IF2240 – Basis Data

Database Development Process

SEMESTER II TAHUN AJARAN 2024/2025

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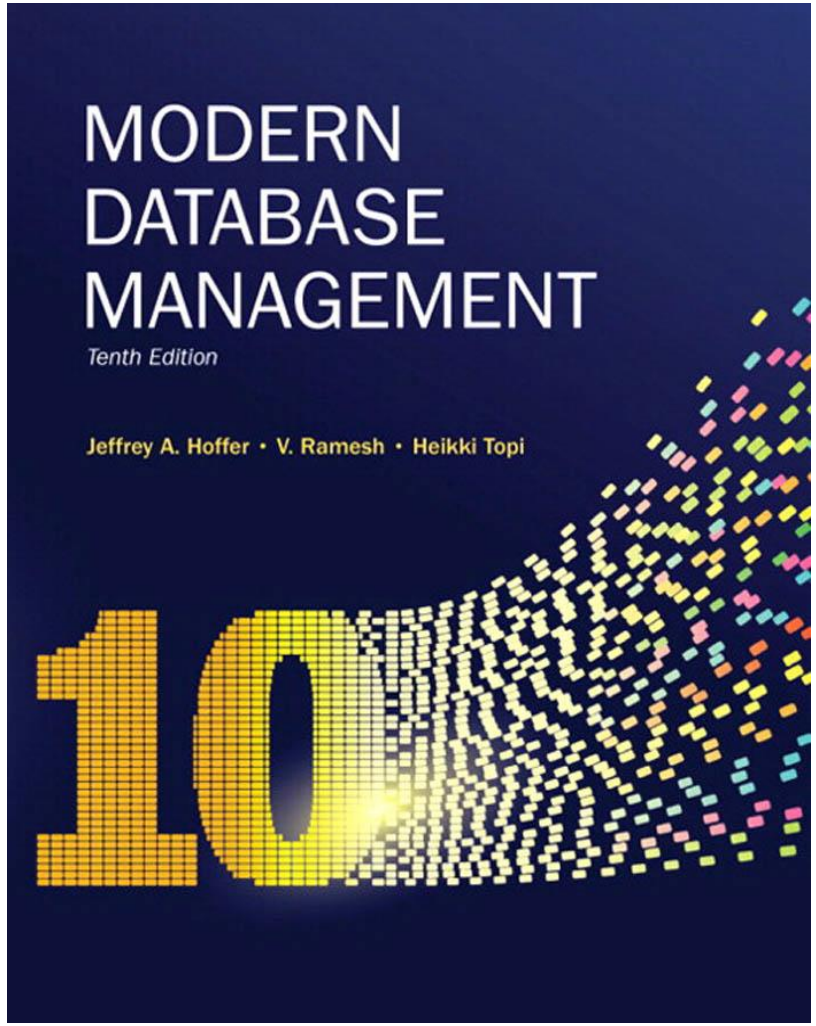
Sumber

Jeffrey A. Hoffer, V. Ramesh, Heikki Topi: "Modern Database Management", 10th Edition

- **Chapter 1:** The Database Environment and Development Process

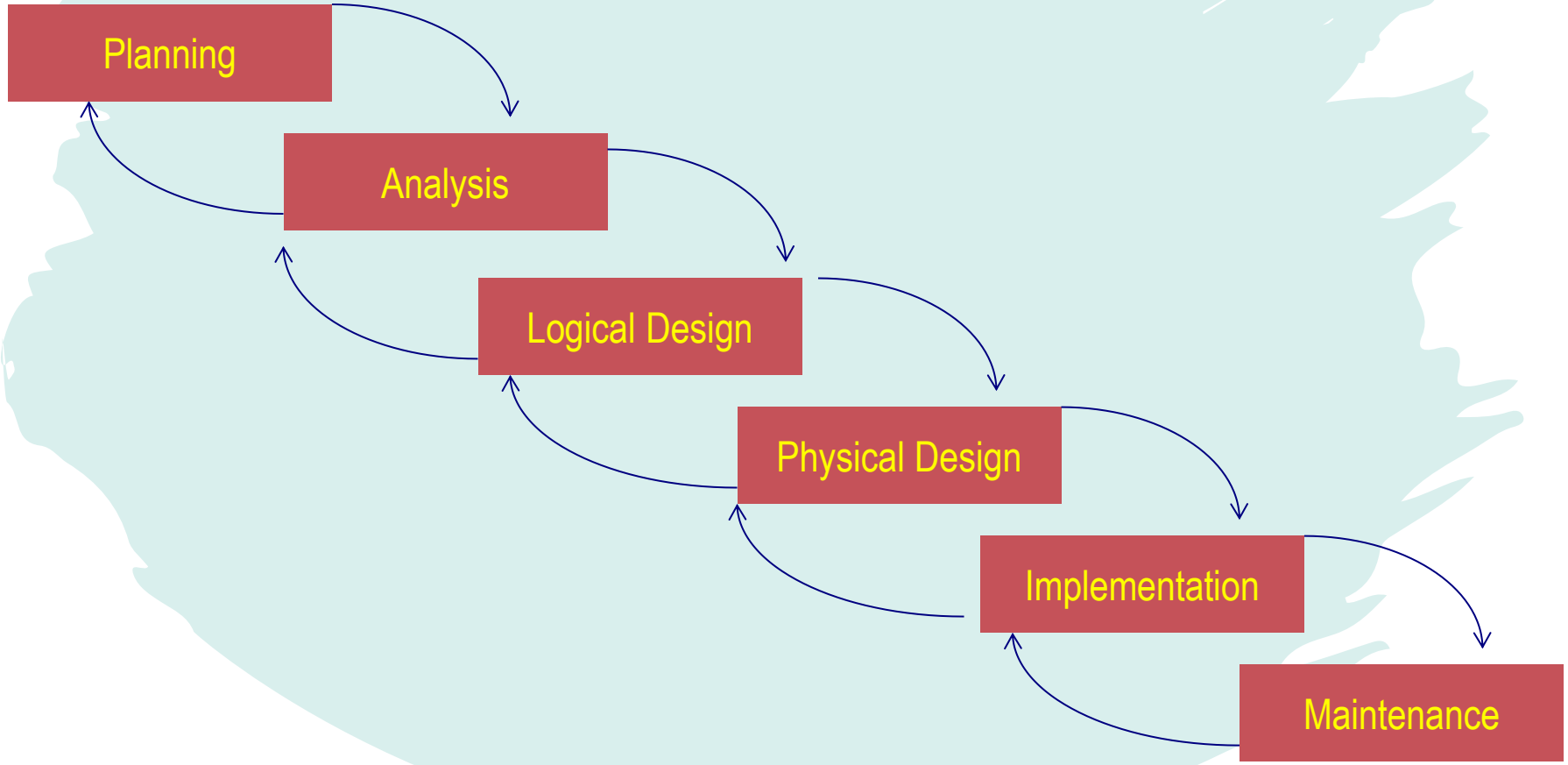


Two Approaches to Database and IS Development

- SDLC
  - System Development Life Cycle
  - Detailed, well-planned development process
  - Time-consuming, but comprehensive
  - Long development cycle
- Prototyping
  - Rapid application development (RAD)
  - Cursory attempt at conceptual data modeling
  - Define database during development of initial prototype
  - Repeat implementation and maintenance activities with new prototype versions

