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DATA BASE MANAGEMENT SYSTEMS

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Database System Architecture

- There are four different types of database-system users, differentiated by the way they expect to interact with the system.
- Different types of user interfaces have been designed for the different types of users.

Database System Architecture

- **Naive users** are unsophisticated users who interact with the system by invoking one of the application programs that have been written previously.
- For example, a bank teller who needs to transfer \$50 from account *A* to account *B* invokes a program called *transfer*.

Database System Architecture

- **Application programmers** are computer professionals who write application programs.
- Application programmers can choose from many tools to develop user interfaces.
- **Rapid application development (RAD)** tools are tools that enable an application programmer to construct forms and reports without writing a program.

Database System Architecture

- **Sophisticated users** interact with the system without writing programs. Instead, they form their requests in a database query language.
- They submit each such query to a **query processor**, whose function is to break down DML statements into instructions that the storage manager understands.
- **Analysts** who submit queries to explore data in the database fall in this category.

Database System Architecture

- **OnLine Analytical Processing (OLAP)** tools simplify analysts' tasks by letting them view summaries of data in different ways.
- For instance, an analyst can see total sales by region (for example, North, South, East, and West), or by product, or by a combination of region and product (that is, total sales of each product in each region).

Database System Architecture

- ***Database Architecture:*** The architecture of a database system is greatly influenced by the underlying computer system on which the database system runs.
- Database systems can be centralized, or client-server, where one server machine executes work on behalf of multiple client machines.
- Database systems can also be designed to exploit parallel computer architectures. Distributed databases span multiple geographically separated machines.

Database System Architecture

- A database system is partitioned into modules that deal with each of the responsibilities of the overall system. The functional components of a database system can be broadly divided into the **storage manager** and the **query processor** components.
- The storage manager is important because databases typically require a large amount of storage space.
- The query processor is important because it helps the database system simplify and facilitate access to data.

Database System Architecture

- Figure 1. shows the Database System Architecture in detail.
- The major components are
 - 1) View Level components
 - 2) Query Processor
 - 3) Storage Manager and
 - 4) Disk Storage

Database System Architecture

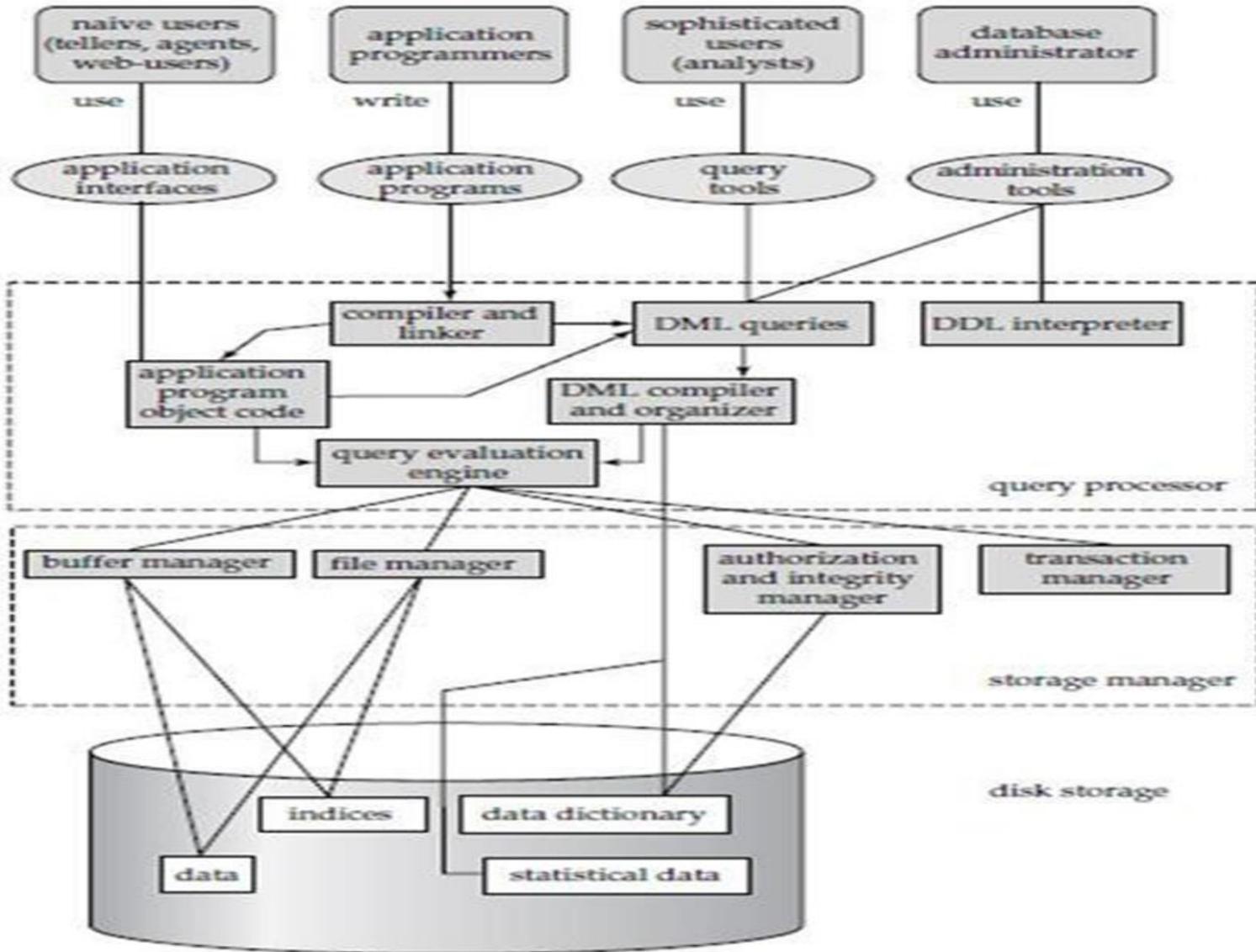


Figure 1. Database System Architecture