d. Do any of the customers who satisfy the conditions stated in part c have salaries that fall in the top 10% of all 1000 combined salaries in the data set? If so, how many?

51. The file [P02_51.xlsx](#) contains data on U.S. home ownership rates by state for each of several years.

- a. Employ numeric summary measures to characterize the changes in home ownership rates across the country during this period.
 - b. Do the trends appear to be uniform across the United States or are they unique to certain regions of the country? Explain.
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53. Recall that the file **Supermarket Transactions.xlsx** contains data on over 14,000 transactions. There are two numeric variables, Units Sold and Revenue. The first of these is discrete and the second is continuous. For each of the following, do whatever it takes to create a bar chart of counts for Units Sold and a histogram of Revenue for the given subpopulation of purchases.

- a. All purchases made during January and February of 2016.
- b. All purchase made by married female homeowners.
- c. All purchases made in the state of California.
- d. All purchases made in the Produce product department.