CHAPTER 13: BUSINESS INTELLIGENCE AND DATA WAREHOUSES

1. Business intelligence is a framework that allows a business to transform data into information, information intoknowledge, and knowledge into wisdom.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.590

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. Business intelligence (BI) architecture is composed of data, people, processes, technology, and the management ofsuch components.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.592

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. A data store is used by data analysts to create queries that access the database.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.593

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. Master data management’s main goal is to provide a partial and segmented definition of all data within anorganization.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.595

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. Operational data and decision support data serve the same purpose.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.602

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. Decision support data are a snapshot of the operational data at a given point in time.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.603

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. Queries against operational data typically are broad in scope and high in complexity.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.604

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. Data warehouse data are organized and summarized by table, such as CUSTOMER and ADDRESS.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.608

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. Relational data warehouses use multidimensional data schema support to handle multidimensional data.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.610

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. The data warehouse development life cycle differs from classical systems development.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.610 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. A data warehouse designer must define common business dimensions that will be used by a data analyst to narrow asearch, group information, or describe attributes.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Moderate REF: p.612 NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: Star Schemas

1. By default, the fact table’s primary key is always formed by combining the superkeys pointing to the

Dimension tables to which they are related.

* 1. True
  2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.617 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. Normalizing fact tables improves data access performance and saves data storage space.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.619 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. Periodicity, usually expressed as current year only, previous years, or all years, provides information about the timespan of the data stored in a table.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.621 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. Multidimensional data analysis techniques include advanced computational functions.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.622 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. Advanced OLAP feature become more useful when access to them is kept simple.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.623 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. To provide better performance, some OLAP systems merge data warehouse and data mart approaches by storingsmall extracts of the data warehouse at end-user workstations.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.625 NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: Online Analytical Processing

1. A star schema is designed to optimize data query operations rather than data update operations.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.626 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. ROLAP and MOLAP vendors are working toward the integration of their respective solutions within a unifieddecision support framework.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF Difficulty: Easy REF: p.629 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. The ROLLUP extension is used with the GROUP BY clause to generate aggregates by the listed columns, includingthe last one.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Moderate REF: p.630 NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Technology TOP: SQL Extensions for OLAP

1. The CUBE extension enable you to get a grand total for each column listed in the expression
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF Difficulty: Easy REF: p.631 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. A is optimized for decision support and is generally represented by a data warehouse or a data mart.
   1. data store b. ETL tool

c. data visualization d. data analysis tool

*ANSWER:* a

PTS: 1 DIF Difficulty: Easy REF: p.593

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. are in charge of presenting data to the end user in a variety of ways.
   1. Data stores b. ETL tools

c. Data visualization tools d. Data analysis tools

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.593

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. \_\_\_\_\_ provide a unified, single point of entry for information Distribution.
   1. Decision support systems b. Portals

c. Data warehouses d. Dashboards

*ANSWER:* b

PTS: 1 DIF Difficulty: Easy REF: p.594

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. In business intelligence framework, data are captured from a production system and placed in the\_\_\_\_ on a near real-time basis.
   1. decision support system b. portal

c. data warehouse d. dashboard

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.594

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. Tools focus on the strategic and tactical use of information.
   1. Business b. Relational database management

c. Business intelligence d. Networking

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.595

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. Which of the following is a personal analytics vendor for BI applications?
   1. IBM b. Kognitio

c. Netezza d. MicroStrategy

*ANSWER:* d

PTS: 1 DIF Difficulty: Easy REF: p.602

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. From a data analyst’s point of view, decision support data differ from operational data in three main areas: time span,granularity, and .
   1. usability b. dimensionality

c. transaction processing d. sparsity

*ANSWER:* b

PTS: 1 DIF Difficulty: Easy REF: p.602

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. Operational data are commonly stored in many tables, and the stored data represent information about a given

only.

