

Business Statistics, Canadian Edition

Sharpe/De Veaux/Velleman/Wright

Chapter 2: Data

Short Answer - Quiz A

1) The mission of a research firm is to “explore the impact of the Internet on families, communities, work, home, and daily life.” In August– September 2010 they conducted telephone interviews with a sample of Canadian adults aged 18 and older about online shopping. Describe the W’s for the information given.

- Who:
- What:
- When:
- Where:
- How:
- Why:

Answer:

- Who: Canadian adults aged 18 and older
- What: online shopping
- When: August–September 2010
- Where: Canada
- How: telephone interviews
- Why: to explore the impact of the Internet on daily life, specifically shopping

2) The following table displays some of the data collected by the above research firm in their study on online shopping. List the variables in the data set. Indicate whether each variable is categorical or quantitative. If the variable is quantitative, give the units.

<i>Age</i>	<i>Gender</i>	<i>Household Income</i>	<i>Participated in online auction?</i>	<i>Monthly amount spent online</i>	<i>Time (hours) per week browsing online retailers</i>
25	Male	\$55,000	Yes	\$250	6
47	Female	\$60,000	No	\$50	4
38	Female	\$110,000	No	\$120	10
30	Male	\$62,000	No	\$75	4

Answer:

Categorical: Gender, Participated in online auction?

Quantitative: Age (years), Household Income (\$), Monthly online spending (\$), Browsing time per week (hours).

3) In addition to the variables listed above, data were also collected on the variables listed below. Indicate whether each is nominal or ordinal.

- *Region* (Urban, Suburban, Rural)
- *Education* (Less than High School, High School, College, University)
- *Marital Status* (Single, Widowed, Divorced, Married)

Answer:

- *Region* (Urban, Suburban, Rural)
Nominal
- *Education* (Less than High School, High School, College, University)
Ordinal
- *Marital Status* (Single, Widowed, Divorced, Married)
Nominal

4) For each of the following, indicate whether the data are cross-sectional or time series:

- *Weekly receipts at a clothing boutique*
- *Monthly demand for an automotive part*
- *Percentage of adults who bank online*

Answer:

- *Weekly receipts at a clothing boutique*
Time Series
- *Monthly demand for an automotive part*
Time Series
- *Percentage of adults who bank online*
Cross-Sectional

Short Answer - Quiz B

1) *Consumer Reports Health* routinely compares drugs in terms of effectiveness and safety. Suppose that in the summer 2010 they reviewed drugs used to treat arthritis. Information was reported on convenience of use (how many pills required each day), possible side effects (e.g., dizziness, stomach upset), cost, and ratings of effectiveness in relieving symptoms (very effective, somewhat effective, not effective). Describe the W's for the information given.

- Who:
- What:
- When:
- Where:
- How:
- Why:

Answer:

- Who: drugs to treat arthritis currently on the market
- What: convenience of use, side effects, cost, effectiveness ratings
- When: summer 2010
- Where: not specified,
- How: testing on drugs
- Why: information for potential consumers/patients

2) List the variables reported in the *Consumer Reports Health* article on drugs used to treat arthritis. If the variable is quantitative, give the units. If the variable is categorical, indicate whether it is nominal or ordinal.

Answer:

Categorical: Side effect (nominal), effectiveness rating (ordinal)

Quantitative: Convenience of use (number of pills), Cost (\$)

3) The Human Resources Department of a large corporation maintains records on its employees. The table displays some of these data. List the variables in the data set. Indicate whether each variable is categorical or quantitative. If the variable is quantitative, give the units. If the variable is categorical, indicate whether it is nominal or ordinal.

<i>Age</i>	<i>Employment Category</i>	<i>Education</i>	<i>Participates in Wellness Program?</i>	<i>Paycheck Benefit Deductions</i>
32	Clerical	High School	Yes	\$250
52	Professional	College	No	\$120
60	Professional	University	Yes	\$0
28	Clerical	High School	No	\$120

Answer:

Categorical: Employment Category (nominal), Education (ordinal), Participation in Wellness Program? (nominal)

Quantitative: Age (years), Paycheck Benefit Deductions (\$)

4) For each of the following, indicate whether the data are cross-sectional or time series:

- *Company quarterly profits*
- *Percentage of American adults who work full time*
- *Historical closing stock prices*

Answer:

- *Company quarterly profits*
Time Series
- *Percentage of American adults who work full time*
Cross-Sectional
- *Historical closing stock prices*
Time Series

Multiple Choice - Quiz C

1) In the fall of 2010 a research company conducted its *Internet & Life Project* through telephone interviews with a sample of Canadian adults aged 18 and older about online shopping. Canadian adults aged 18 and older constitute the _____ of the study.

- A) Who
- B) What
- C) When
- D) Where
- E) How

Answer: A

2) A few of the variables for which data were collected in the *Internet & Life Project* study include age, gender, income, and number of hours spent shopping online per month. Which of the variables is categorical?

- A) Age
- B) Gender
- C) Income
- D) Number of hours spent shopping online
- E) None

Answer: B

3) The *Internet & Life Project* study also asked respondents to indicate their education level on the following scale: *Less than High School, High School, Some College, College, University*. Which of the following statements is (are) true?

- A) Education level is a time series variable.
- B) Education level is nominal scaled.
- C) Education level is a quantitative variable.
- D) Education level is a categorical variable.
- E) Both A and B

Answer: D

4) *Consumer Reports Health* routinely compares drugs in terms of effectiveness and safety. In summer 2008 they reviewed drugs used to treat arthritis. Among the information reported was convenience of use (how many pills required each day) and possible side effects (e.g., dizziness, stomach upset). Convenience of use and possible side effects constitute the _____ of the study.

- A) Who
- B) What
- C) When
- D) Where
- E) How

Answer: B

5) What is the “Who” in the *Consumer Reports Health* study on the effectiveness and safety of drugs used to treat arthritis?

- A) drugs to treat arthritis currently on the market
- B) convenience of use and possible side effects
- C) summer 2008
- D) Canada
- E) testing on drugs

Answer: A

6) In the *Consumer Reports Health* study on arthritis drugs, possible side effects is what kind of variable?

- A) Quantitative
- B) Categorical
- C) Nominal
- D) Both A and C
- E) Both B and C

Answer: E

7) The *Consumer Reports Health* study on arthritis drugs also took into consideration cost. Cost is

- A) is a nominal variable.
- B) is a categorical variable.
- C) is a quantitative variable.
- D) is an ordinal variable.
- E) is an irrelevant variable.

Answer: C

8) The Human Resources Department of a large corporation maintains records on its employees. Data are maintained of the following variables: *Age, Employment Category, Education, Whether or not the employee participates in a wellness program, and Paycheck benefit deductions*. Which of these variables are categorical?

- A) *Age, Employment Category, and Education*
- B) *Employment Category, Education, and Whether or not the employee participates in a wellness program*
- C) *Education, Whether or not the employee participates in a wellness program, and Paycheck benefit deductions*
- D) *Age only*
- E) *Education only.*

Answer: B

9) Which of the following is (are) based on cross sectional data?

- A) Company quarterly profits
- B) Percentage of Canadian adults who work full time
- C) Historical closing stock prices
- D) Yearly student enrollments
- E) Annual costs

Answer: B

10) Which of the following is (are) time series data?

- A) Number of employees in 2010
- B) This month's demand for an automotive part
- C) This quarter's sales of automobiles
- D) Weekly receipts at a clothing boutique
- E) Percentage of employees who are female

Answer: D