

# Introduction to Databases

Database Management System (DBMS) provides....

... <u>efficient</u>, r<u>eliable</u>, convenient, and <u>safe</u> multi-user storage of and access to <u>massive</u> amounts of persistent data.

- Massive terabytes
- Persistent
- Safe hardware, software, power, users
- Multi-user concurrency control
- Convenient < Physical data independence high-level query languages declarative Efficient thousands of queries (updates per second.

  - Reliable 99.99999%

- Database applications may be programmed via "frameworks"
- DBMS may run in conjunction with "middleware"
- Data-intensive applications may not use DBMS at all

DBMS itself

#### **Key concepts**

Data model Set of records, XML, graph

- Schema versus data

  Types

  Variables
- Data definition language (DDL) Set up schema
- Data manipulation or query language (DML)

  Querying and modifying

#### Key people

DBMS implementer

Database designer

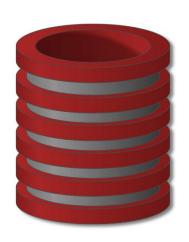
Database application developer

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Programs that operate on database
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Database administrator

Loads data, Keeps running smoothly

Whether you know it or not, you're using a database every day



Hour.