SWE 207
Database
Management Systems

~ Structured Query Languages~

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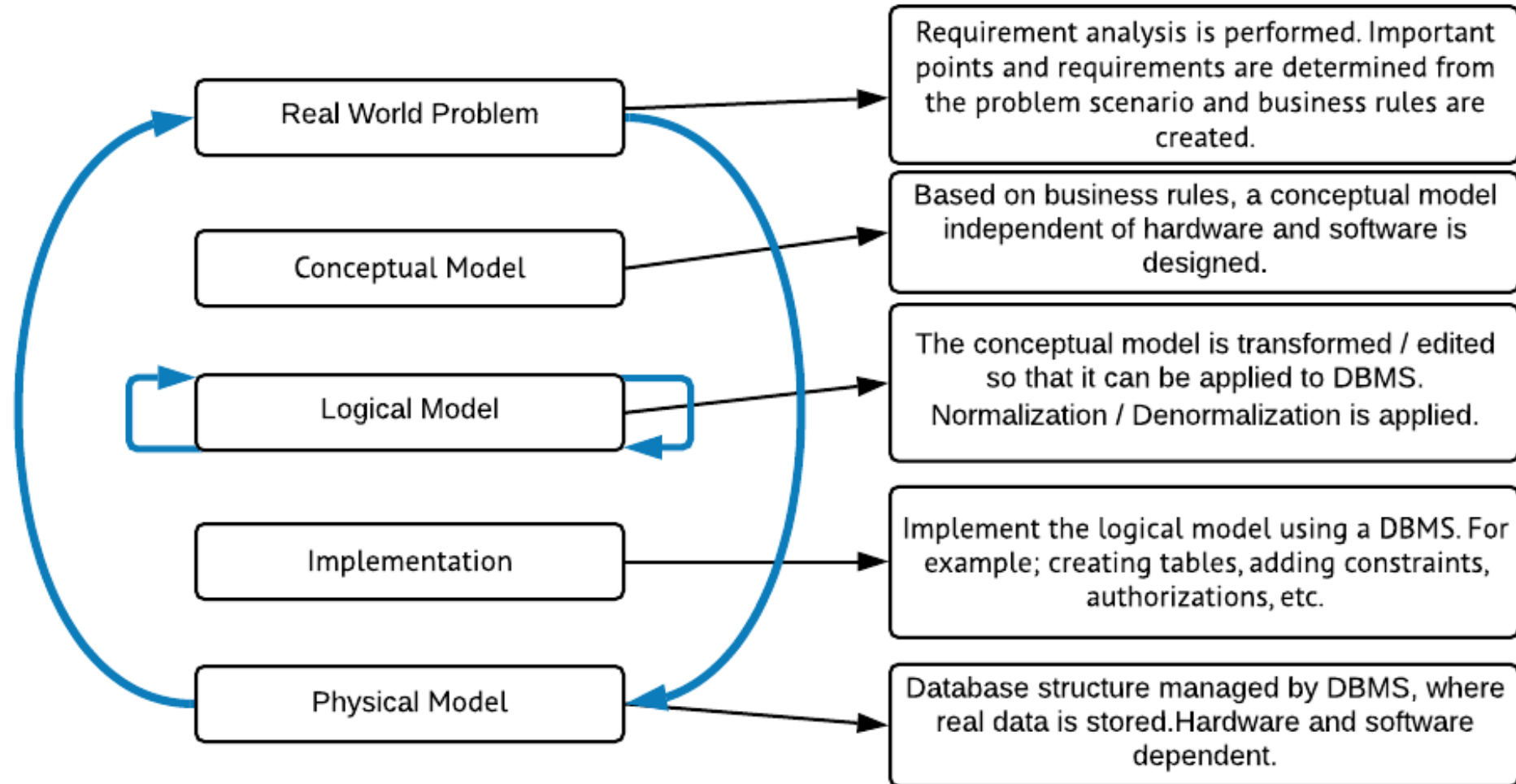
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SAKARYA
ÜNİVERSİTESİ

Content

- Preparation of the Working Environment

- Structured Query Language (SQL)

- Basic SQL Commands (SQL DML Commands; SELECT, JOIN, INSERT, UPDATE, DELETE)

- DBMS Operations with Application Programs

Database development lifecycle

Real World Problem → Requirement analysis is performed. Important points and requirements are determined from the problem scenario and business rules are created.

Conceptual Model → Based on business rules, a conceptual model independent of hardware and software is designed.

Logical Model → The conceptual model is transformed / edited so that it can be applied to DBMS. Normalization / Denormalization is applied.

Implementation → Implement the logical model using a DBMS. For example; creating tables, adding constraints, authorizations, etc.

Physical Model → Database structure managed by DBMS, where real data is stored. Hardware and software dependent.

Working Environment

- PostgreSQL installation
  - PostgreSQL
  - https://www.postgresql.org/download
- pgAdmin installation
  - pgAdmin
  - It is deployed with PostgreSQL.
- Valentina Studio
  - https://www.valentina-db.com/en/valentina-studio-overview
- Import, export of NorthWind database
  (Shared in Sabis)
- Import, export of Pagila database
  - http://www.postgresqltutorial.com/postgresql-sample-database

Why Valentina Stduio?

- Free for academic usage and students

- Some other DBMS (MySQL, MariaDB, MS SQL Server, SQLite & Valentina DB.) can be used.

- Support Crow's Food Notation

Structured Query Language (SQL)

SQL Functions can be divided into 2 parts:

1) Data Definition Language (DDL)

Structured Commands

Database, table, relation etc. etc.

2) Data Manipulation Language (DML)

Adding, deleting, updating, querying etc. data.

Database System

Database

Metadata
Employee
Products
Departments
...

Database
Management
System

SQL

Data

End User

Software