Introduction to Information Systems

Essentials for the Internetworked E-Business Enterprise

Eleventh Edition

James A. O'Brien

Chapter 3

Data Resource Management

Irwin/McGraw-Hill

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Chapter Objectives

- **Explain the importance of implementing data resource management processes and technologies in an organization.**
- **Outline the advantages of a database management approach to managing the data resources of a business.**
- **Explain how database management software helps business professionals and supports the operations and management of a business.**

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Chapter Objectives

- **Provide examples to illustrate each of the following concepts:**
  - **Major types of databases**
  - **Data warehouses and data mining**
  - **Logical data elements**
  - **Fundamental database structures**
  - **Database access methods**
  - **Database development.**

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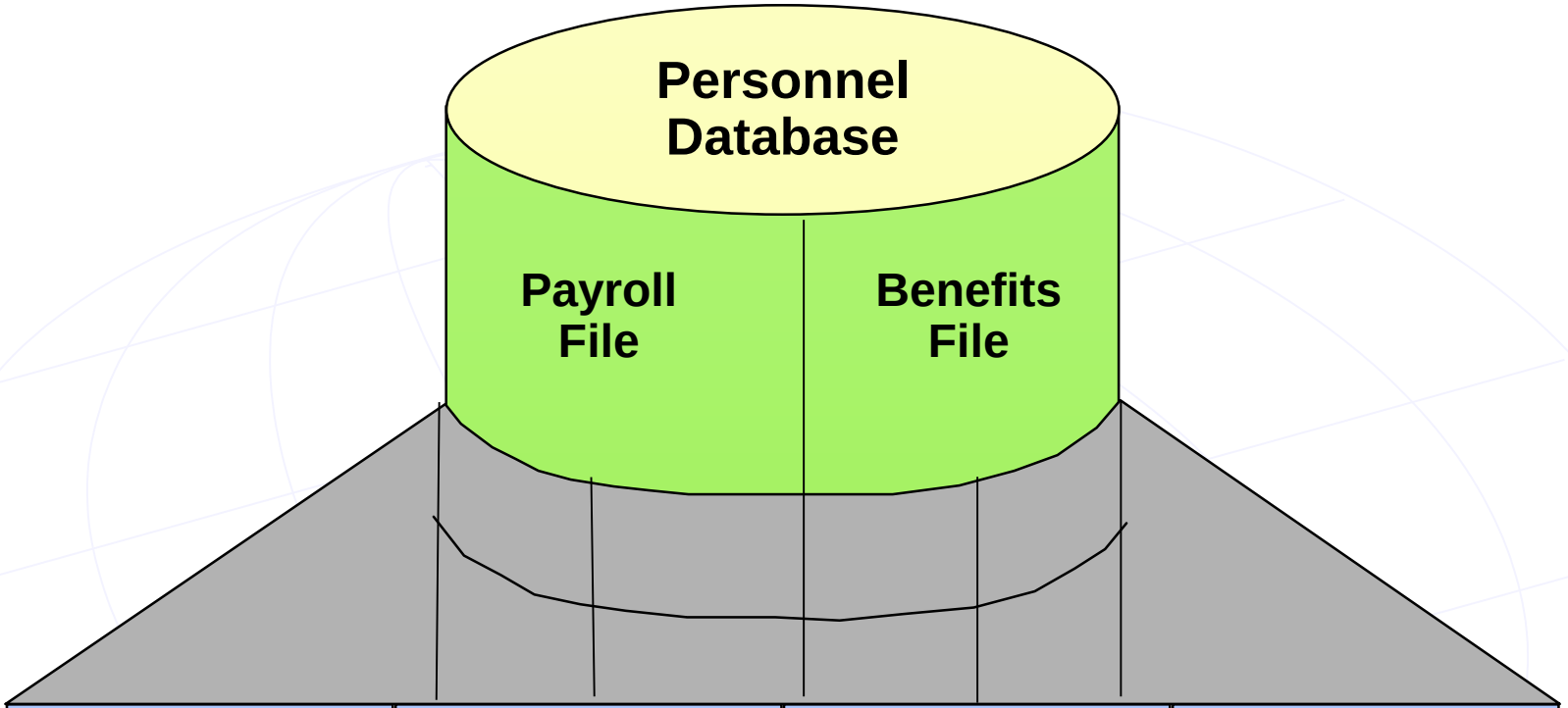
Logical Data Elements



Employee Record 1			Employee Record 2			Employee Record 3			Employee Record 4		
Name	SS	Salary	Name	SS	Salary	Name	SS	Salary	Name	SS	Salary
Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data