KNOWLEDGE & SOFTWARE ENGINEERING

Systems Development Life Cycle



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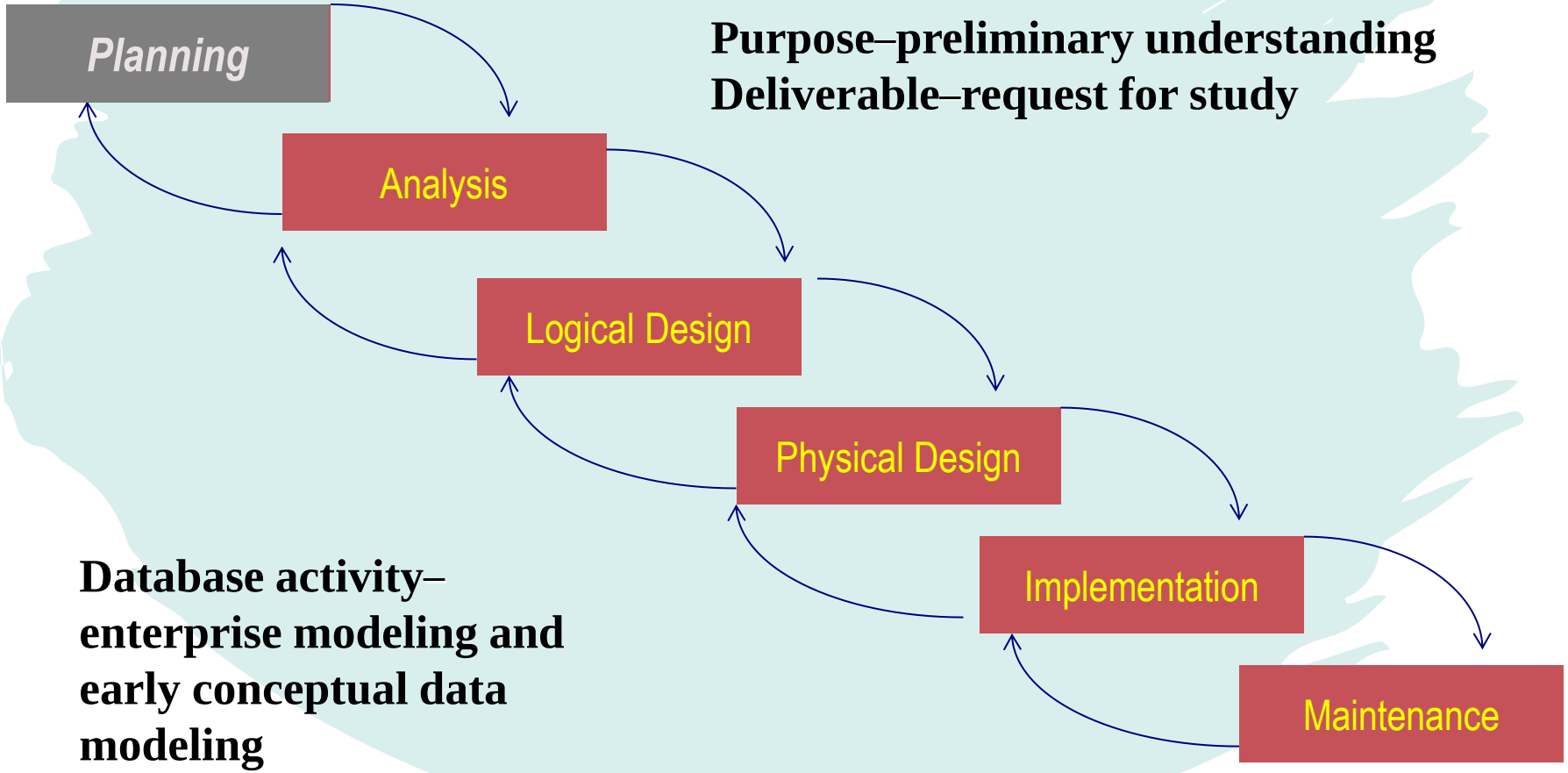
Systems Development Life Cycle (cont.)



Purpose–preliminary understanding
Deliverable–request for study

Database activity–enterprise modeling and early conceptual data modeling

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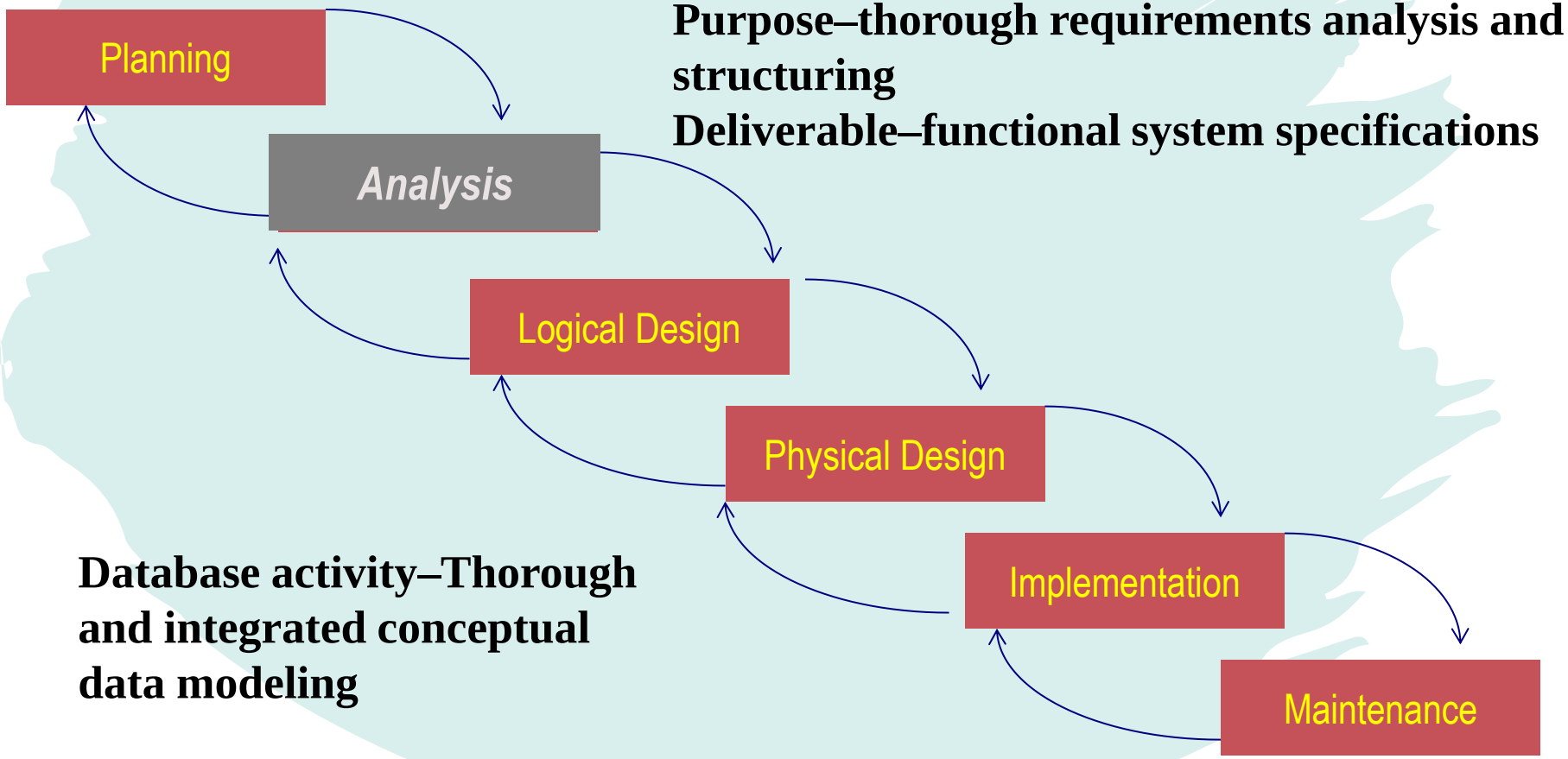
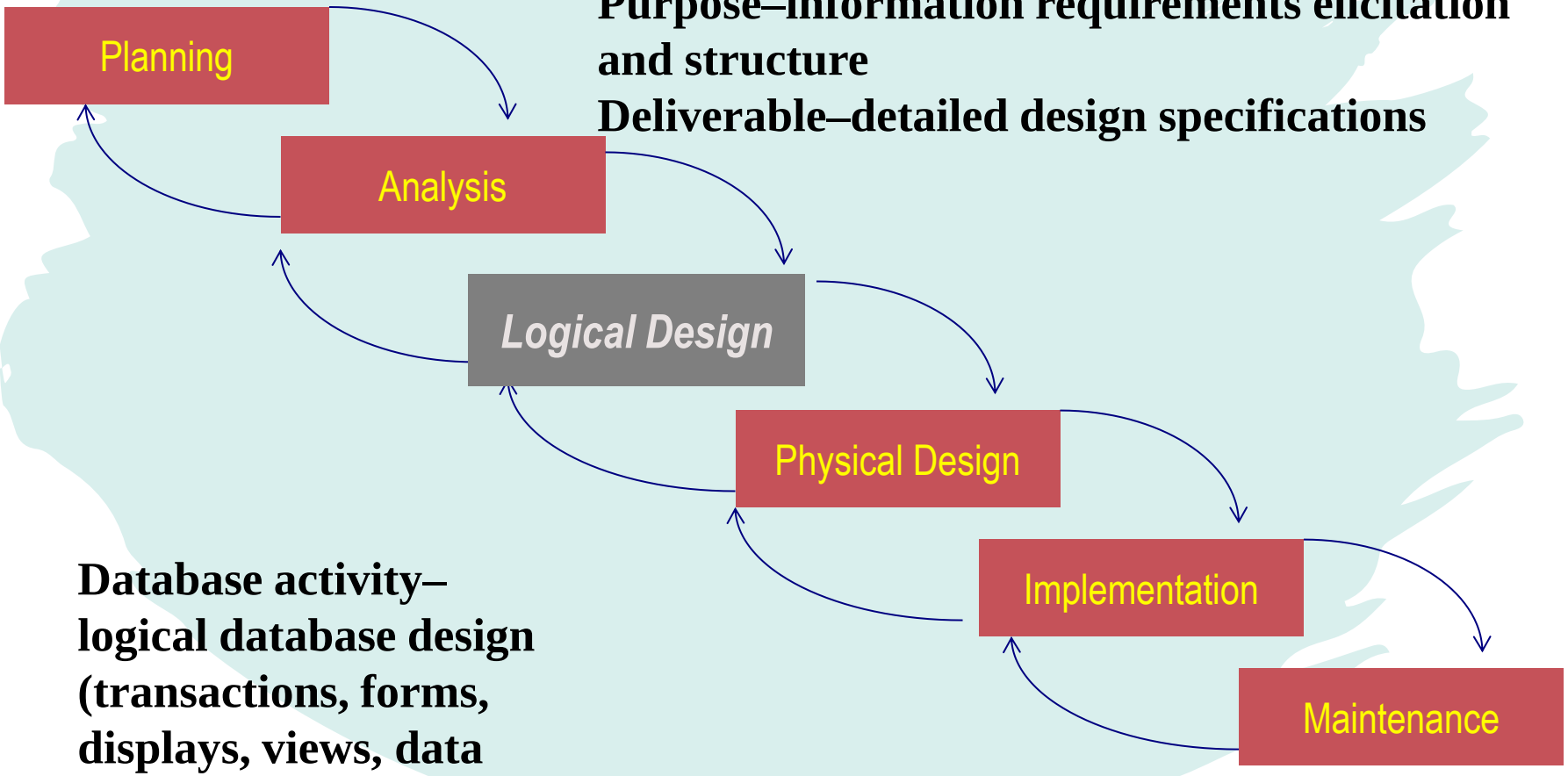
Systems Development Life Cycle (cont.)



