Test Bank for Data Science For All 1st Davis

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Data Science for All, 1e **(Glanz/Davis)**
Chapter 1 What is Data Science?

1.1 Introduction to Data Science

1 Define terms relating to data science.

1) Which of the following best describes the interdisciplinary nature of data science?
A) Data science combines statistics, computer science, and domain expertise to extract knowledge from data.
B) Data science is solely focused on statistical analysis.
C) Data science is primarily about data visualization.
D) Data science only involves machine learning.
Answer: A

2) What are the three iterative components of the data science life cycle?
A) Data preparation, analysis, and storytelling
B) Data collection, visualization, and deletion
C) Data extraction, transformation, and archiving
D) Data acquisition, modeling, and disposal
Answer: A

2 Identify the scope of data science including its interdisciplinary nature or life cycle.

1) Which term is defined as the process of collecting, cleaning, transforming, integrating, and managing data for effective analysis and storytelling?
A) Data preparation
B) Data visualization
C) Data modeling
D) Data archiving
Answer: A

2) In the context of data science, what does "data storytelling" refer to?
A) Communicating data insights through summaries, visualizations, and narratives.
B) Collecting and cleaning raw data.
C) Analyzing data to find patterns.
D) Storing data in a structured format.
Answer: A

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3 Answer questions relating to the interdisciplinary nature or life cycle of data science.

1) Why is data science considered interdisciplinary?
A) It combines statistics, computer science, and domain expertise.
B) It focuses solely on statistical analysis.
C) It is limited to computer science applications.
D) It only involves data visualization.
Answer: A

2) What process involves cleaning, transforming, and integrating data to make them useful for analysis and storytelling?
A) Data wrangling
B) Data visualization
C) Data modeling
D) Data archiving
Answer: A

1.2 Data in Tables

1 Answer questions about the relationship of observations and variables.

1) What is a Boolean variable type in data tables?
A) A variable that contains only two possible values, TRUE or FALSE
B) A variable that takes on only numerical values
C) A variable that can take on any text
D) A variable that describes a category
Answer: A

2) What is the relationship between an observational unit and a variable?
A) An observational unit is an entity about which data are recorded, and a variable is a recorded characteristic of that entity.
B) A variable is an entity about which data are recorded, and an observational unit is a recorded characteristic of that entity.
C) An observational unit is a subset of variables in a dataset.
D) A variable is always a numerical value associated with an observational unit.
Answer: A

2 Answer questions about tidying messy data.

1) Considering the numbers 0, -2, 3.5, and 10, which one could be converted to a Boolean value in a data analysis context?
A) 0
B) -2
C) 3.5
D) 10
Answer: A

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2) Which of the following scenarios best illustrates tidy data?
A) A table where each column is a variable, each row is an observation, and each cell contains a single value
B) A table where each column is an observation, each row is a variable, and each cell contains multiple values
C) A table where each cell contains a summary of multiple observations
D) A table where each row is a dataset, and each column is a variable
Answer: A

3 Identify different variables value and data types.

1) Looking at the numbers -3, 1.4, 1.7, and 1.9, which is most likely to be stored as an integer in a data structure?
A) -3
B) 1.4
C) 1.7
D) 1.9
Answer: A

2) Consider the values -2, 1, 3, and 4.0. Which of these could be stored as an integer or converted to a Boolean variable?
A) 1
B) -2
C) 3
D) 4.0
Answer: A

4 Describe metadata and its purpose.

1) Which of the following is NOT a characteristic that would be included in metadata?
A) Description of the analysis process
B) Variable names
C) Data set authorship
D) The coding scheme used for variables
Answer: A

2) Often, data are accompanied by a description of the data itself. Because it is data about data, what is this data description called?
A) metadata
B) keydata
C) index data
D) exclusive data
Answer: A

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1.3 Data Preparation

1 Define or describe the data wrangling process.

1) Which is not a part of the data preparation process?
A) Data storytelling
B) Data collection
C) Data wrangling
D) Data management
Answer: A

2) Which of the following activities is NOT part of the data wrangling process?
A) Developing machine learning models
B) Cleaning incomplete or inconsistent data
C) Transforming data into a structured format
D) Integrating multiple data sources
Answer: A

2 Identify and use the steps for data wrangling.

1) Which of the following is an example of raw data?
A) Data in the form originally collected
B) A processed spreadsheet ready for analysis
C) Data that has been cleaned and structured
D) A visual representation of analyzed data
Answer: A

2) What step in the data wrangling process involves merging multiple data sources?
A) Integrating data
B) Cleaning data
C) Transforming data
D) Visualizing data
Answer: A

1.4 Data Analysis and Storytelling

1 Describe or define the different types of data analysis.

1) Good data communication is necessary for what purpose?
A) Making information accessible to a broader audience
B) The transformation of raw data
C) The integration of different data sets
D) Collecting high-quality data
Answer: A

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2) Which of the following is NOT a category of data analysis?
A) Restrictive
B) Descriptive
C) Diagnostic
D) Prescriptive
Answer: A

2 Describe or define the different types of data storytelling.

1) Data storytelling is essential for what purpose?
A) Communicating complex data findings in an understandable way
B) Cleaning and preparing raw data
C) Storing and managing large data sets
D) Collecting new data from various sources
Answer: A

2) What does visualization refer to, in the context of data science?
A) The presentation of data in a graphical format
B) The prediction of future data trends
C) The descriptive analysis of data
D) The storytelling aspect of data analysis
Answer: A

1.5 Data Science in Society and Industry

1 Answer questions relating to data science in society and industry.

1) How does data science contribute to the healthcare industry?
A) By enabling personalized medicine through the analysis of patient data
B) By automating all medical procedures
C) By eliminating the need for healthcare professionals
D) By making all healthcare data public
Answer: A

2) In what way has data science impacted the retail industry?
A) By optimizing inventory management through predictive analytics
B) By completely eliminating physical stores
C) By reducing the need for customer service representatives
D) By making all transactions paper-based
Answer: A

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2 Answer questions about the importance of data science.

1) The text states that data science values include:
A) Curiosity, creativity, strategy, and insight
B) Mathematics, programming, and data storage
C) Speed, efficiency, and automation
D) Confidentiality, security, and privacy
Answer: A

2) How does data science contribute to innovation in technology?
A) By enabling the development of new products and services through data-driven insights
B) By eliminating the need for research and development
C) By making all technology self-sustaining
D) By focusing only on hardware improvements
Answer: A

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