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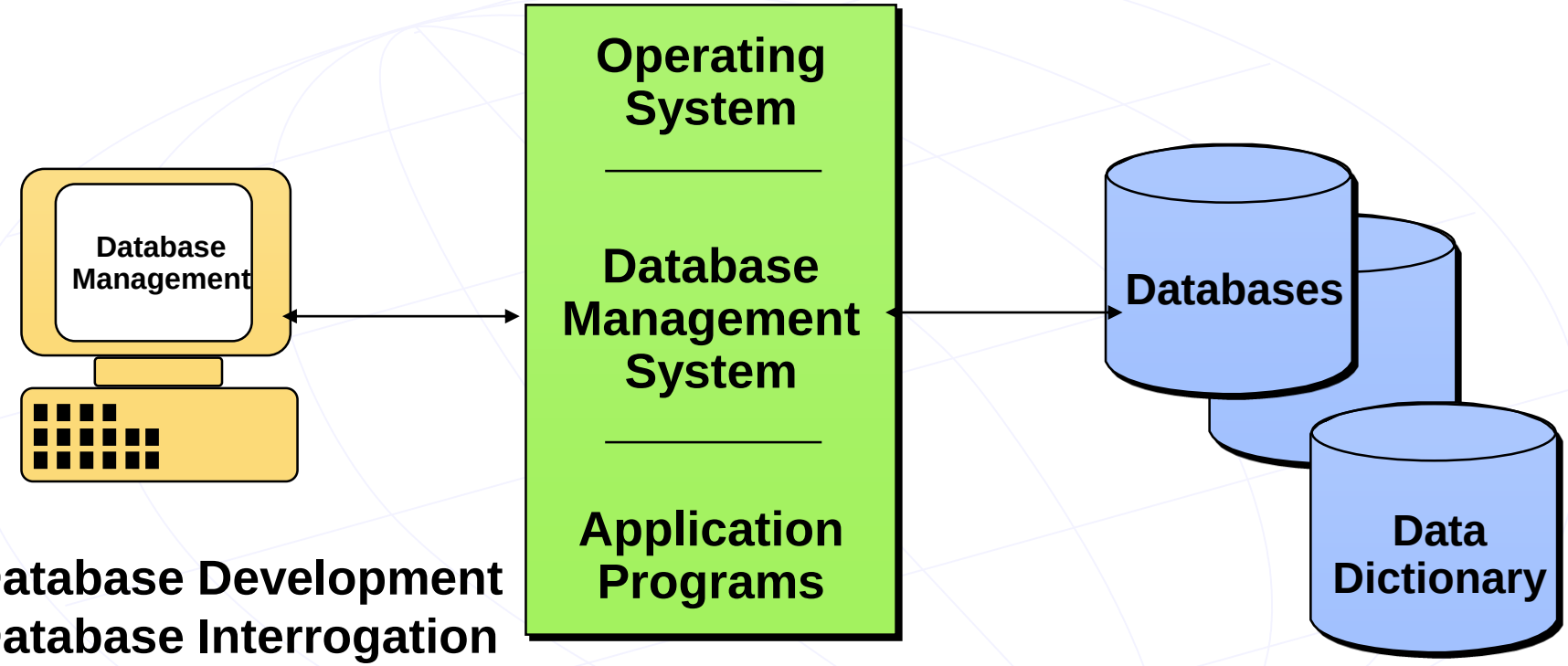
Database Management Systems



- Database Development
- Database Interrogation
- Database Maintenance
- Application Development

