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Database Management Systems

Midterm Exam.

Date: 2008/04/17

Multiple Choice Questions (2.5 points per question)

- (C) 1. What is the component of a DBMS that is responsible for storing, retrieving, and updating data?
A)data dictionary B)data management engine C)database engine D)query engine
- (B) 2. The tool which assists in generating input screens is referred to as:
A)data dictionary B)forms generator C)input screen tool D)report generator
- (B) 3. The ability to modify the data structure and not have to change the programs using that data is called:
A)data dictionary B)data independence C)data integrity D)referential integrity
- (B) 4. Which of the following items is not a DBMS:
A)Access B)Acrobat Reader C)Oracle D)SQL Server
- (B) 5. The database design that uses a hierarchical data structure, but incorporates multiple data entry points is called a:
A)Hierarchical database B)Network database C)Object oriented database D)Relational database
- (D) 6. Which of the following is an extension of the Relational Database model?
A)Hierarchical database B)Multidimensional database C)Network database D)Object oriented database
- (D) 7. What is the main strength of Relational Databases?
A)Ability to handle any type of data B)Defining objects provides for reuse of data definitions
C)Ease of use D)Flexibility and efficiency in accessing data
- (B) 8. Which component of the database management system (DBMS) most affects the performance (speed)?
A)Data Storage Subsystem B)Database Engine C)Query Processor D)Security Subsystem
- (C) 9. Data integrity can be improved by which of the following means _____.
A)adding indexes B)entering appropriate terms into the data dictionary C)incorporating business rules when defining the data D)using inheritance
- (C) 10. The role of the query system is to:
A)present the data in a user friendly format B)provide data security C)retrieve and manipulate data D)support data integrity
- (B) 11. Which of the following items is not the advantage of a DBMS?
A)Data Independence B)Decentralized administration of the data C)Ease of application development D)Uniform security, privacy and integrity
- (B) 12. The term referring to a physical item existing in the real world that you want to track is called:
A)class B)entity C)object D)table
- (A) 13. Two different terms are used to describe the characteristics of interest for an entity. They are properties and:
A)attributes B)classes C)entities D)traits

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- (C)14. The term used for the functions and procedures that work on class data is:
A)attributes B)entity C)methods D)objects
- (D)15. The database model that utilizes multiple tables interconnected through common attributes to store and manage information is called a:
A)Class Database B)Matrix Database C)Network Database D)Relational Database
- (B)16. The process to properly define the database tables to provide flexibility, minimize redundancy, and ensure data integrity is called:
A)class diagram B)data normalization C)database design D)design rationalization
- (A)17. The Unified Modeling Language (UML) is :
A)a set of standards that address how information should be modeled B)international standard language used to develop databases C)language used for web enabled databases D)set of tools used to connect databases operating under different database systems
- (B)18. If there is a relationship between two tables, this indicates that:
A)information from both tables is always used together B)the data contained in the two tables are related to each other in some way C)the data from one table is inherited from the other table D)the structure of the one table is inherited from the other table
- (A)19. An n-ary relationship is drawn using which symbol:
A)a diamond B)a line with arrows showing direction C)a line without arrows showing direction D)a rectangle
- (C)20. An aggregation association is drawn using which symbol:
A)a line which loops back onto the same table B)small closed diamond at the end of a line connecting two tables C)small open diamond at the end of a line connecting two tables D)small triangle at the end of a line connecting the aggregated item and multiple component items
- (D)21. A generalization association is drawn using which symbol:
A)a line which loops back onto the same table B)small closed diamond at the end of a line connecting two tables C)small open diamond at the end of a line connecting two tables D)small triangle at the end of a line connecting the aggregated item and multiple component items
- (A)22. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model that a student's schedule consists of multiple classes?
A)aggregation association B)generalization association C)n-ary association D)reflexive association
- (A)23. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model the different elements contained in each classroom (i.e., projection equipment, blackboard type, computer support, etc)?
A)composition association B)generalization association C)n-ary association D)reflexive association
- (B)24. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model that a course may be of different types (i.e., lectures, seminars, labs, independent study, field research, etc)?
A)aggregation association B)generalization association C)n-ary association D)reflexive association
- (C)25. Why is it a good idea to use special associations when drawing class diagrams?

