Database Management

Relational Database Management Systems

Indranil Saha

Department of Computer Science and Engineering
Indian Institute of Technology Kanpur

Examples of RDBMS

- SQLite
- MYSQL
- PostGreSQL

SQLite

- A self-contained, file-based, and fully open-source RDBMS
- Known for its portability, reliability, and strong performance even in low-memory environments
- Its transactions are ACID-compliant, even in cases where the system crashes or undergoes a power outage

SQLite: Advantages and Disadvantages

- **Advantages**
  - Small footprint
  - User-friendly
  - Portable
- **Disadvantages**
  - Limited Concurrency
  - No user management
  - Security

MYSQL

- A feature-rich product that powers many of the world's largest websites and applications, including Twitter, Facebook, Netflix, and Spotify
- Designed for speed and reliability, at the expense of full adherence to standard SQL
- A server process stands between the database and other applications
  - allows for greater control over who has access to the database
- Ensures ACID compliance

MySQL: Advantages and Disadvantages

- **Advantages**
  - Popularity and ease of use
  - Security
  - Speed
  - Replication
- **Disadvantages**
  - Known limitations
  - Licensing and proprietary features

PostGreSQL

- Arguably the most advanced open-source relational database in the world
- Highly extensible and standards compliant
- An object-relational database, meaning that it includes features like table inheritance and function overloading
- Capable of efficiently handling multiple tasks at the same time, a characteristic known as concurrency
- Ensures ACID compliance

PostGreSQL: Advantages and Disadvantages

- **Advantages**
  - SQL compliance
  - Open-source and community-driven
  - Extensible
- **Disadvantages**
  - Memory performance
  - Lack of Speed
  - Complex replication

Database Management

Relational Database Management Systems

Indranil Saha

Department of Computer Science and Engineering
Indian Institute of Technology Kanpur