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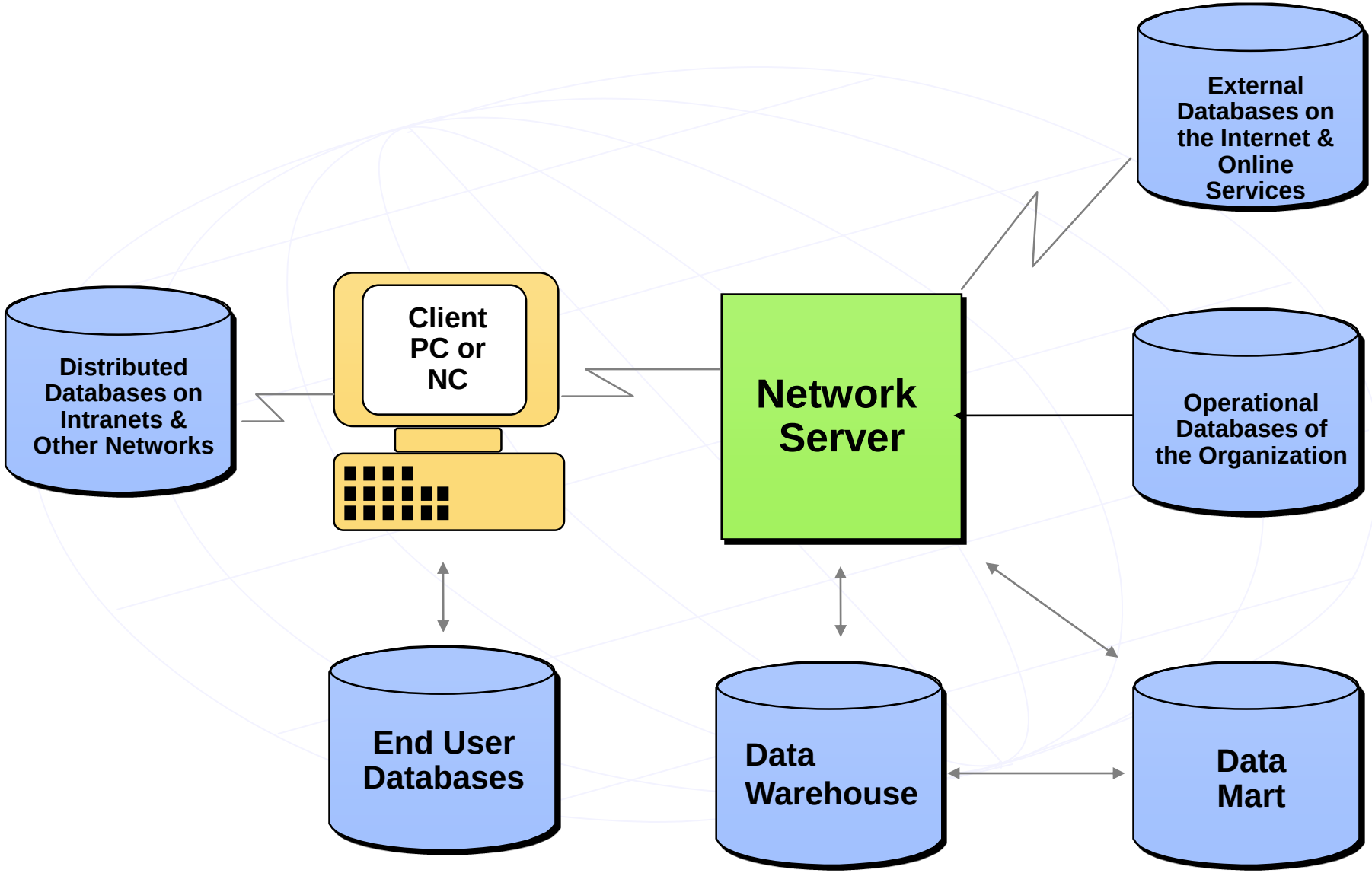
Major Types of Databases



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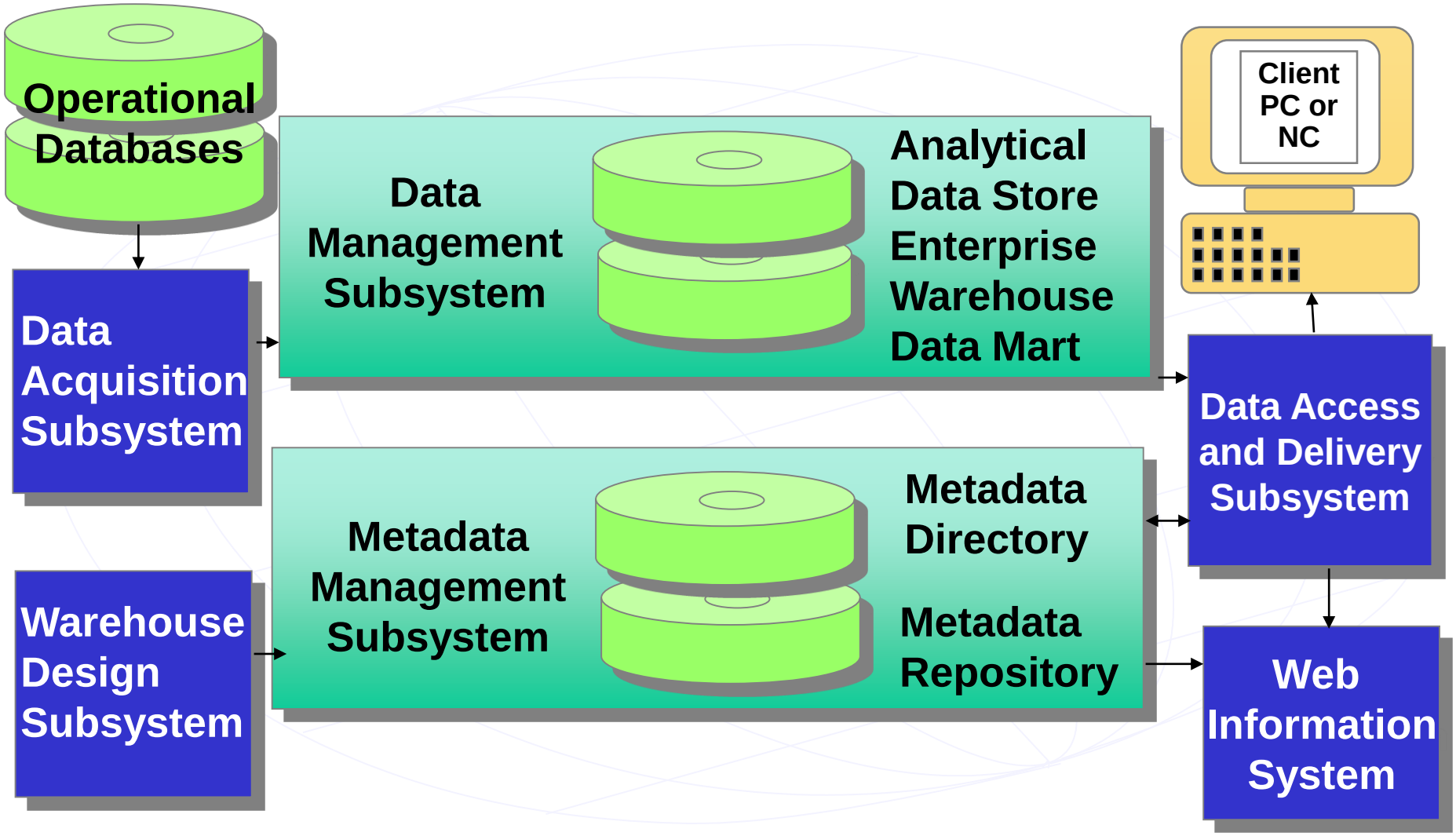
Data Warehouse and Data Mining



