CHAPTER 2: DATA MODELS

1. A data model is usually graphical.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.36

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. An implementation-ready data model needn't necessarily contain enforceable rules to guarantee the integrity of thedata.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Moderate REF: p.36

NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Data Modeling and Data Models

1. An implementation-ready data model should contain a description of the data structure that will store the end-userdata.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.36

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. Within the database environment, a data model represents data structures with the purpose of supporting a specificproblem domain.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.36

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. Even when a good database blueprint is available, an applications programmer’s view of the data should match thatof the manager and the end user.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Moderate REF: p.37

NAT: BUSPROG: AnalyticSTATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: The Importance of Data Models

1. In the context of data models, an entity is a person, place, thing, or event about which data will be collected andstored.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.37-38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Model Basic Building Blocks

1. Database designers determine the data and information that yield the required understanding of the entire business.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.39

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Business Rules

1. Business rules apply to businesses and government groups, but not to other types of organizations such as religiousgroups or research laboratories.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Moderate REF: p.39

NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Business Rules

1. Business rules must be rendered in writing.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.39

NAT: BUSPROG: Communication STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Business Rules

1. A disadvantage of the relational database management system (RDBMS) is its inability to hide the complexities ofthe relational model from the user.
   1. True
   2. False

*ANSWER:* False.

PTS: 1 DIF: Difficulty: Moderate REF: p.43

NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: The Evolution of Data Models

1. In an SQL-based relational database, each table is dependent on every other table.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.45

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. In an SQL-based relational database, rows in different tables are related based on common values in commonattributes.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.45

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Each row in the relational table is known as an entity instance or entity occurrence in the ER model.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.46

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. M:N relationships are not appropriate in a relational model.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.47

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. In Chen notation, entities and relationships have to be oriented horizontally; not vertically.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.47

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Today, most relational database products can be classified as object/relational.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.50

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The network model has structural level dependence.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.56

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The external model is the representation of the database as “seen” by the DBMS.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.60

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Degrees of Data Abstraction

1. The hierarchical model is software-independent.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.62

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Degrees of Data Abstraction

1. The relational model is hardware-dependent and software-independent.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.62

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Degrees of Data Abstraction

1. A(n) ’s main function is to help one understand the complexities of the real­world environment.
   1. node b. entity

c. model d. database

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.36

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. A(n) is anything about which data are to be collected and stored.
   1. attribute b. entity

c. relationship d. constraint

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.37

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Model Basic Building Blocks

1. A(n) represents a particular type of object in the real world.
   1. attribute b. entity

c. relationship d. node

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. A(n) is the equivalent of a field in a file system.
   1. attribute b. entity

c. relationship d. constraint

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. A(n) is bidirectional.
   1. attribute b. entity

c. relationship d. constraint

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. A(n) is a restriction placed on the data.
   1. attribute b. entity

c. relationship d. constraint

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. are important because they help to ensure data integrity.
   1. Attributes b. Entities

c. Relationships d. Constraints

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. are normally expressed in the form of rules.
   1. Attributes b. Entities

c. Relationships d. Constraints

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. Students and classes have a relationship.
   1. one-to-one b. one-to-many

c. many-to-one d. many-to-many

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.38

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. From a database point of view, the collection of data becomes meaningful only when it reflects properly defined\_\_\_\_\_.
   1. business rules
   2. business norms
   3. business goals
   4. business plans

*ANSWER:* a

PTS: 1 DIF: Difficulty: Moderate REF: p.39

NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Business Rules

1. Which of the following is true of business rules?
   1. They allow the designer to set company policies with regard to data.
   2. They allow the designer to develop business processes.
   3. They can serve as a communication tool between the users and designers.
   4. They provide a framework for the company’s self-actualization.

*ANSWER:* c

PTS: 1 DIF: Difficulty: Moderate REF: p.40

NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Business Rules

1. A noun in a business rule translates to a(n) in the data model.
   1. entity b. attribute

c. relationship d. constraint

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.40

NAT: BUSPROG: Communication STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Business Rules

1. A verb associating two nouns in a business rule translates to a(n) in the data model.
   1. entity b. attribute

c. relationship d. constraint

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.40

NAT: BUSPROG: Communication STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Business Rules

1. In the model, the basic logical structure is represented as an upside-down tree.
   1. hierarchical b. network

c. relational d. entity relationship

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.41

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. In the model, each parent can have many children, but each child has only one parent.
   1. hierarchical b. network

c. relational d. entity relationship

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.41

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The hierarchical data model was developed in the .a. 1960s b. 1970s

c. 1980s d. 1990s

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.41

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. In the model, the user perceives the database as a collection of records in 1:M relationships, where eachrecord can have more than one parent.
   1. hierarchical b. network

c. object-oriented d. entity relationship

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.41-42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The object-oriented data model was developed in the a. 1960s b. 1970s

c. 1980s d. 1990s

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. VMS/VSAM is an example of the .
   1. hierarchical model b. file system data model

c. relational data model d. XML data model

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Oracle 11g is an example of the .
   1. hierarchical model b. file system data model

c. relational data model d. XML/Hybrid data model

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. MySQL is an example of the .
   1. hierarchical model b. file system data model

c. relational data model d. XML data model

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

Relationship.