* 1. transaction b. database

c. table d. concept

*ANSWER:* a

PTS: 1 DIF Difficulty: Easy REF: p.604

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. The schema must support complex (non-normalized) data representations.
   1. snowflake b. online analytical processing

c. decision support database d. multidimensional database

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.605

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. Data implies that all business entities, data elements, data characteristics, and business metrics are describedin the same way throughout the enterprise.
   1. visualization b. analytics

c. mining d. integration

*ANSWER:* d

PTS: 1 DIF Difficulty: Easy REF: p.607

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. can serve as a test vehicle for companies exploring the potential benefits of data warehouses.
   1. Data networks b. Data marts

c. Data cubes d. OLAPs

*ANSWER:* b

PTS: 1 DIF Difficulty: Easy REF: p.610 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. Bill Inmon and Chuck Kelley created a set of 12 rules to define a(n) .
   1. data warehouse b. multidimensional cube

c. OLAP tool d. star schema

*ANSWER:* a

PTS: 1 DIF Difficulty: Easy REF: p.610 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. The basic star schema has four components: facts, , attributes, and attribute hierarchies.
   1. keys b. relationships

c. cubes d. dimensions

*ANSWER:* d

PTS: 1 DIF Difficulty: Easy REF: p.610 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. Computed or derived facts, at run time, are sometimes called to differentiate them from stored facts.
   1. schemas b. attributes

c. metrics d. dimensions

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.611 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. In a star schema, attributes are often used to search, filter, or classify .
   1. tables b. sales

c. facts d. dimensions

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.612 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. The attribute hierarchy provides a top-down data organization that is used for two main purposes:\_\_\_\_\_ and

drill-down/roll-up data analysis.

* 1. decomposition b. de-normalization

c. normalization d. aggregation

*ANSWER:* d

PTS: 1 DIF Difficulty: Easy REF: p.614

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. In star schema representation, a fact table is related to each dimension table in a relationship.
   1. many-to-one (M:1) b. many-to-many (M:M)

c. one-to many (1:M) d. one-to-one (1:1)

*ANSWER:* a

PTS: 1 DIF Difficulty: Easy REF: p.616

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. Fact and dimension tables are related by keys.
   1. shared b. primary

c. foreign d. linked

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.616

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. In a typical star schema, each dimension record is related to thousands of records.
   1. attribute b. fact

c. key d. primary

*ANSWER:* b

PTS: 1 DIF Difficulty: Easy REF: p.617 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. A schema is a type of star schema in which dimension tables can have their own dimension tables.
   1. snowflake b. starflake

c. dimension d. matrix

*ANSWER:* a

PTS: 1 DIF Difficulty: Easy REF: p.618 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. \_\_\_\_\_ splits a table into subsets of rows or columns and places the subsets close to the client computer to improvedata access time.
   1. Normalization b. Meta modeling

c. Replication d. Partitioning

*ANSWER:* d

PTS: 1 DIF Difficulty: Easy REF: p.620

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. The reliance on as the design methodology for relational databases is seen as a stumbling block to its use inOLAP systems.
   1. normalization b. denormalization

c. star schema d. multidimensional schema

*ANSWER:* a

PTS: 1 DIF Difficulty: Easy REF: p.626 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. Decision support data tend to be non-normalized, , and pre-aggregated.
   1. unique b. duplicated

c. optimized d. sorted

*ANSWER:* b

PTS: 1 DIF Difficulty: Easy REF: p.626 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. extends SQL so that it can differentiate between access requirements for data warehouse data andoperational data.
   1. ROLAP b. OLAP

c. DBMS d. BI

*ANSWER:* a

PTS: 1 DIF Difficulty: Easy REF: p.626 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. A index is based on 0 and 1 bits to represent a given condition.
   1. logical b. multidimensional

c. normal d. bitmapped

*ANSWER:* d

PTS: 1 DIF Difficulty: Easy REF: p.627 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. Conceptually, MDBMS end users visualize the stored data as a three-dimensional cube known as a .
   1. multi-cube b. database cube

c. data cube d. hyper cube

*ANSWER:* c

PTS: 1 DIF Difficulty: Easy REF: p.628 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. A multidimensional database management systems (MDBMS) uses proprietary techniques to store data in   
   n-dimensional arrays.
   1. table-like b. matrix-like

c. network-like d. cube-like

*ANSWER:* b

PTS: 1 DIF Difficulty: Easy REF: p.628 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. A \_\_\_\_\_ is a dynamic table that not only contains the SQL query command to generate the rows, but also stores theactual rows.
   1. SQL view b. materialized view

c. star schema d. data cube

*ANSWER:* b

PTS: 1 DIF Difficulty: Easy REF: p.630 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: SQL Extension for OLAP

1. is a term used to describe a comprehensive, cohesive, and integrated set of tools and processes used tocapture, collect, integrate, store, and analyze data with the purpose of generating and presenting information used tosupport business decision making.