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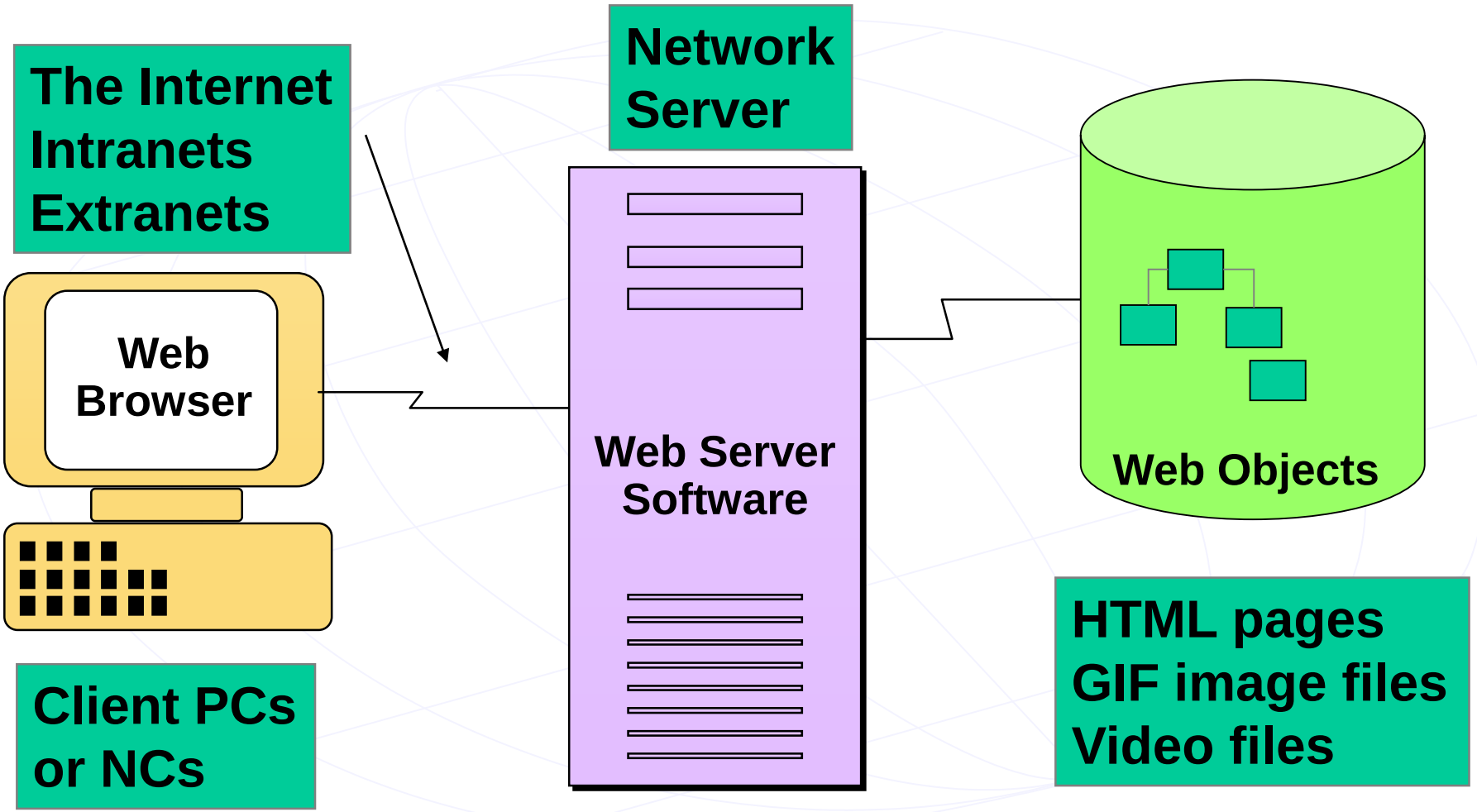
Web-Based Systems



