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Week 1: Assignment 1

Instructions

Answer the following questions completely for this assignment based on Chapters 1 and 2:

1. What is the limitation of using a flat file to store data?

A flat-file database has no predetermined limit for the number of rows it might contain. The size of a flat-file database may be limited by the host computer's operating system (OS) or its file management system. If a database application is used to create the flat-file database, that application may apply limits to the number of rows, column lengths, and overall file size.

1. What is the "repeating group" problem?

A repeating group is a repeating series of information in a database. It is a common problem organization face, as the same set of information is present in different areas can cause data redundancy and data inconsistency. While the problem can be manageable in small organizations that need to manage only a small set of data, for bigger organizations managing huge volumes of information, it can be a nightmare managing several instances of repeating groups. One of the most common ways of resolving repeating groups is assigning a primary key to the table containing the repeating groups.

1. Define the term "query language" in your own words.

It is a user question directed to a database to obtain the desired answers through a command in a predefined code format by the application.

1. What are the responsibilities of an RDBMS?

The RDBMS must control the storage, retrieval, deletion, security, and integrity of data in a relational database.

1. What is a major limitation of using a spreadsheet, such as Microsoft Excel, to store data?

With many spreadsheets being used by professionals from different areas of the company, it is practically impossible to consolidate information simultaneously and analyze it with the speed required in business today, normally, companies that still operate with Excel need to have a fully dedicated team for consolidating information, which ends up making operating costs higher.

1. What are the basic rules of thumb when designing a database?

Break down the data into columns, have a unique way of identifying each row, remove repeating information, get the naming right, and no nulls.

1. How would you define what a "NULL" is? What is its value?

Null, in a database context, is the total absence of a value in a certain field and means that the field value is unknown. Null is not the same as a zero value for a numerical field, text field or space value. Null implies that a database field value has not been stored.

1. Briefly define the following terms:
2. Selection

Selection means that the return of a query will be answered horizontally, in the form of rows from a given table. For example, requesting employee data with ID #009.

1. Projection

Projection means that the return of a query will be the combination of two or more columns within the same table. For example, requesting the names and telephone numbers of employees who live in San Diego.

1. Join

Join means that the return of a query will be the combination of the contents of two or more tables that complement the data. For example, employee data (HR table) with login accesses (IT table), consolidating according to employee ID.