Purpose–thorough requirements analysis and structuring
Deliverable–functional system specifications

Database activity–Thorough and integrated conceptual data modeling

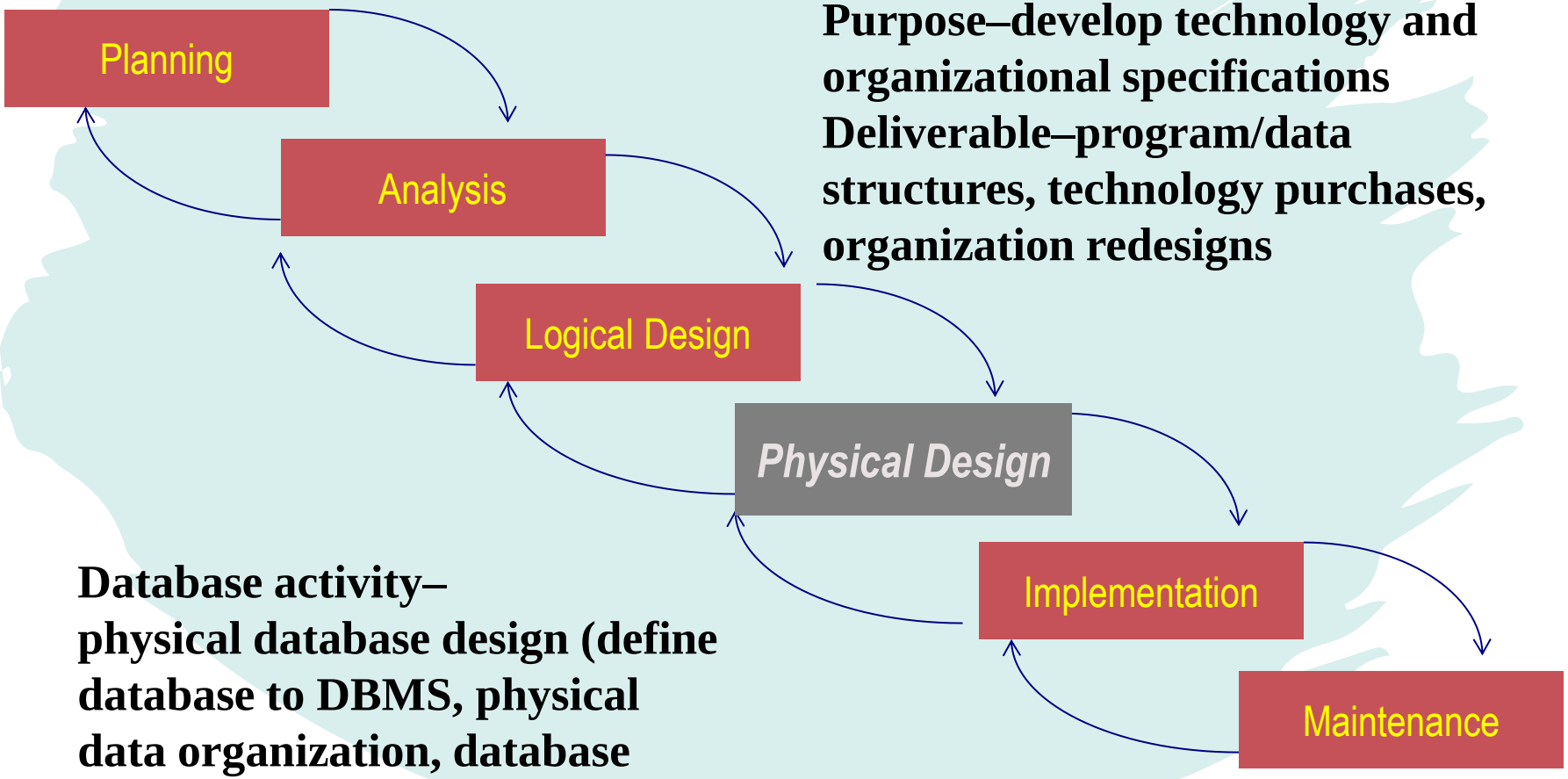
Systems Development Life Cycle (cont.)