1. A(n) enables a database administrator to describe schema components.
   1. extensible markup language (XML) b. data definition language (DDL)

c. unified modeling language (UML) d. query language

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The relational data model was developed in the .a. 1960s b. 1970s

c. 1980s d. 1990s

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.43

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The model was developed to allow designers to use a graphical tool to examine structures rather thandescribing them with text.
   1. hierarchical b. network

c. object-oriented d. entity relationship

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.45

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. A(n) enables a database administrator to describe schema components.
   1. extensible markup language (XML) b. data definition language (DDL)

c. unified modeling language (UML) d. query language

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.45

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The model uses the term connectivity to label the relationship types.
   1. relational b. network

c. object-oriented d. entity relationship

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.46

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The data model is said to be a semantic data model.
   1. relational b. network

c. object-oriented d. entity relationship

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.48

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The data model uses the concept of inheritance.
   1. relational b. network

c. object-oriented d. entity relationship

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.50

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Which of the following types of HDFS nodes stores all the metadata about a file system?
   1. Data node b. Client node

c. Name node d. Map node

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.52

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Which of the following is true of NoSQL databases?
   1. They do not support distributed database architectures. b. They are not based on the relational model.
2. They are geared toward transaction consistency rather d. They do not support very large amounts of

than performance.sparse data.

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.53

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Which of the following types of HDFS nodes acts as the interface between the user application and the HDFS?
   1. Data node b. Client node

c. Name node d. Map node

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.53

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. NoSQL databases:
   1. are geared toward transaction consistency; not performance. b. support only small amounts of sparse data.

c. are based on the relational model. d. provide fault tolerance.

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.55

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Which of the following is a disadvantage of the hierarchical data model?
   1. It does not promote data sharing. b. It is not efficient with 1:M relationships.

c. It does not promote data integrity. d. It does not have standards.

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.58

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. One of the limitations of the model is that there is a lack of standards.
   1. hierarchical b. network

c. relational d. entity relationship

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.58

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The model is the end users’ view of the data environment.
   1. abstract b. external

c. conceptual d. internal

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.60

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. An internal refers to a specific representation of an internal model, using the database constructs supportedby the chosen database.
   1. tuple b. schema

c. object d. value

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.62

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Degrees of Data Abstraction

1. A(n) is a relatively simple representation of more complex real-world data structures.

*ANSWER:* data model

PTS: 1 DIF: Difficulty: Easy REF: p.36

NAT: BUSPROG: Communication STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Data Modeling and Data Models

1. A(n) is a brief, precise, and unambiguous description of a policy, procedure, or principle within a specificorganization.

*ANSWER:* business rule

PTS: 1 DIF: Difficulty: Easy REF: p.39

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Business Rules

1. A(n) in a hierarchical model is the equivalent of a record in a file system.

*ANSWER:* segment

PTS: 1 DIF: Difficulty: Easy REF: p.41

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. A(n) is the conceptual organization of an entire database as viewed by a database administrator.

*ANSWER:* schema

PTS: 1 DIF: Difficulty: Easy REF: p.42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. A(n) defines the environment in which data can be managed and is used to work with the data in thedatabase.

*ANSWER:* data manipulation language (DML)

PTS: 1 DIF: Difficulty: Easy REF: p.42

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The relational model’s foundation is a mathematical concept known as a .

*ANSWER:* relation

PTS: 1 DIF: Difficulty: Easy REF: p.43

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Each row in a relation is called a(n) .

*ANSWER:* tuple

PTS: 1 DIF: Difficulty: Easy REF: p.43

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Each column in a relation represents a(n) .

*ANSWER:* attribute

PTS: 1 DIF: Difficulty: Easy REF: p.43

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. Each row in the relational table is known as a(n) .

*ANSWER:* entity instance

PTS: 1 DIF: Difficulty: Easy REF: p.46

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. In , a three­pronged symbol represents the “many” side of the relationship.

*ANSWER:* Crow’s Foot notation

PTS: 1 DIF: Difficulty: Easy REF: p.46

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. A(n) is a collection of similar objects with a shared structure and behavior.

*ANSWER:* class

PTS: 1 DIF: Difficulty: Easy REF: p.48

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. In object­oriented terms, a(n) defines an object’s behavior.

*ANSWER:* method

PTS: 1 DIF: Difficulty: Easy REF: p.48

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. is a language based on OO concepts that describes a set of diagrams and symbols used to graphically modela system.