*ANSWER:* Business intelligence

PTS: 1 DIF Difficulty: Easy REF: p.590

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. functionality ranges from simple data gathering and transformation to very complex data analysis andpresentation.

*ANSWER:* BI

business intelligence

PTS: 1 DIF Difficulty: Easy REF: p.592

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. **\_\_\_\_\_** use web-based technologies to present key business performance indicators or information in a singleintegrated view, generally using graphics in a clear, concise, and easy to understand manner.

*ANSWER:* Dashboards

PTS: 1 DIF Difficulty: Easy REF: p.594

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. Data **\_\_\_\_\_** tools are tools that provide advanced statistical analysis to uncover problems and opportunities hiddenwithin business data.

*ANSWER:* mining

PTS: 1 DIF Difficulty: Easy REF: p.594

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. **\_\_\_\_\_** are quantifiable measurements (numeric or scale based) that assess a company’s effectiveness or success inreaching its strategic and operational goals.

*ANSWER:* Key performance indicators

KPI

KPIs

Key performance indicators (KPI)

PTS: 1 DIF Difficulty: Easy REF: p.595

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. \_\_\_\_\_\_\_\_ is a collection of concepts, techniques, and processes for the proper identification, definition, and management of data elements within an organization.

*ANSWER:* Master data management

MDM

Master data management (MDM)

PTS: 1 DIF Difficulty: Easy REF: p.595

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. \_\_\_\_\_\_\_\_\_\_\_ is a method or process of government.

*ANSWER:* governance

PTS: 1 DIF Difficulty: Easy REF: p.595

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Business Intelligence

1. \_\_\_\_\_\_\_\_. means to decompose data into more atomic components or data at lower levels of aggregation.

*ANSWER:* drill down

PTS: 1 DIF Difficulty: Easy REF: p.602

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. To support a(n) **\_\_\_\_\_** adequately, the DBMS might be required to support advanced storage technologies, and evenmore importantly, to support multiple-processor technologies, such as a symmetric multiprocessor (SMP) or amassively parallel processor (MPP).

*ANSWER:* VLDB

very large database

very large database (VLDB)

PTS: 1 DIF Difficulty: Easy REF: p.607

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Decision Support Data

1. A(n) \_\_\_\_\_ is a read-only database optimized for data analysis and query processing.

*ANSWER:* data warehouse

PTS: 1 DIF Difficulty: Easy REF: p.608

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. A data **\_\_\_\_\_** is a centralized, consolidated database that integrates data derived from the entire organization andfrom multiple sources with diverse formats.

*ANSWER:* warehouse

PTS: 1 DIF Difficulty: Easy REF: p.607

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. A data **\_\_\_\_\_** is a small, single-subject data warehouse subset that provides decision support to a small group ofpeople.

*ANSWER:* mart

PTS: 1 DIF Difficulty: Easy REF: p.610

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Data Warehouse

1. **\_\_\_\_\_** are numeric measurements (values) that represent a specific business aspect or activity.

*ANSWER:* Facts

PTS: 1 DIF Difficulty: Easy REF: p.611 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. **\_\_\_\_\_** are qualifying characteristics that provide additional perspectives to a given fact.

*ANSWER:* Dimensions

PTS: 1 DIF Difficulty: Easy REF: p.611 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. In multidimensional terms, the ability to focus on slices of the cube to perform a more detailed analysis is known as**\_\_\_\_\_**.

*ANSWER:* slice and dice

PTS: 1 DIF Difficulty: Easy REF: p.613 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. The hierarchy provides the capability to perform drill-down and roll-up searches in a data warehouse.

*ANSWER:* attribute

PTS: 1 DIF Difficulty: Easy REF: p.614

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. **\_\_\_\_\_** makes a copy of a table and places it in a different location to improve access time.