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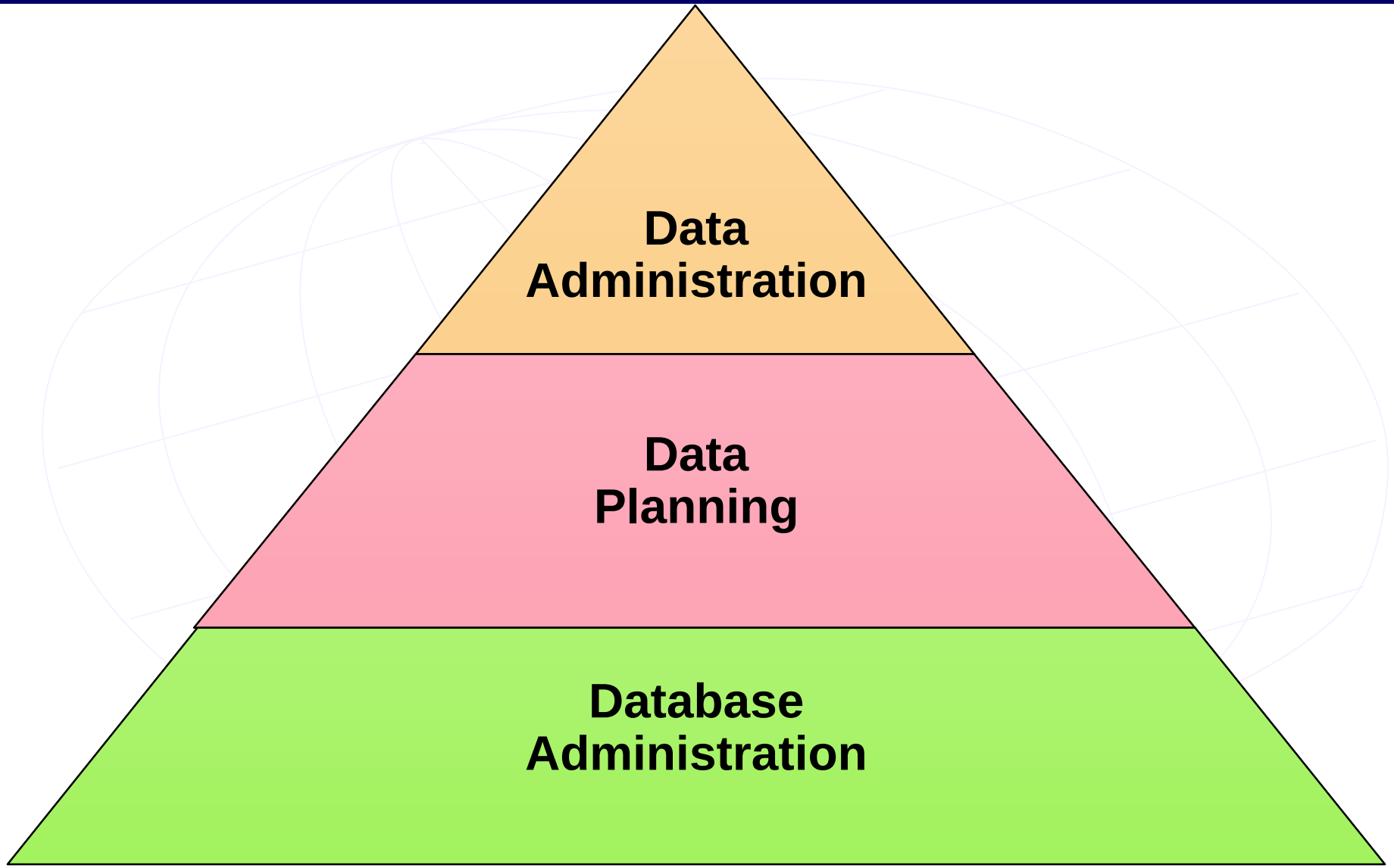
Data Resource Management