Purpose–information requirements elicitation and structure
Deliverable–detailed design specifications

Database activity–logical database design (transactions, forms, displays, views, data integrity and security)

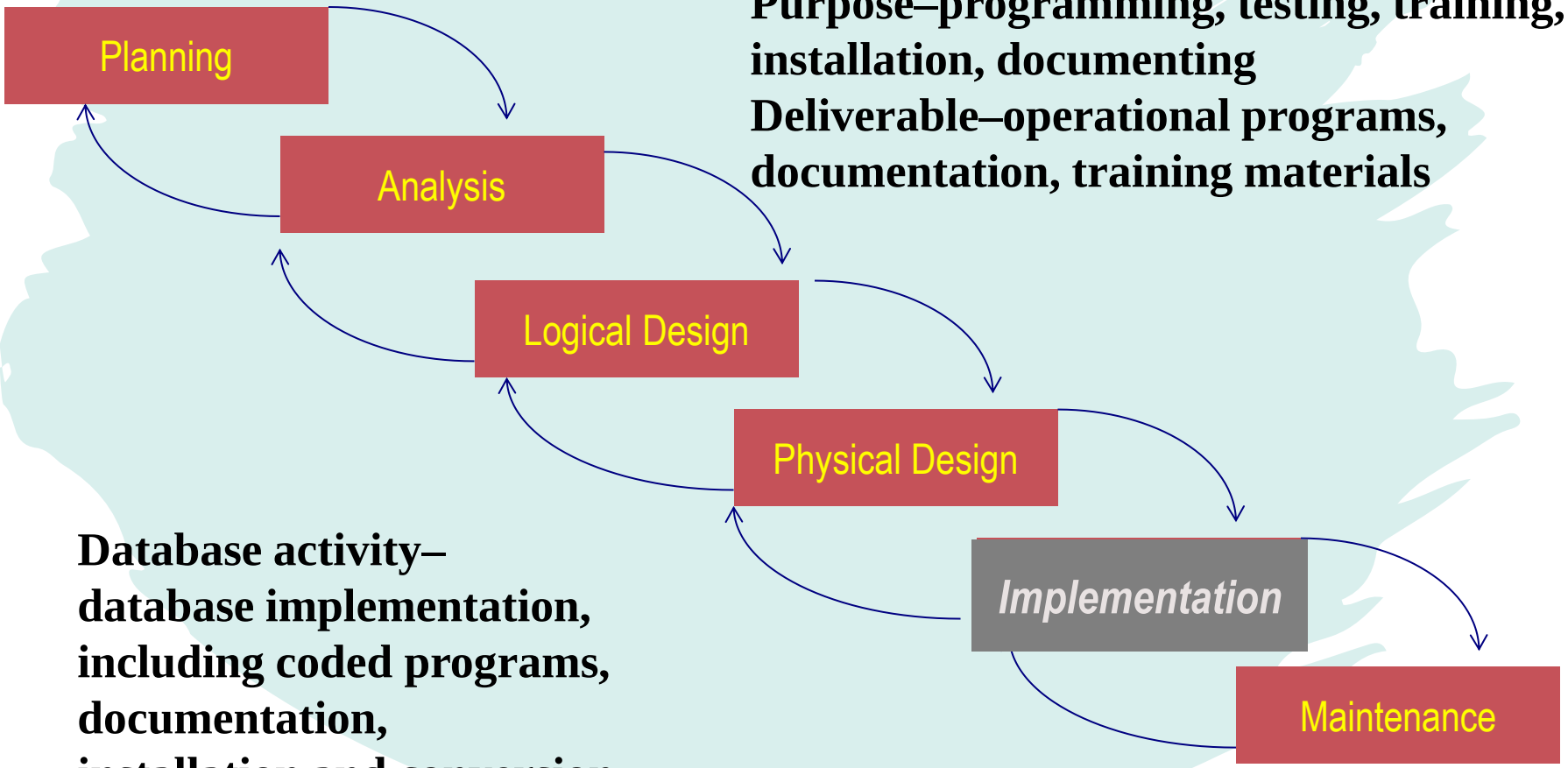
Systems Development Life Cycle (cont.)



Purpose–develop technology and organizational specifications
Deliverable–program/data structures, technology purchases, organization redesigns

Database activity–physical database design (define database to DBMS, physical data organization, database processing programs)

Systems Development Life Cycle (cont.)



Purpose–programming, testing, training, installation, documenting
Deliverable–operational programs, documentation, training materials

Database activity–
database implementation, including coded programs, documentation, installation and conversion

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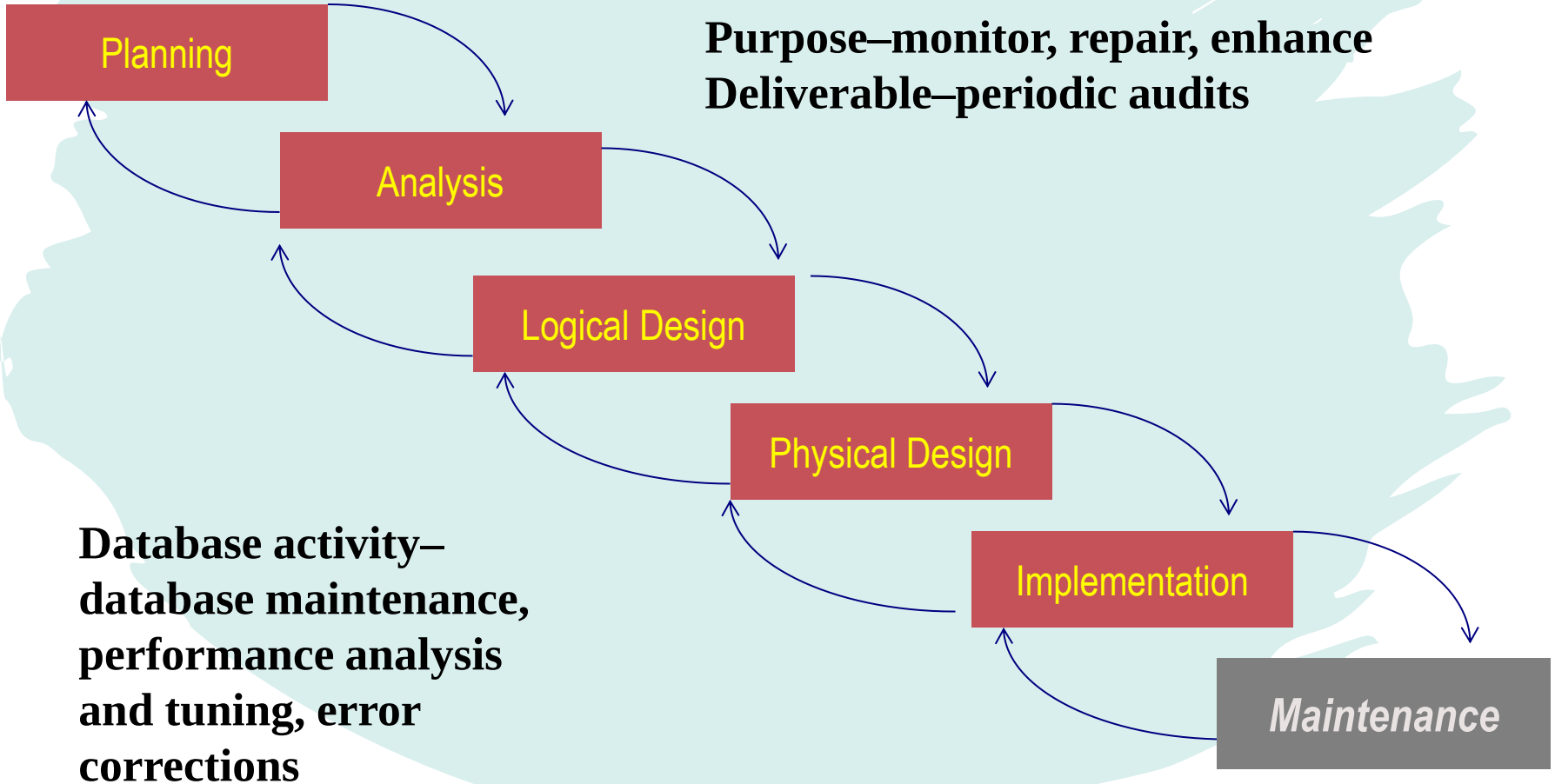
Systems Development Life Cycle (cont.)