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A)It is necessary. It is impossible to draw some diagrams without using these special structures B) Specialized tools are available to create these special associations C)They convey more information about the underlying structure of the database, making them easier to understand D)They hide the detail concerning the database structure, making them easier to understand

(A)26. What is the special association that combines different items from multiple classes to build a new object?
A)composition association B)generalization association C)n-ary association D)reflexive association

(D)27. A generalization association supports inheritance, where:
A)higher level classes gain the properties and functions of the lower class B)lower level classes all have different properties and functions C)lower level classes all have the same properties and functions D)lower level classes gain the properties and functions of a higher class

(B)28. The process of defining and bundling all of the properties and functions into a class is called:
A)database design B)encapsulation C)inheritance D)polymorphism

(A)29. Missing data in a field:
A)is a null value B)is illegal C)will cause a warning D)will cause an error

(A)30. In a university environment, what is the appropriate multiplicity for an association linking courses with their list of pre-requisite courses? Focus on the numbers placed next to the 'Pre-requisite courses' side of the association.
A)0..* B)1..* C)0..1 D)1..1

(D)31. Which of the following statements is correct?
A)DBMS are inefficient at storing data, using significantly more disk space than would be done with traditional file based systems B)The object oriented database model is the most common database model in use today C)The purpose of class diagrams is to model the events and the methods they evoke in the database D)Network database systems tend to be more flexible in their ability to access data than Hierarchical database systems.

(D)32. Which of the following statements is not correct?
A)Data normalization minimizes data redundancy B)There can only be a single primary key defined for each table C)Specifying a zero (0) for the lower bound for the association multiplicity on a class diagram indicates that the item is optional D)Specifying an asterisk (*) for the association multiplicity on a class diagram indicates that the item is required

(~~AC~~)33. Which of the following statements is ~~not~~ correct?
A)Data normalization improves the data integrity of a database B)A reflexive association is a relationship from one class back to itself C)An entity is the database representation of a real world class D)Association generalization generates a class hierarchy

(~~X~~)34. Which of the following descriptions about relational data model is incorrect?
(A)Tuples can appear in any order and the relation will still be the same relation (B)This perception that the database is perceived by the user as tables applies only to the logical structure of the database
(C)Each cell of the relation contains exactly one atomic value (D)There are no duplicate tuples
(~~E)Relation schema is a set of relation schemas, each with a distinct name~~

(B)35. Which of the following descriptions is incorrect?
(A)An foreign key is an attribute, or set of attributes, within one relation that matches the candidate key of some relation (B)Data query language enables the DBA to define the data type (C)Data

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independence is essentially the separation of underlying file structures from the programs that operate on them. (D)Concurrency control service is a mechanism to make ensure that the database is updated correctly when multiple users are updating the database concurrently.

(D)36. Which of the following descriptions is incorrect?

(A)The benefit achieved with persistent objects provides a library of objects that can be easily reused when needed (B)Recovery services is a mechanism for recovering the database in the event that the database is damaged in any way (C)Conceptual level describes **what** data is stored in the database and the relationships among the data (**Conceptual, Implementation (or relational), Physical, figure 2.1, pp. 32**) (D)Data definition language (DDL) is a language that allows the user to tell the system what data is needed and exactly **how** to retrieve the data.

(A)37. Which of the following descriptions is incorrect?

(A)The conceptual data model of a database covers the **physical implementation** of the database to achieve the optimal runtime performance and storage space utilization (B)A major objective for the three-level architecture is to provide data independence (C)A system catalog, or data dictionary, is a repository of information describing the data in the database (D)The method component of an object defines the actions of the object.

(C)38. Which of the following descriptions about relational data model is incorrect?

(A)Each cell of a table contains only one atomic value (B)A database is perceived by the user as tables (C)The information contained in a single class would be stored in a tuple (D)There are no duplicate tuples

(A)39. Which of the following descriptions is incorrect?

(A)Database administrator is the process of creating a set of tables to efficiently store data, minimize redundancy, and ensure data integrity (B)Aggregation association is a relationship where individual items become elements in a new class (C)Association is the connection between classes or entities (D)Composition association is a relationship in which an object is composed of a collection of other object.

(D)40. Which of the following descriptions is incorrect?

(A)Data dictionary is a repository of information describing the data in the database (B)A constraint is a rule that is enforced on the data (C)Data manipulation language is a set of commands used to alter the data in a database (D)Data flow diagram signifies the quantities involved in an association