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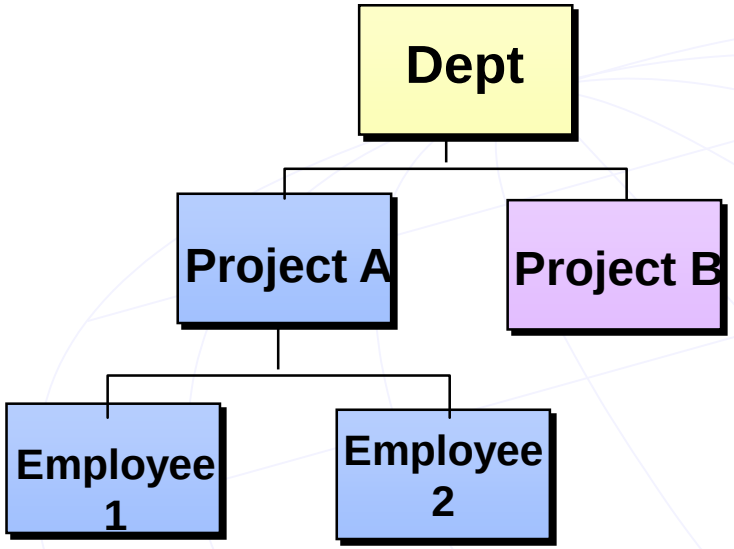
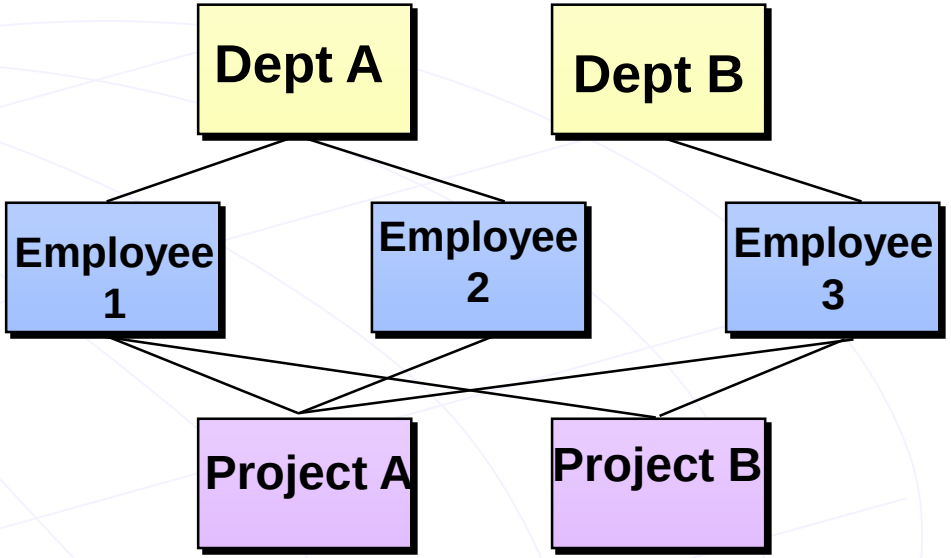
Database Structures

Hierarchical Structure



Network Structure



Relational Structure

Dept	Dname	Dloc	Dmgr
A			
B			
C			

Empno	Ename	Etitle	Dept
1			A
2			B
3			C

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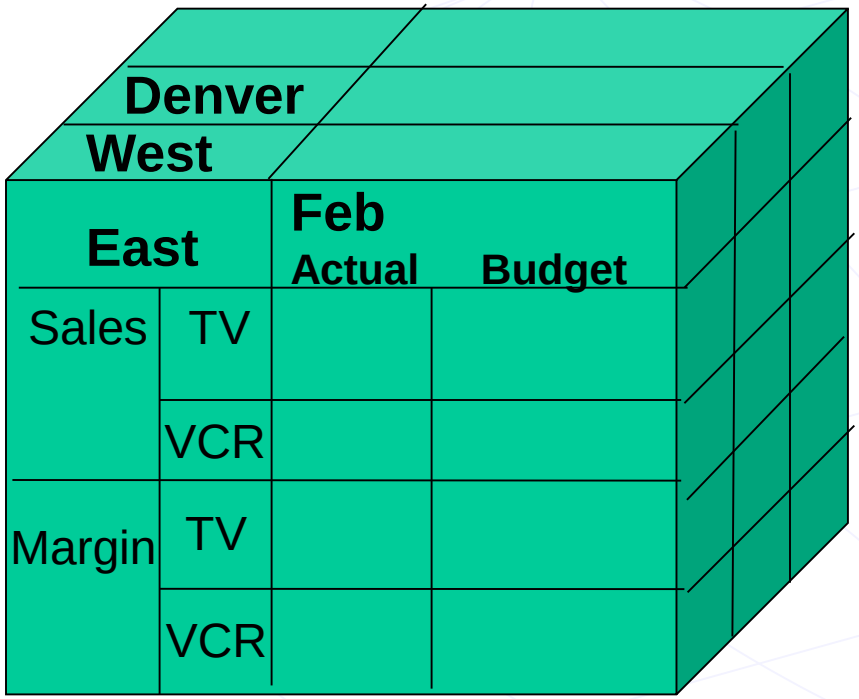
Database Structures (cont)