Purpose–monitor, repair, enhance
Deliverable–periodic audits

Database activity–database maintenance, performance analysis and tuning, error corrections

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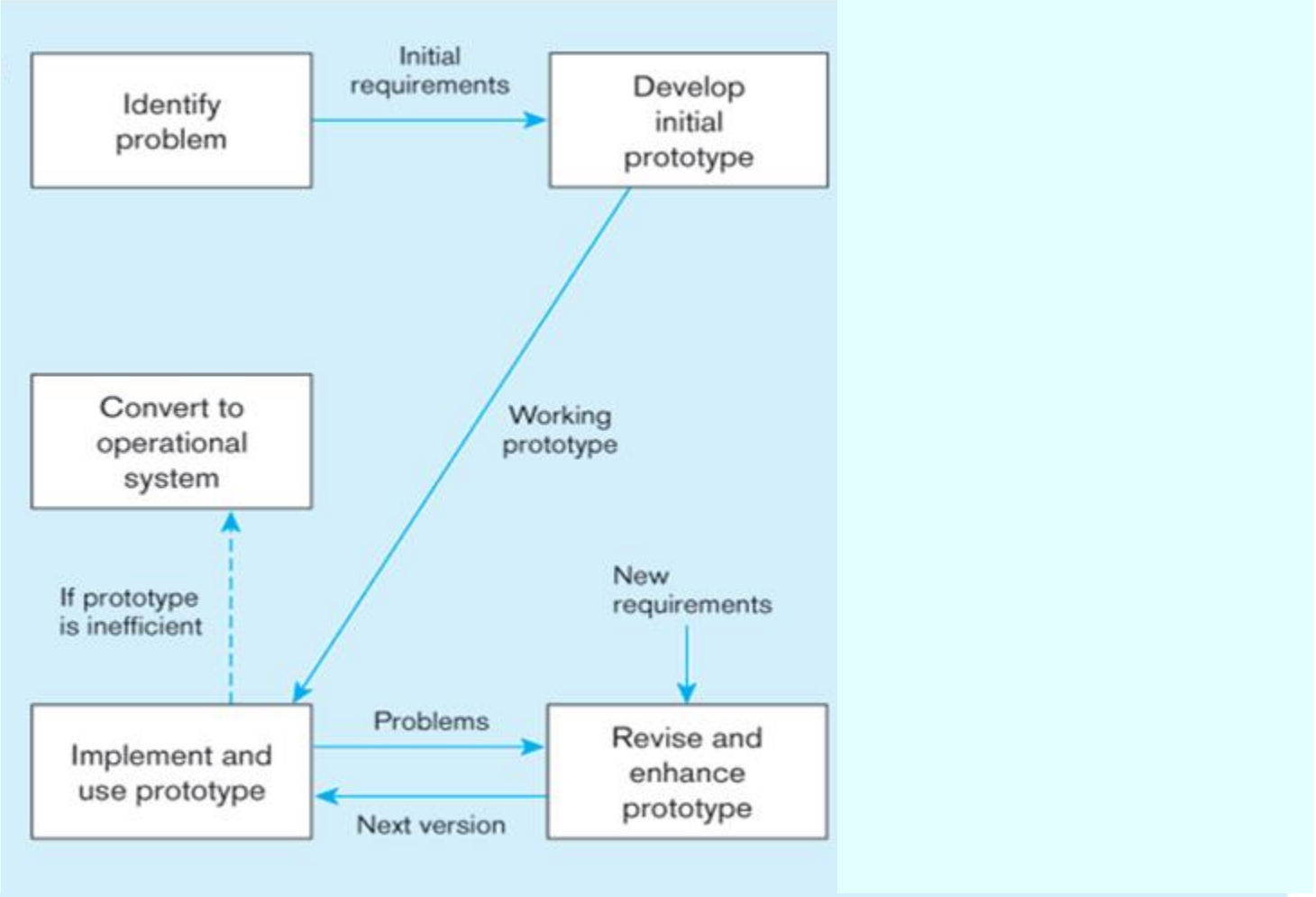
Prototyping Database Methodology



