

Quiz B

Objectives:

- Organize data into a table with multiple variables (columns) and cases (rows).
 - Read and interpret data tables.
 - Distinguish categorical from numerical variables. Be aware that some categorical variables (ordinal) define an ordering of the cases.
 - Recognize time series data.
 - Identify when recoding or aggregating data are useful.
 - Understand additional attributes of data.
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A medical center obtains the following information for each patient that visits the office: Date, Name, Gender, an Identification Number, the Procedure Performed, and the Total Charge for the visit. A data table is used to organize the information collected each day.

Section 2.1 – Data Tables

[Objective: Organize data into a table with multiple variables (columns) and cases (rows).]

1. For a given day, 20 patients visited the office. How many columns would the data table have for that particular day?
- (a) 20 (b) 6 (c) 120 (d) 26

Section 2.2 – Categorical and Numerical Data

[Objective: Distinguish categorical from numerical variables. Be aware that some categorical variables (ordinal) define an ordering of the cases.]

2. The Identification Number for each patient represents which type of variable:
- (a) Numerical (b) Categorical (c) Time Series (d) Observation

Section 2.3 – Recoding and Aggregation

[Objective: Identify when recoding or aggregating data are useful.]

3. At the end of each month, a new column is created for the data table using the information contained in “Procedure Performed.” The new column is labeled “Procedure Type” with categories “Surgical” and “Non-Surgical.” This modification is an example of:
- (a) Aggregation (b) An ordinal variable (c) Cases (d) Re-coding (e) A Likert Scale
4. At the end of each quarter, a data table is created with a column for “Gender” with categories “Male” and “Female,” a column for the Total Number of each gender that visited the center during that quarter, and a column with the Total Charges for each gender that quarter. This procedure is an example of:
- (a) Aggregation (b) Re-coding (c) A Likert Scale (d) Time Series
(e) Change in frequency

Section 2.4 – Time Series

[Objective: Recognize time series data.]

5. Another data table is created at the end of the quarter with a column for “Date” and a column for the “Total Charges” for that date. This summary provides:
- (a) An aggregation (b) A time series (c) A Likert scale (d) An ordinal variable
(e) A timeplot

2 Chapter 2: Data

Section 2.2 – Categorical and Numerical Data

[Objective: Distinguish categorical from numerical variables. Be aware that some categorical variables (ordinal) define an ordering of the cases.]

6. Before leaving the center, patients are asked to respond to a survey concerning the amount of time they had to wait before seeing a doctor. The survey reads as follows: “Please circle the appropriate **number** below concerning the length of time you waited to see a doctor. Was the length of time you had to wait:”

| | | | |
|-------|-------------------------|------|---------------------|
| Brief | About what you expected | Long | Inconveniently Long |
| 1 | 2 | 3 | 4 |

Based on the results, another column is added to the data table with the heading “Length of Wait” and the number circled by the patient is recorded. Which type of variable is “Length of Wait”?

- (a) Numerical (b) Ordinal (c) Nominal (d) Re-coded (e) An aggregation

A credit card company creates a table of its 50,000 customers. The table records the Account Number, Payment Due, Total Expenditures, Due Date, Paid (Yes or No), Amount Paid and Credit Limit.

Section 2.1 – Data Tables

[Objective: Organize data into a table with multiple variables (columns) and cases (rows).]

7. How many cases will this table have?
(a) 7 (b) 8 (c) 50,000 (d) cannot determine from information given

Section 2.2 – Categorical and Numerical Data

[Objective: Distinguish categorical from numerical variables. Be aware that some categorical variables (ordinal) define an ordering of the cases.]

8. In the table, what type of variable is Payment Due?
(a) Numerical (b) Categorical (c) Time Series (d) Observation

Section 2.3 – Recoding and Aggregation

[Objective: Identify when recoding or aggregating data are useful.]

9. Which of the following is a good example of aggregation?
(a) Creating a new column titled Overdue that records a “YES” if a customer is past due on their payment and a “NO” if the customer paid the amount due by the due date.
(b) Create an additional table of Credit Limit, the frequency in each credit limit bracket, and the total expenditures in each credit limit bracket.

Section 2.4 – Time Series

[Objective: Recognize time series data.]

10. A financial advisor wants to look at a client’s net returns over the past 10 years for each of the client’s mutual funds. Determine (a) if the situation describes time series or cross-sectional data (b) Give a name to each variable in the data table and determine if the variable is categorical or numerical.

The data table below represents a portion of the records a company keeps of its employees. HLOEA stands for “Highest Level of Education Attained” where 0 through 6 represent HS, BA, BS, MA, MS, MBA, and PHD respectively.

| Employee | Years | HLOEA | Dept. |
|-----------|-------|-------|----------|
| John A. | 5 | 1 | Finance |
| Betty C. | 10 | 0 | Sales |
| Lorrie M. | 12 | 6 | Research |
| Fred G. | 8 | 2 | IT |

| | | | |
|----------|----|---|-----------|
| Todd B. | 9 | 1 | Sales |
| Susan L. | 11 | 5 | Marketing |

Section 2.1 – Data Tables

[Objective: Read and interpret data tables.]

11. What type of variable is HLOEA? Does it make sense to average the values of this variable?
- (a) Ordinal; Yes, an average makes sense.
 - (b) Categorical; No, an average does not make sense.
 - (c) Ordinal; No, an average does not make sense.
 - (d) Categorical; Yes, an average makes sense.
12. Criticize the choice of variables in this table.

Section 2.5 – Further Attributes of Data

[Objective: Understand additional attributes of data.]

13. A survey claims that 91% of consumers of energy drinks prefer the 8HrNRG brand. Before you quote this number, what should you first do?
- (a) Ask friends if they drink 8HrNRG
 - (b) Determine if the 8HrNRG company conducted the survey
 - (c) Find the times the respondents answered the survey
 - (d) Watch commercials for 8HrNRG

Answers

1. B
2. B
3. D
4. A
5. B
6. B
7. C
8. A
9. B
10. (a) time series (b) Mutual Fund Name – categorical, Net Return – numerical (in dollars), Year – numerical
11. B
12. Answers will vary but should criticize the use of an acronym (HLOEA) and using numbers to represent college degrees.
13. B