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Chapter 1 Review.

1.

Database Management System (DBMS): A software package/system to facilitate the creation and maintenance of a computerized database.

Database System: The DBMS software together with the data itself, and sometimes includes the applications.

Meta-data: The database definition or descriptive information that stored by the DBMS in the form of a database catalog or dictionary.

Transaction-processing applications: A major part of database applications that allow a set of concurrent users to retrieve from and to update the database.

2.

Two different types of database users:

+ Actors on the Scene: Those who actually use and control the database content, and those who design, develop, and maintain database applications. Actors on the scene may include roles such as database administrator, who responsible for authorizing access to database, controlling its use and monitoring efficiency of operations, or the database designers who in charge of defining the content, structure, …

+ Workers behind the scene: Those who design and develop the DBMS software and related tool, and the computer systems operators, such as system designers and implementers, or tool developers, …

3.

a.

The columns in the database that would need to be updated if the name 'CS' is changed to 'CSSE':

In Student Table, column 'Major' and 'Course_number' will be updated, since it clarified as 'CS' previously, now changing to 'CSSE' in the department's name and the prefix of the course.

In Course Table, column 'Department' will be updated (same reason with the Student Table).

In Section Table, column 'Course_number' will be updated, because course name had the prefix of 'CS', now changed to 'CSSE'.

In Prerequisite Table, both columns 'Course_number' and 'Prerequisite_number' will be updated.

b.

In the Course, Section, and Prerequisite, we modify the 'Course_number' by deleting the prefix 'CS' and changed the name of the column to 'Course_ID'. In that way, if we changed the 'CS' to 'CSSE', only the 'Department' will be changed, which satisfy the condition of only one column need to be updated.