

Ch1. An Overview of Database Systems

1. Databases and File Processing Systems

File Processing Systems	Database Systems
Data are stored separately for each application	Data are organized centrally in a database
Uncontrolled data redundancy	Controlled data redundancy
Programs are tightly coupled with data structures	Program-data independence is ensured
Difficult to maintain and extend when requirements change	Easy to maintain and extend
Data sharing among applications is difficult	Data sharing is supported for multiple users and applications

2. Three-Schema Architecture and Data Independence

A database system adopts the three-schema architecture:

- **External level:** user views tailored to different user groups.
- **Conceptual level:** a complete logical description of the entire database.
- **Internal level:** the physical storage structure of the database.