*ANSWER:* Replication

PTS: 1 DIF Difficulty: Easy REF: p.620

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. The most distinctive characteristic of modern OLAP tools is their capacity for **\_\_\_\_\_** analysis.

*ANSWER:* multidimensional

PTS: 1 DIF Difficulty: Easy REF: p.621 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. To deliver efficient decision support, OLAP tools must have advanced data features.

*ANSWER:* access

PTS: 1 DIF Difficulty: Easy REF: p.623 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Star Schemas

1. OLAP systems are designed to use both operational and data **\_\_\_\_\_** data.

*ANSWER:* warehouse

PTS: 1 DIF Difficulty: Easy REF: p.625 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. **\_\_\_\_\_** online analytical processing provides OLAP functionality by using relational databases and familiar relationalquery tools to store and analyze multidimensional data.

*ANSWER:* Relational

PTS: 1 DIF Difficulty: Easy REF: p.626 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. **\_\_\_\_\_** is a measurement of the density of the data held in the data cube and is computed by dividing the totalnumber of actual values in the cube by the total number of cells in the cube.

*ANSWER:* Sparsity

PTS: 1 DIF Difficulty: Easy REF: p.628 NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Online Analytical Processing

1. What is data visualization? Name different techniques of data visualization.

*ANSWER:* Data visualization is the abstracting of data to provide information in a visual format that enhances auser's ability to effectively comprehend the meaning of the data. The goal of data visualization is to allowthe user to see the big picture in the most efficient way possible. Data visualization aggregates the datainto a format that provides at-a-glance insight into overall trends and patterns. Data visualizationtechniques can range from simple to very complex and include pie charts, line graphs, bar charts,scatter plots, Gantt charts, and heat maps.

PTS: 1 DIF Difficulty: Moderate REF: p.596

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: Business Intelligence

1. What is the difference between decision support data and operational data from the point of view of data analyst?

*ANSWER:* From a data analyst’s point of view, decision support data differ from operational data in three mainareas: time span, granularity,and dimensionality.

Time span: Operational data cover a short time frame. In contrast, decision support data tend to cover alonger time frame.

Granularity (level of aggregation): Decision support data must be presented at different levels ofaggregation, from highly summarized to nearly atomic.

Dimensionality: Operational data focus on representing individual transactions rather than the effects ofthe transactions over time. In contrast, data analysts tend to include many data dimensions and areinterested in how the data relate over those dimensions.

PTS: 1 DIF Difficulty: Moderate REF: p.602-603

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: Business Intelligence

1. Describe the use of SQL in relation to ROLAP.

*ANSWER:* Most decision support data requests require the use of multiple-pass SQL queries or multiple nested SQLstatements. To answer this criticism, ROLAP extends SQL so that it can differentiate between accessrequirements for data warehouse data (based on the star schema) and operational data (normalizedtables). A ROLAP system therefore can generate the SQL code required to access the star schemadata. Query performance is also improved because the query optimizer is modified to identify the SQLcode’s intended query targets. For example, if the query target is the data warehouse, the optimizerpasses the requests to the data warehouse. However, if the end user performs drill-down queries againstoperational data, the query optimizer identifies that operation and properly optimizes the SQL requestsbefore passing them to the operational DBMS.

PTS: 1 DIF Difficulty: Moderate REF: p.626-627 NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: Online Analytical Processing

1. What is the ROLLUP extension to the GROUP BY clause? Provide the syntax for this extension.

*ANSWER:* The ROLLUP extension is used with the GROUP BY clause to generate aggregates by differentdimensions. As you know, the GROUP BY clause will generate only one aggregate for each new valuecombination of attributes listed in the GROUP BY clause. The ROLLUP extension goes one stepfurther; it enables you to get a subtotal for each column listed except for the last one, which gets a grandtotal instead. The syntax of the GROUP BY ROLLUP command sequence is as follows:

SELECT column1 [, column2, ...], aggregate\_function(expression)

FROM table1 [, table2, …]

[WHERE condition]

GROUP BY ROLLUP (column1 [, column2, ...])[HAVING condition]

[ORDER BY column1 [, column2, …]]

PTS: 1 DIF Difficulty: Moderate REF: p.630 NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: Online Analytical Processing