Multidimensional Database Structure

Bank Account Object

Attributes
- Customer
- Balance

Operations
- Deposit
- Withdraw

Checking Account Object

Attributes
- Credit Line
- Mthly Statement

Operations
- Calculate Interest
- Print Mthly Statement

Savings Account Object

Attributes
- Credit Line
- Mthly Statement

Operations
- Calculate Interest
- Print Mthly Statement

Object-Oriented Database Structure

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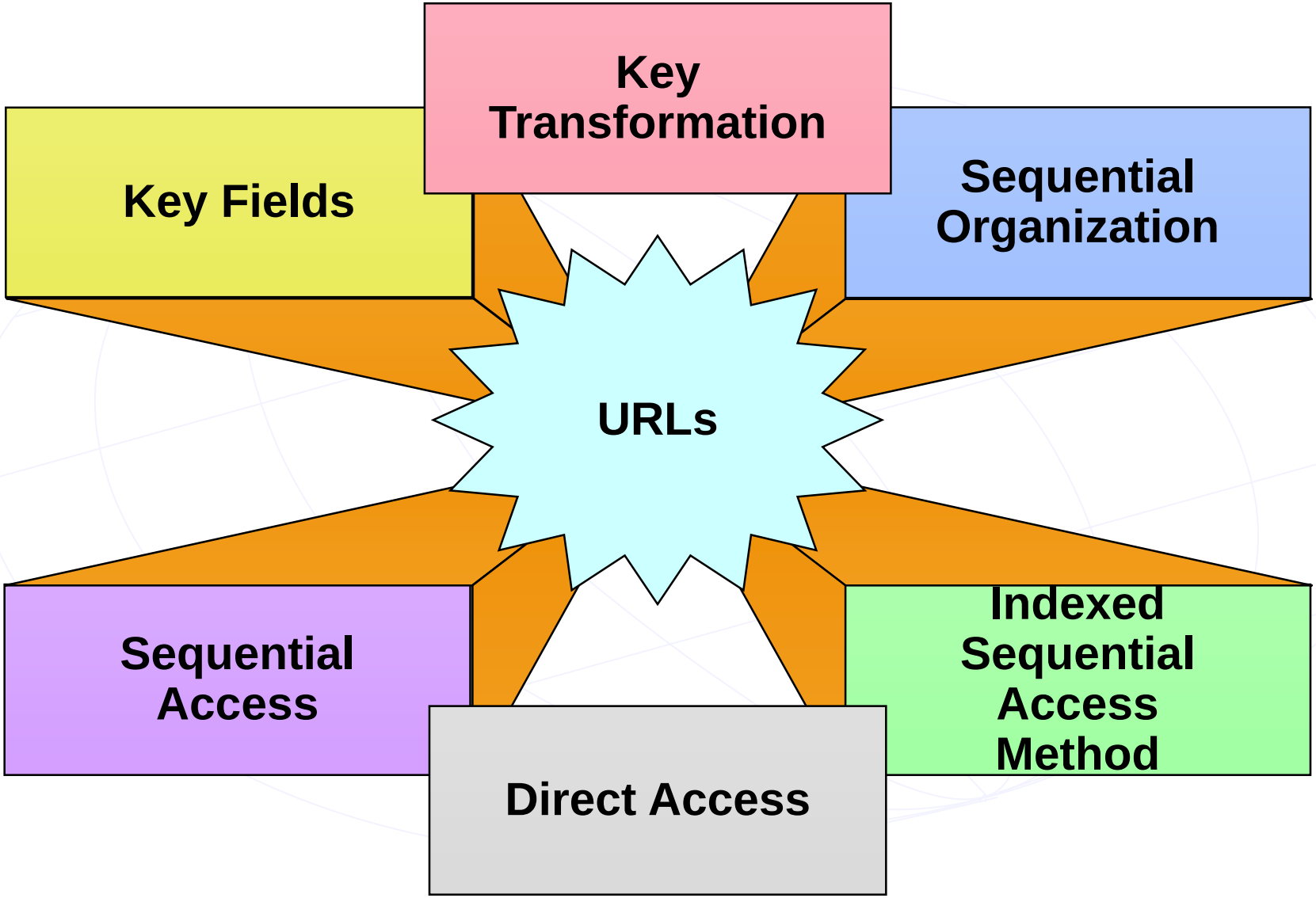
Accessing Files and Databases



