DATABASE

LECTURE 8 / DATABASE NORMALIZATION

اللهم صل على محمد وعلى آل محمد، كما صليت على إبراهيم وعلى آل إبراهيم
إنك حميد مجيد، اللهم بارك على محمد وعلى آل محمد كما باركت على إبراهيم
وعلى آل إبراهيم إنك حميد مجيد

AMR SHOUKRY

[ANSWERED]

1) There are … levels at which we can discuss the goodness of relation schemas
   a) 0
   b) 1
   c) 2 *
   d) 3
   (Slide 3)

2) How the tuples in a base relation are stored and updated.
   a) conceptual level
   b) logical level
   c) implementation level *
   (Slide 3)

3) How the tuples in a base relation are stored and updated.
   a) conceptual level
   b) logical level
   c) physical storage level *
   (Slide 3)

4) How users interpret the relation schemas and the meaning of their attributes
   a) conceptual level *
   b) implementation level
   c) physical storage level
   (Slide 3)

5) How users interpret the relation schemas and the meaning of their attributes
   a) logical level *
   b) implementation level
   c) physical storage level
   (Slide 3)

6) logical level =
   a) conceptual level *
   b) implementation level
   c) physical storage level
   (Slide 3)

7) physical storage level =
   a) conceptual level
   b) logical level
   c) implementation level *
   (Slide 3)

8) One goal of schema design is to … the storage space used by the base relations (and hence the corresponding files).
   a) maximize
   b) minimize *
   (Slide 4)

9) …. into relation schemas has a significant effect on storage space
   a) Grouping attributes *
   b) Ungrouping attributes
   (Slide 4)

10) When information is stored redundantly, this will lead to
   a) Wastes storage space
   b) Cause problems with update anomalies
   c) Both of them *
   (Slide 6)

11) Update anomalies
   a) Insertion anomalies
   b) Deletion anomalies
   c) Modification anomalies
   d) All of them *
   (Slide 6)

12) Insertion anomalies can be differentiated into … types
   a) 0
   b) 1
   c) 2 *
   d) 3
   (Slide 7)

13) 1-To insert a new employee tuple into EMP_DEPT, we must include either the attribute values for the department that the employee works for, or NULLs (if the employee does not work for a department as yet).
   2-It is difficult to insert a new department that has no employees as yet in the EMP_DEPT relation. The only way to do this is to place NULL values in the attributes for employee. This violates the entity integrity for EMP_DEPT because Ssn is its primary key (in figure2 [One Big Relation])
   a) Insertion anomalies *
   b) Deletion anomalies
   c) Modification anomalies
   (Slide 8-9)

14) These problems don't occur in the design of Figure 1
    a) T *
    b) F
    (Slide 9)

15) The problem of deletion anomalies is related to the second insertion anomaly situation just discussed.
    a) T *
    b) F
    (Slide 10)

16) If we delete from EMP_DEPT an employee tuple that happens to represent the last employee working for a particular department, the information concerning that department is lost from the database. (in figure2 [One Big Relation])
    a) T *
    b) F
    (Slide 10)

17) This problem does not occur in the database of Figure1 because DEPARTMENT tuples are stored separately
    a) T *
    b) F
    (Slide 10)

18) In EMP_DEPT, if we change the value of one of the attributes of a particular department—say, the manager of department 5—we must update the tuples of all employees who work in that department; otherwise, the database will become inconsistent. If we fail to update some tuples, the same department will be shown to have two different values for manager in different employee tuples, which would be wrong.
    a) Insertion anomalies
    b) Deletion anomalies
    c) Modification anomalies *
    (Slide 11)

19) ....is the process of organizing data in a database
    a) Organization
    b) Normalization *
    (Slide 12)

20) This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency
a) Organization
b) Normalization *
(Slide 12)

21) Goal of Normalization
a) eliminating redundancy
b) eliminating inconsistent dependency
c) Both of them *
(Slide 12)

22) Database Normalization is a database schema design technique, by which an existing schema is modified to … redundancy and dependency of data.
a) maximize
b) minimize *
(Slide 13)

23) Normalization split a … table into … tables and define relationships between them to increases the clarity in organizing data.
a) large – smaller *
b) small – larger
(Slide 13)

24) Normalization … clarity in organizing data in Databases
a) increases *
b) decreases
(Slide 13)

25) Normalization of a Database is achieved by following a set of rules called …. in creating the database.
a) frames
b) forms *
(Slide 13)

26) A functional dependency, denoted by X → Y, between two sets of attributes X and Y that are subsets of R specifies a constraint on the possible tuples that can form a relation state r of R.
a) T *
b) F
(Slide 14)

27) The constraint is that, for any two tuples t1 and t2 in r that have: t1[X] = t2[X], they must also have …
a) t1[X] = t2[Y]
b) t1[Y] = t2[Y] *
c) t1[Y] = t2[X]
(Slide 14)

28) This means that the values of the Y component of a tuple in r depend on, or are determined by, the values of the X component
a) Y → X
b) X → Y *
(Slide 15)

29) We also say that there is a functional dependency from X to Y, or that Y is functionally dependent on X
a) Y → X
b) X → Y *
(Slide 15)

30) The abbreviation for functional dependency is FD or f.d. The set of attributes X is called the left-hand side of the FD, and Y is called the right-hand side.
a) T *
b) F
(Slide 15)

31) If X→Y in R, this says Y→X in R
a) T
b) F *
(Slide 16)

32) If a constraint on R states that there cannot be more than one tuple with a given X-value in any relation instance r(R)—that is, X is a candidate key of R—this implies that X → Y for any subset of attributes Y of R (because the key constraint implies that no two tuples in any legal state r(R) will have the same value of X). If X is a candidate key of R, then …
a) X→R *
b) R→X
(Slide 16)

33) Database Normalization can be considered a process of analyzing the given relation schemas based on their FDs and primary keys to achieve the desirable properties of
a) Minimizing redundancy
b) Minimizing the insertion, deletion, and modification anomalies.
c) Both of them *
(Slide 19)

34) Relation schemas that do not meet certain conditions—the normal form tests—are decomposed into smaller relation schemas that meet the tests and hence possess the desirable properties.
a) T *
b) F
(Slide 19)

35) the normalization procedure provides database designers with …
a) A formal framework for analyzing relation schemas based on their keys and on the functional dependencies among their attributes
b) A series of normal form tests that can be carried out on individual relation schemas so that the relational database can be normalized to any desired degree.
c) Both of them *
(Slide 20)

36) A series of normal form tests can be carried out on individual relation schemas so that the relational database can be normalized to any desired degree.
a) T *
b) F
(Slide 20)

37) The normal form of a relation refers to the … normal form condition that it meets, and hence indicates the degree to which it has been normalized.
a) lowest
b) highest *
(Slide 21)

38) The database normalization process is divided into
a) First Normal Form (1NF)
b) Second Normal Form (2NF)
c) Third Normal Form (3NF)
d) Boyce Codd Normal Form (BCNF)
e) Fourth Normal Form (4NF)
f) Fifth Normal Form (5NF)
g) All of the above *
(Slide 22)

لا تنسونا من صالح دعائكم

اللهم صل على محمد وعلى آل محمد، كما صليت على إبراهيم وعلى آل إبراهيم إنك حميد مجيد، اللهم بارك على محمد وعلى آل محمد كما باركت على إبراهيم وعلى آل إبراهيم إنك حميد مجيد

Linked in