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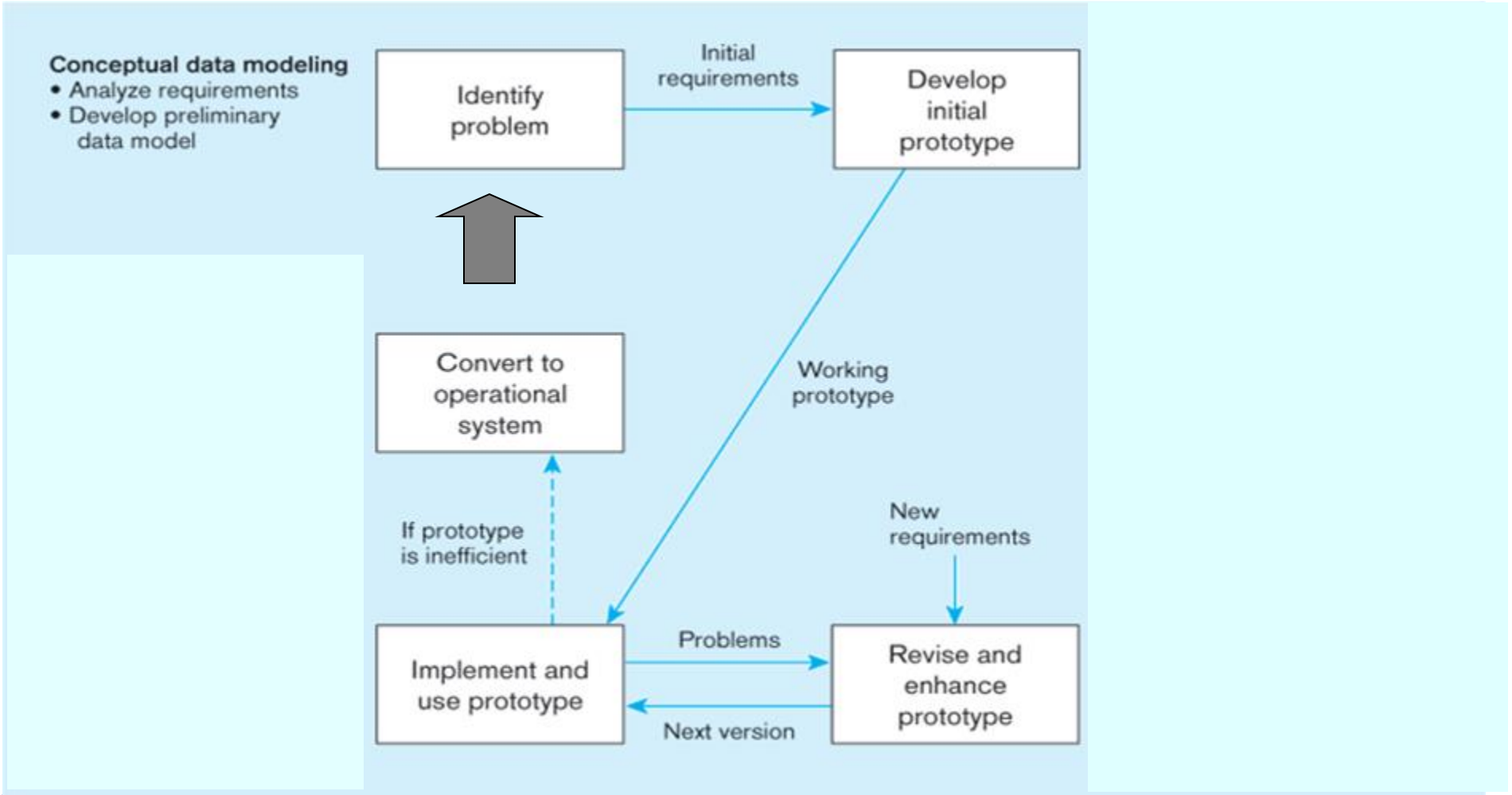
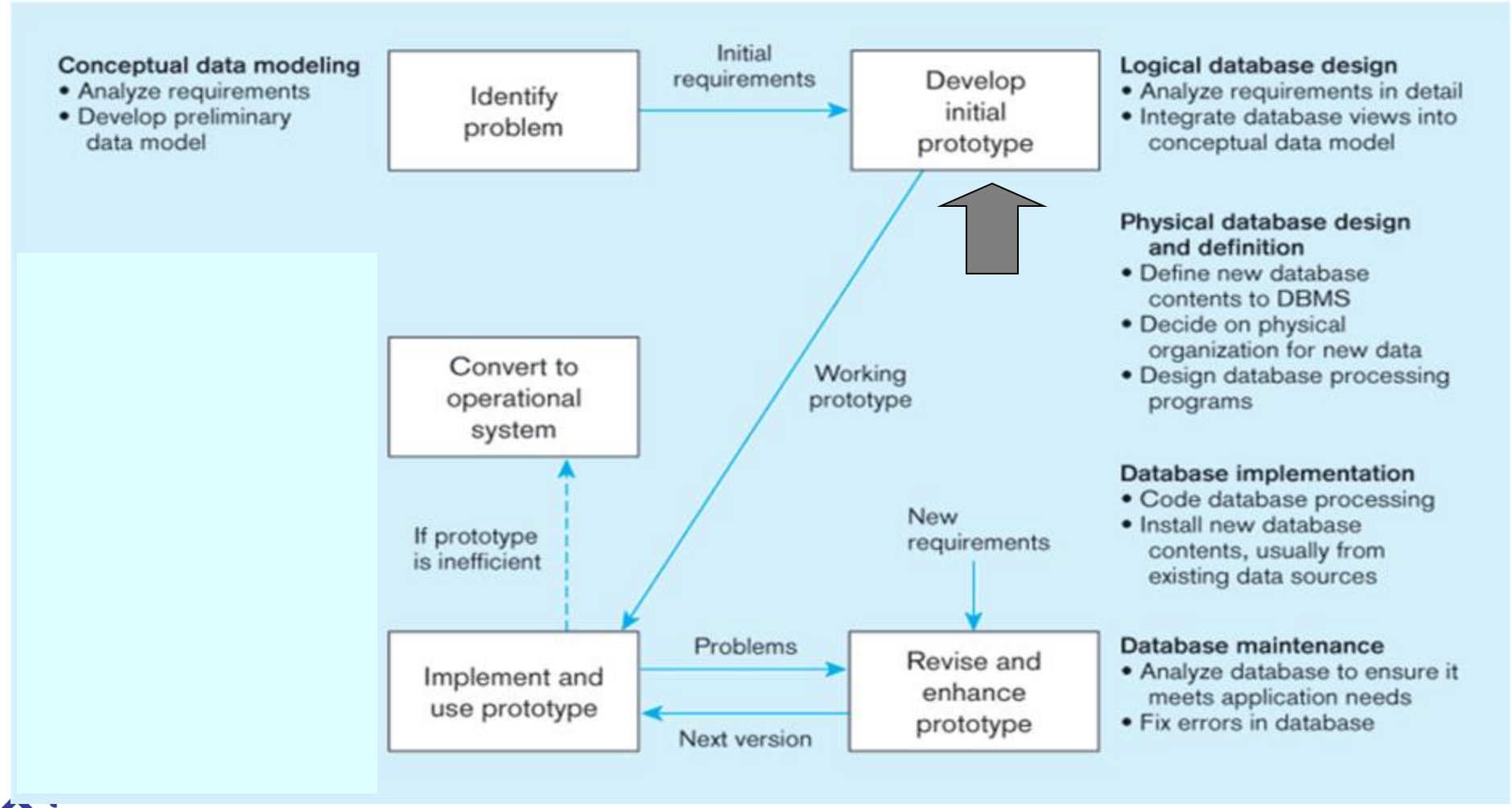
Prototyping Database Methodology (cont.)



Prototyping Database Methodology (cont.)



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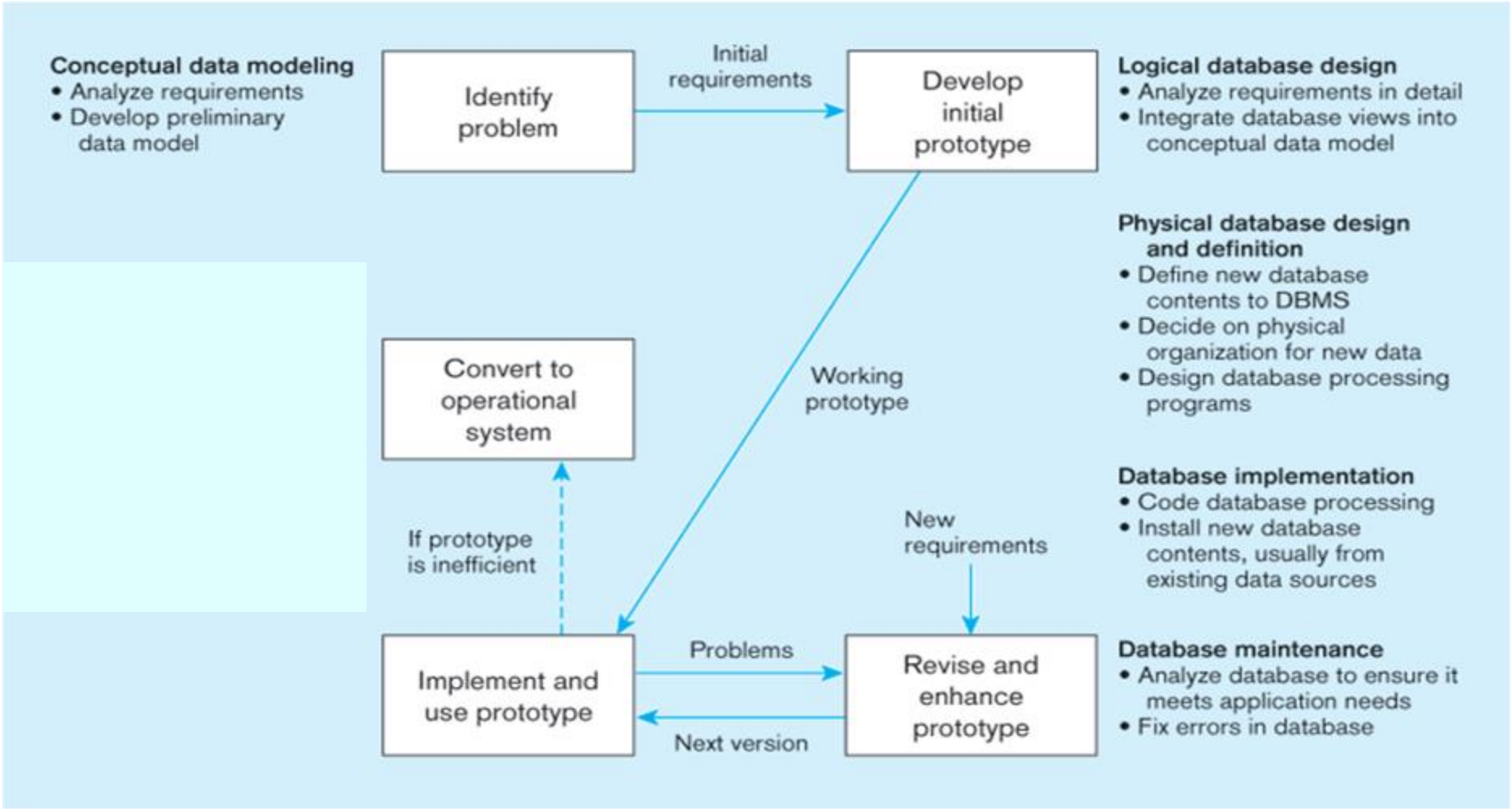

