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70-229

Designing and Implementing Databases with Microsoft SQL Server 2000, Enterprise Edition

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QUESTION NO: 1

You work as a database developer for Certkiller.com. Certkiller.com is an online training provider and its network consists of a single Active Directory domain named Certkiller.com. All servers on the Certkiller.com network run Microsoft Windows Server 2000 and the database servers run Microsoft SQL Server 2000.
You are designing a database for Certkiller.com. This database base must accommodate the customers who want to make reservations online or by phone to sit for examinations. To make a reservation, a new customer is required to provide his/her name, telephone number, address and relevant examination information.
This relevant information includes details like certification, preferred dates and times. Once a reservation has been confirmed, the customer will receive a unique customer number, a unique reference number that pertains to the reservation, and accurate examination information. This accurate information include details such as vendor, examination number, name of certification, data and time of the reservation.
1. To make another reservation at a later time, the customer must provide his/her customer number.
2. To enquire about an existing reservation or to change it, the customer must provide the reservation's reference number.
Examination numbers are assigned according to the certification that it contributes toward and are independent from vendor to vendor. Each vendor may offer one or more examinations towards certain certifications. The database should be normalized to the third normal form. You create the following tables:
CREATE TABLE Examinations
(Vendor int,
ExamID int,
Certification nvarchar (20))
CREATE TABLE TimeTable
(Vendor int,
ExamID int,
ExamDate datetime)
Now you need to define the foreign keys for these tables. What should you do?

A. Define a FOREIGN KEY constraint on the Vendor, ExamID and ExamDate columns in the TimeTable table that references the Examinations table.
B. Define a FOREIGN KEY constraint on the Vendor, ExamID and Certification columns in the Examinations table that references the TimeTable table.
C. Define a FOREIGN KEY constraint on the Vendor and ExamDate columns in the TimeTable table that references the Examinations table.
D. Define a FOREIGN KEY constraint on the Vendor and ExamDate columns in the Examinations table that references the TimeTable table.

Answer: C

Explanation:
Foreign Key constraints are used to enforce referential integrity of data. Online Transaction Processing (OLTP) systems usually has a large number of relatively narrow interrelated tables. Thus for optimal performance regarding query activity, a database should comply with formal criteria called normal forms.
A First Normal Form for a database is when no table has columns that define similar attributes and if no columns contains multiple values in a single row.
A Second Normal Form for a database is if it complies with the first normal form; and also if each column that is not part of a primary key depends on all of the columns that are covered by the primary key in that table and not a subset of the columns that are covered by the primary key.
The Third Normal Form for a database is when it complies with the second normal form and if, in each table, columns that are not covered by the primary key do not depend on each other.
In this scenario:
1. Each row in the Examinations table represents an examination.
2. Each examination is uniquely identified by the vendor and the examination number
3. Each row in the
TimeTable table represents an individual occurrence of the examination that is registered in the Examinations table.
4. For each examination occurrence in the TimeTable table, exactly one examination with the same combination of values in the Vendor and ExamID columns must exist in the Examinations table.
Thus the Vendor and ExamID columns constitute a foreign key on the TimeTable table that references the Vendor and the ExamID columns in the Examinations table.
You should use the following statements to define the primary and foreign keys on the Examinations and TimeTable tables:
ALTER TABLE Examinations ADD PRIMARY KEY (ExamID, Vendor) ALTER TABLE TimeTable ADD
PRIMARY KEY (ExamID, Vendor, ExamDate),
FOREIGN KEY (ExamID, Vendor) REFERENCES Examinations (ExamID, Vendor) Reference: Microsoft SQL Server 2000 Books Online (2004), Contents: Creating and Maintaining Databases, "Databases", "Database Design Considerations," "Normalization."
Microsoft SQL Server 2000 Books Online (2004), Contents: Creating and Maintaining Databases, "Tables", "Designing Tables," "Using Constraints, Defaults, and Null Values, " FOREIGN KEY constraints."

QUESTION NO: 2

You work as a database developer for Certkiller.com. Certkiller.com is an online training provider and its network consists of a single Active Directory domain named Certkiller.com. All servers on the Certkiller.com network run Microsoft

Windows Server 2000 and the database servers run Microsoft SQL Server 2000.
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1. To make another reservation at a later time, the customer must provide his/her customer number.
2. To enquire about an existing reservation or to change it, the customer must provide the reservation's reference number.
The database must be normalized to the third normal form. To this end you need to decide on which tables you should create in the database.
What should you do?

A. Create a Customers table that contains only the columns for the CustomerID, Name, Address and Telephone number.
B. Create a Reservations table that contains only the columns for the CustomerID, Name, Address, Telephone number, reference number, vendor, examination number, examination date and reservation date.
C. Create an Examinations table that contains only the columns for the vendor, examination number, examination date and time and certification.
D. Create a Reservations table that contains only the columns for the CustomerID, certification, vendor, examination number, examination date and reservation date.

Answer: A

Explanation:
Normalization is usually applied to OLTP systems which are usually subject to extensive additions, deletions and modifications of data because in many situations normalization improves database performance.
A First Normal Form for a database is when no table has columns that define similar attributes and if no columns contains multiple values in a single row.
A Second Normal Form for a database is if it complies with the first normal form; and also if each column that is not part of a primary key depends on all of the columns that are covered by the primary key in that table and not a subset of the columns that are covered by the primary key.
The Third Normal Form for a database is when it complies with the second normal form and if, in each table, columns that are not covered by the primary key do not depend on