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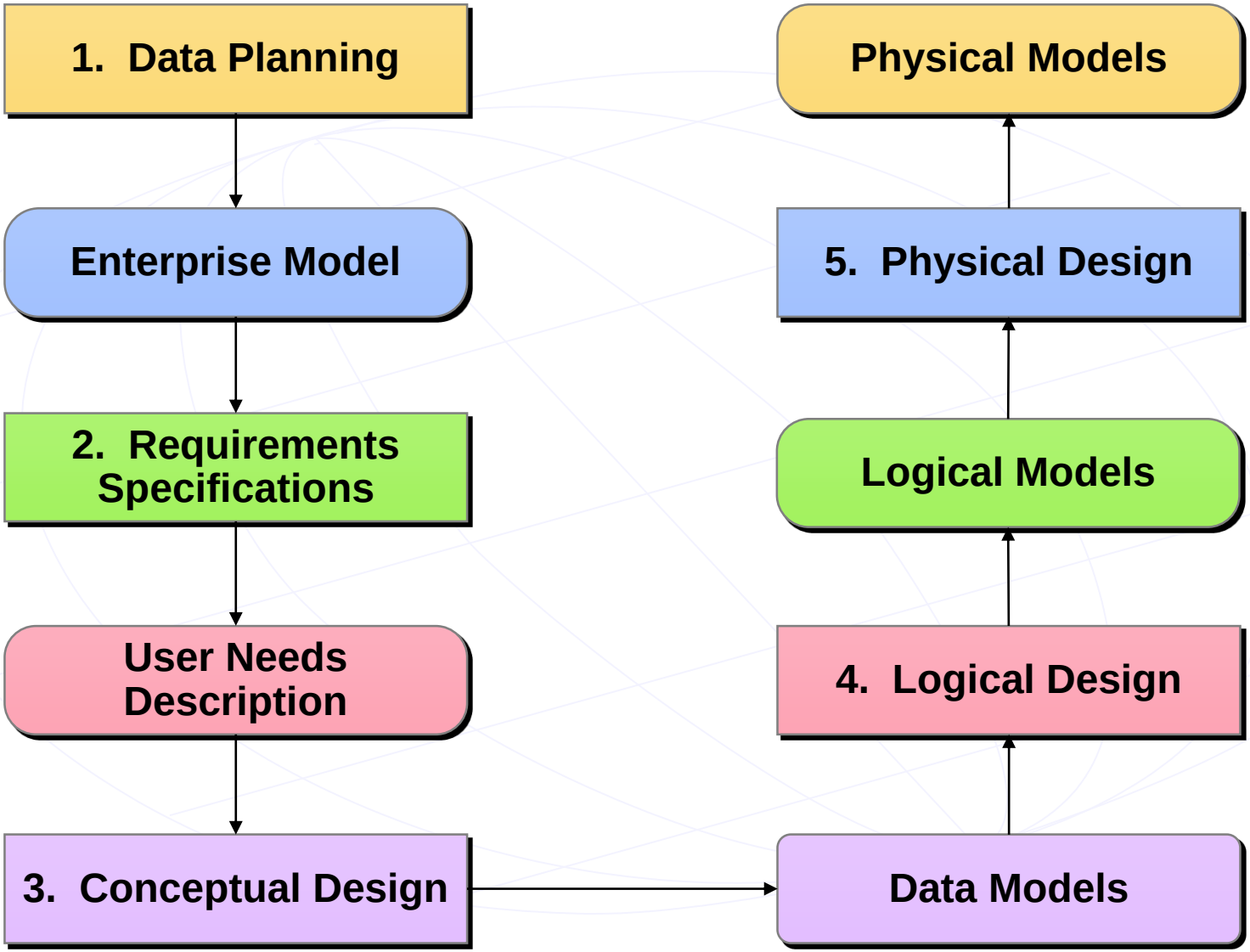
Database Development



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Chapter Summary

- **Data resource management is a critical management activity. Management roles include database administration, data planning, and data administration.**
- **Under the database management approach, data records are consolidated into databases that can be accessed by many different application programs, serving multiple users.**

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Chapter Summary (cont)

- **Database management systems are software packages that simplify the creation, use, and maintenance of databases.**
- **Several types of databases are used by organizations including operational, distributed, external, data warehouses and data marts.**
- **Database development for large corporate databases requires a top-down planning effort involving planning, requirements specification and logical and physical design.**

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