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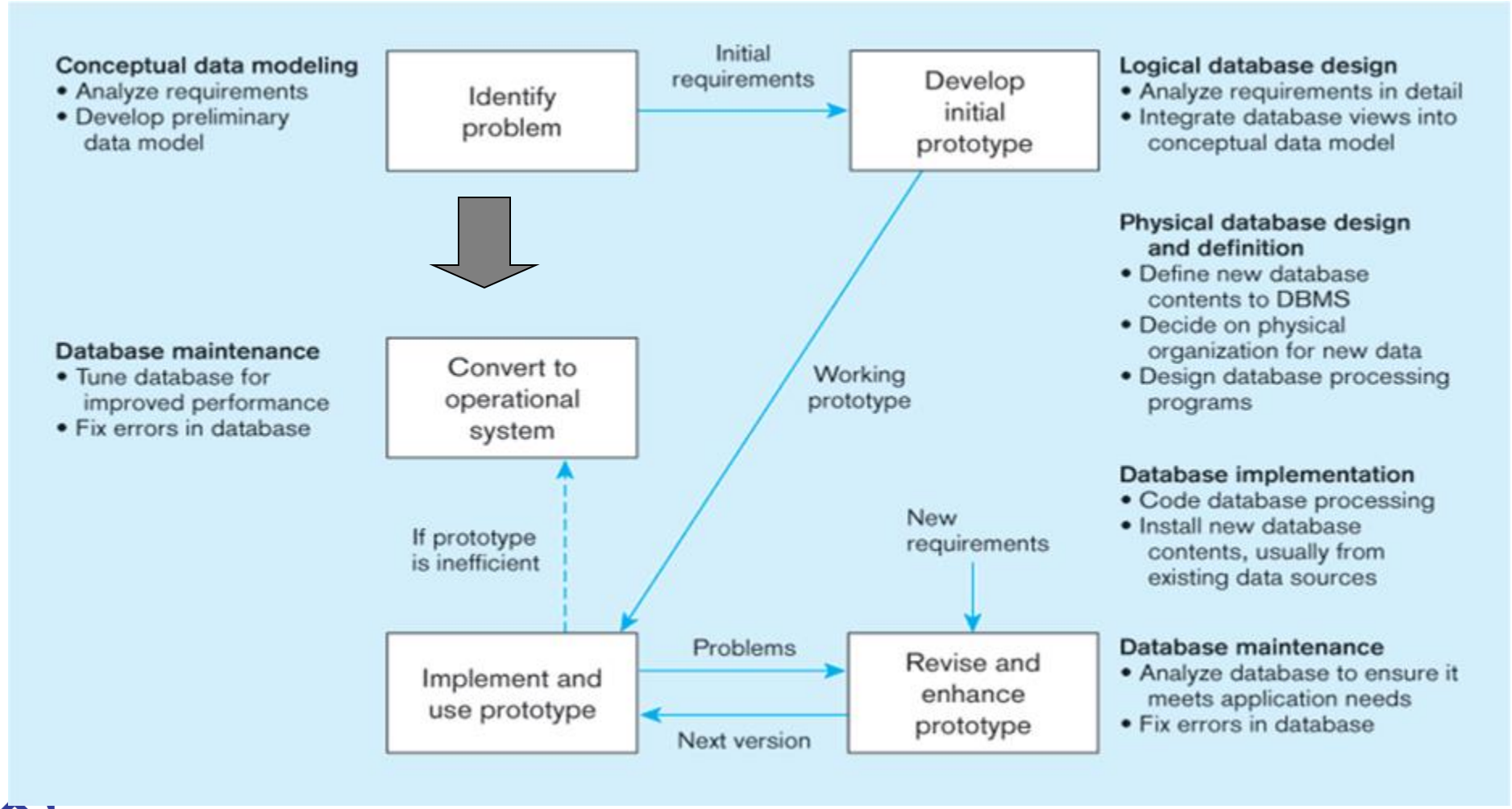

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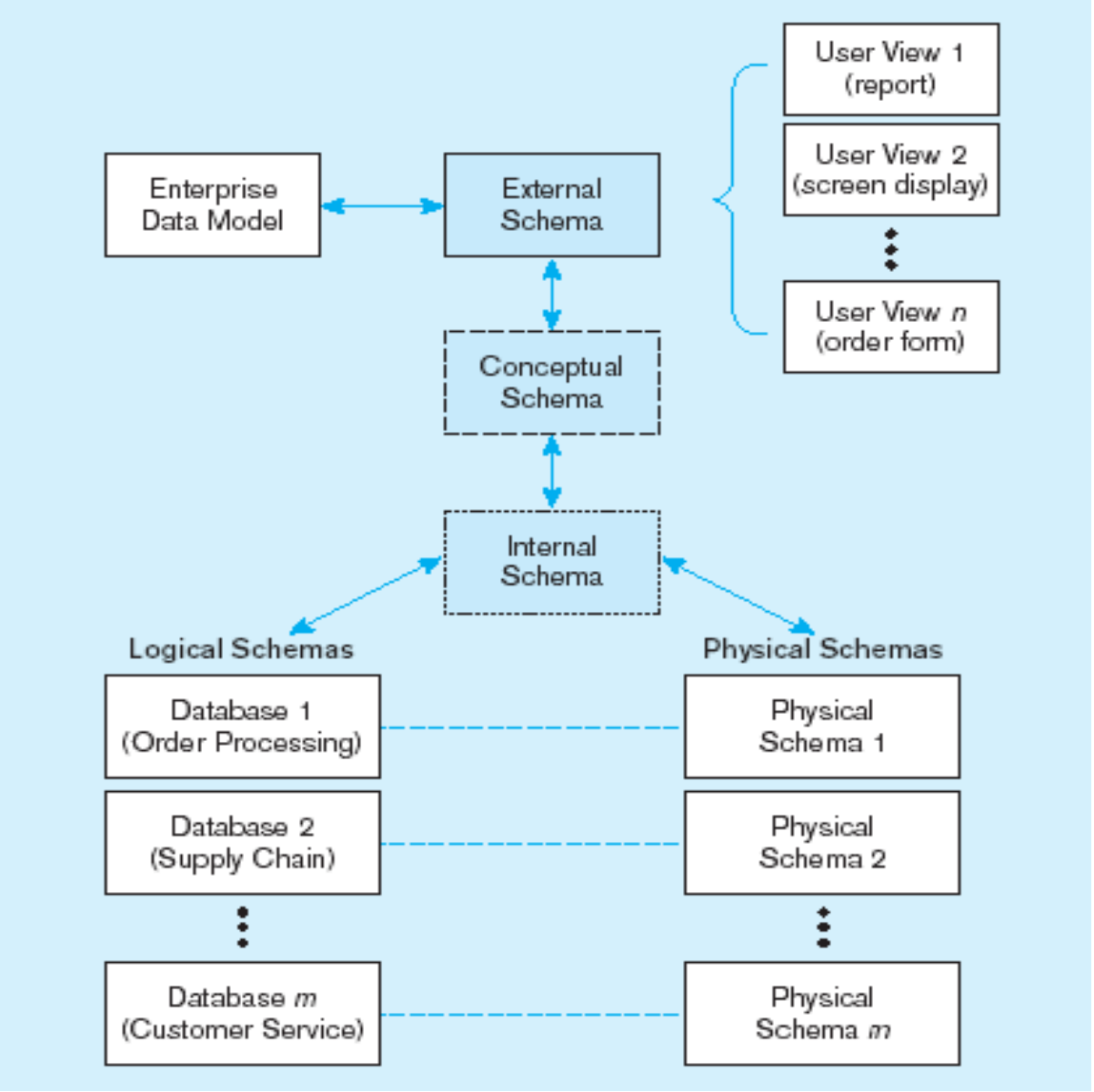
Three-schema architecture

