**Normalization**

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Week 6 Assignment 2

CIS 111

Intro To Relat Dbase Mgt Syst

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November 13, 2017

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**Normalization**

1. **Describe the steps that you would use in order to convert database tables to the First Normal Form, the Second Normal Form, and the Third Normal Form.**

What is Normalization? It is the process of bringing or returning something to a normal condition. In a database system, it is the process of reorganizing data in a database so that it meets two basic requirements which are no data redundancy and logical data dependence. No data redundancy means there would be no data which is going to be stored in more than one place. While data dependencies are logical can mean all data with related items are stored together. It can be done by organizing the attributes and relations of a relational database so that the integrity of data is achieved. Normalization can also simplify the process of designing the database which achieves the optimal structure composition of an atomic elements.

The process can be in three forms which are the first, second and third form. The First normal form has the following criteria, eliminate repeating groups in individual tables, create a separate table for each set of related data and Identify each set of related data with a primary key. The above-mentioned criteria make the table to be in the first form (1NF). The next form is the second form which is characterized by a table which is in first form and it does not have partial dependencies. And the last one which is a third form is which is characterized by a table that is in second normal form and it doesn’t have transitive dependencies. And this form is the one which is the normal form. It is used to normalize a database design which result in the reduction of the duplicate of data and ensure referential integrity

Moreover, the third normal form has an improvement in the database processing which result in a saving of storage costs.

1. **Provide one (1) example that is relevant to a college environment that illustrates reasons for converting database tables to the First, Second, and Third Normal Forms.**

All the courses which are offered on the campus have records. If students take some courses, some of the data like their attributes such student number, student name, date of birth, gender and email addresses may repeat in more than once. In addition, the professor may teach more than one course. As a result, the structured must be converted into a normal form to simplify the whole process. The tables in the college database must be converted into the first, second and third normal form.

1. **Explain typical situations when denormalizing a table is acceptable. Provide one (1) example of denormalizing a database table to justify your response.**

Denormalization according an article “is a strategy that database managers use to increase the performance of a database infrastructure. It involves adding redundant data to a normalized database to reduce certain types of problems with database queries that combine data from various tables into a single table”

It is acceptable to denormalized a table to generate a summarized report on a separate table. If you want to get a report about the student who are taking math’s class, it will be easy to get that report using a query which is simple.

1. **Explain the significant manner in which business rules impact both database normalization and the decision to denormalize database tables.**

The business rules would be significant impacted by normalization and denormalization in a way where the terms used in the database would be confused because the business rules written on different tables will change. There must be a careful rule so that it cannot mess the rules written for deferent tables within the database. The first rules must apply to the denormalization.

**Bibliography.**

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