*ANSWER:* UML (Unified Modeling Language)

Unified Modeling Language (UML)

Unified Modeling Language

UML

PTS: 1 DIF: Difficulty: Easy REF: p.48

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: The Evolution of Data Models

1. The term is used to refer to the task of creating a conceptual data model that could be implemented in anyDBMS.

*ANSWER:* logical design

PTS: 1 DIF: Difficulty: Easy REF: p.62

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Degrees of Data Abstraction

1. The. .is the representation of a database as “seen” by the DBMS.

*ANSWER:* internal model

PTS: 1 DIF: Difficulty: Easy REF: p.62

NAT: BUSPROG: Technology STATE: DISC: Information Technologies

KEY: Bloom's: Knowledge TOP: Degrees of Data Abstraction

1. What components should an implementation-ready data model contain?

*ANSWER:* An implementation-ready data model should contain at least the following components:

A description of the data structure that will store the end-user data.

A set of enforceable rules to guarantee the integrity of the data.

A data manipulation methodology to support the real-world data transformations.

PTS: 1 DIF: Difficulty: Moderate REF: p.36

NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Data Modeling and Data Models

1. What do business rules require to be effective?

*ANSWER:* To be effective, business rules must be easy to understand and widely disseminated to ensure that everyperson in the organization shares a common interpretation of the rules. Business rules describe, in simplelanguage, the main and distinguishing characteristics of the data as viewed by the company.

PTS: 1 DIF: Difficulty: Moderate REF: p.39

NAT: BUSPROG: Communication STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Business Rules

1. What are the sources of business rules, and what is the database designer’s role with regard to business rules?

*ANSWER:* The main sources of business rules are company managers, policy makers, department managers, andwritten documentation such as a company’s procedures, standards, and operations manuals. A fasterand more direct source of business rules is direct interviews with end users. Unfortunately, becauseperceptions differ, end users are sometimes a less reliable source when it comes to specifying businessrules. For example, a maintenance department mechanic might believe that any mechanic can initiate amaintenance procedure, when actually only mechanics with inspection authorization can perform such atask. Such a distinction might seem trivial, but it can have major legal consequences. Although end usersare crucial contributors to the development of business rules, it pays to verify end-user perceptions. Toooften, interviews with several people who perform the same job yield very different perceptions of whatthe job components are. While such a discovery may point to “management problems,” that generaldiagnosis does not help the database designer. The database designer’s job is to reconcile suchdifferences and verify the results of the reconciliation to ensure that the business rules are appropriateand accurate.

PTS: 1 DIF: Difficulty: Moderate REF: p.39-40

NAT: BUSPROG: Communication STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Business Rules

1. Describe the three parts involved in any SQL-based relational database application.

*ANSWER:* From an end-user perspective, any SQL-based relational database application involves three parts: a userinterface, a set of tables stored in the database, and the SQL “engine.” Each of these parts is explainedbelow.

1. The end-user interface. Basically, the interface allows the end user to interact with the data (byautomatically generating SQL code). Each interface is a product of the software vendor’s idea ofmeaningful interaction with the data. You can also design your own customized interface with thehelp of application generators that are now standard fare in the database software arena.
2. A collection of tables stored in the database. In a relational database, all data are perceived to bestored in tables. The tables simply “present” the data to the end user in a way that is easy tounderstand. Each table is independent. Rows in different tables are related by common values incommon attributes.
3. SQL engine. Largely hidden from the end user, the SQL engine executes all queries, or datarequests. Keep in mind that the SQL engine is part of the DBMS software. The end user usesSQL to create table structures and to perform data access and table maintenance. The SQLengine processes all user requests—largely behind the scenes and without the end user’sknowledge. Hence, SQL is said to be a declarative language that tells what must be done but nothow.

PTS: 1 DIF: Difficulty: Moderate REF:p.45 NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: The Evolution of Data Models

1. Describe the conceptual model and its advantages. What is the most widely used conceptual model?

*ANSWER:* The conceptual model represents a global view of the entire database by the entire organization. That is,the conceptual model integrates all external views (entities, relationships, constraints, and processes) intoa single global view of the data in the enterprise. Also known as a conceptual schema, it is the basis forthe identification and high-level description of the main data objects (avoiding any database model-specific details).

The most widely used conceptual model is the ER model. Remember that the ER model is illustratedwith the help of the ERD, which is effectively the basic database blueprint. The ERD is used tographically represent the conceptual schema.

The conceptual model yields some important advantages. First, it provides a bird’s­eye (macro level)view of the data environment that is relatively easy to understand.

Second, the conceptual model is independent of both software and hardware. Software independencemeans that the model does not depend on the DBMS software used to implement the model. Hardwareindependence means that the model does not depend on the hardware used in the implementation of themodel. Therefore, changes in either the hardware or the DBMS software will have no effect on thedatabase design at the conceptual level. Generally, the term logical design refers to the task of creating aconceptual data model that could be implemented in any DBMS.

PTS: 1 DIF: Difficulty: Moderate REF: p.61-62

NAT: BUSPROG: Analytic STATE: DISC: Information Technologies

KEY: Bloom's: Comprehension TOP: Degrees of Data Abstraction