Different people have different views of the database…these are the external schema

The internal schema is the underlying design and implementation



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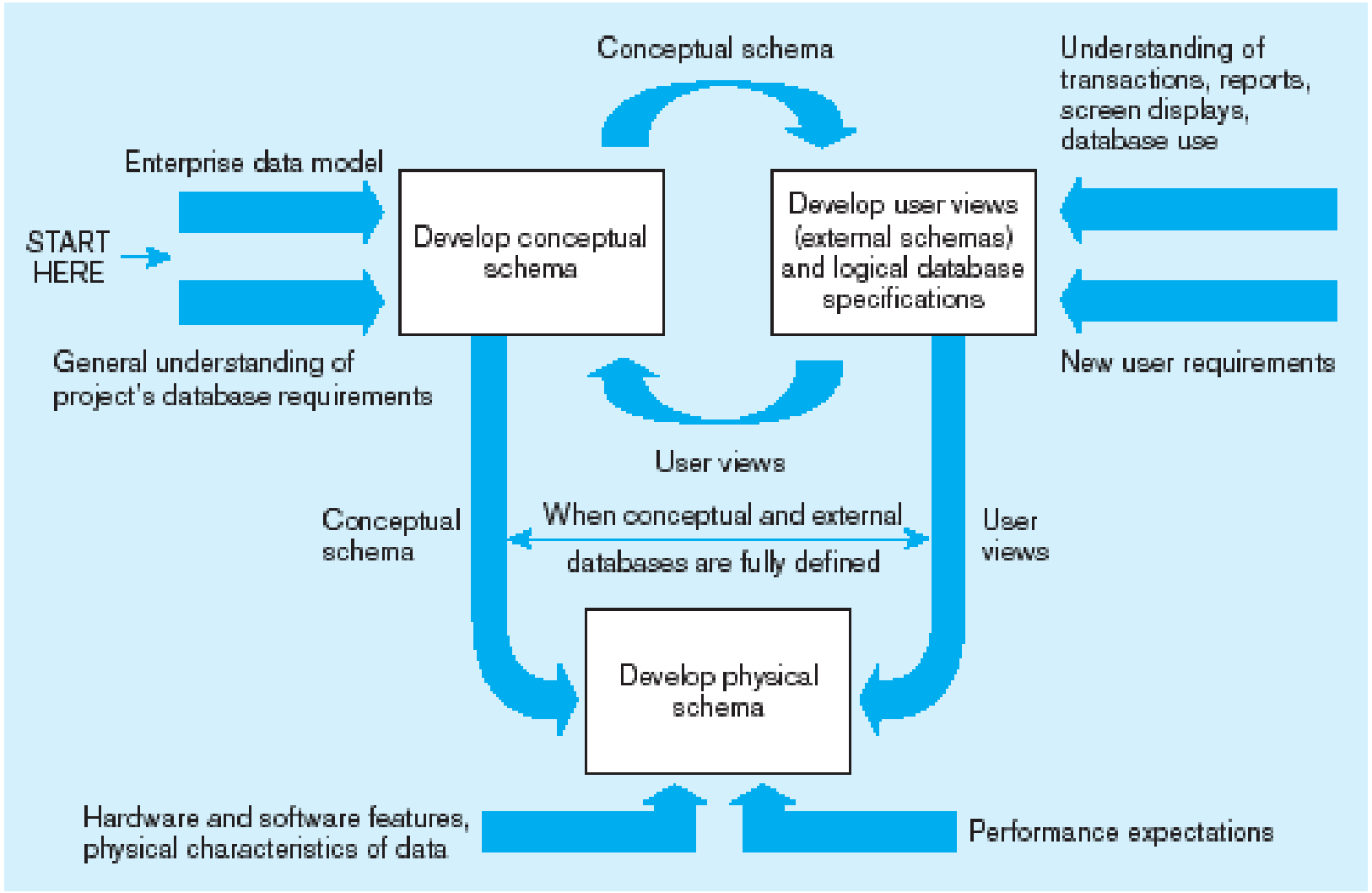
Developing the three-tiered architecture



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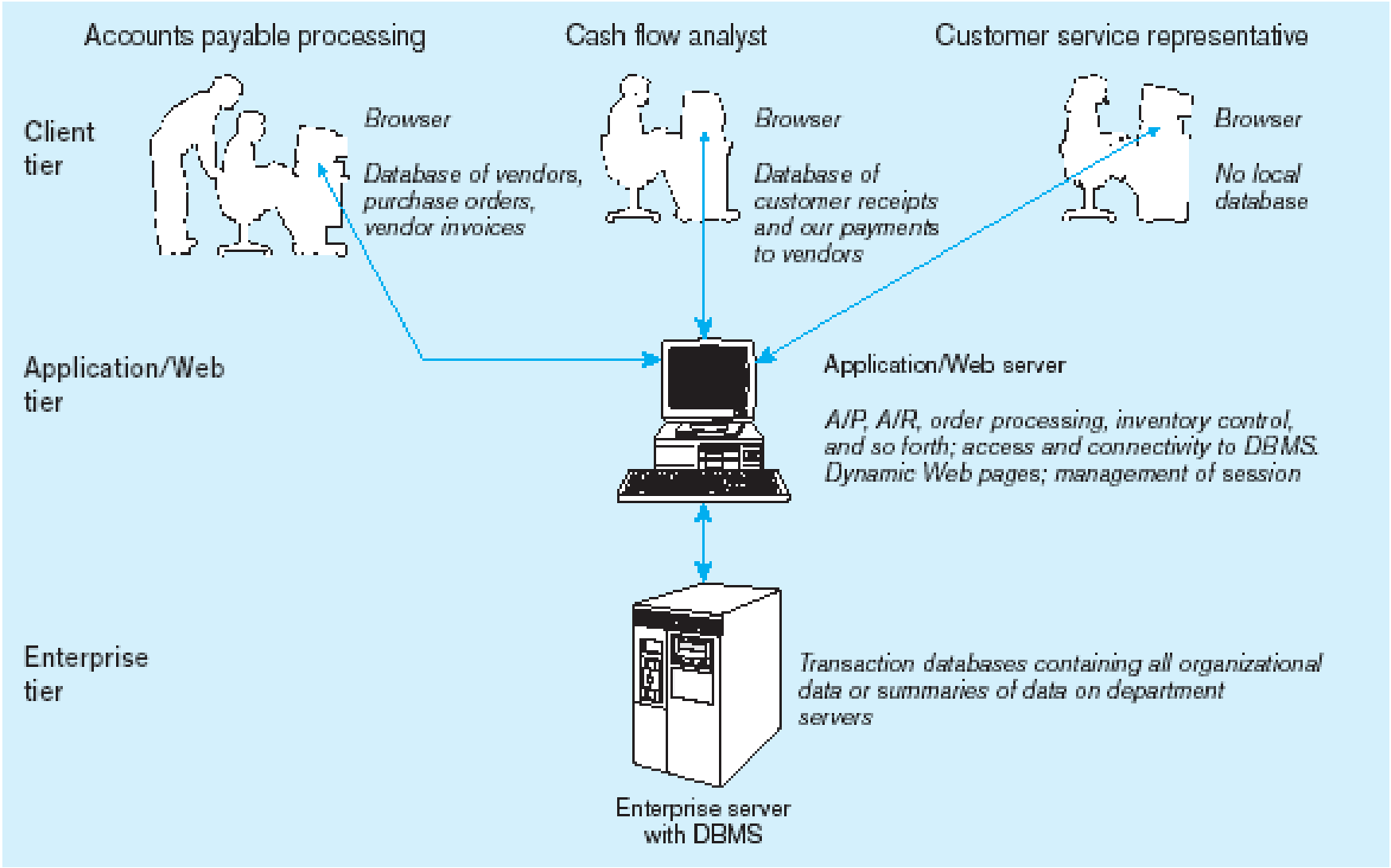
Three-tiered client/server database architecture



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