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# Data Modeling

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SI-215

Analisa & Desain Sistem Informasi I

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# Kebutuhan Basis Data dalam SI

- Memasukkan, menyimpan, dan mengambil data
- Membuat laporan berdasarkan data yang telah disimpan

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# Proses Mayor Permodelan Data

- Mengidentifikasi data dan proses yang terasosiasi
- Mendefinisikan data, misalnya tipe dan ukuran data
- Memastikan integritas data, dengan menggunakan aturan bisnis dan validasi
- Mendefinisikan proses manajemen data, seperti keamanan data dan backup
- Menspesifikasikan kebutuhan penyimpanan data

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# Database Life Cycle

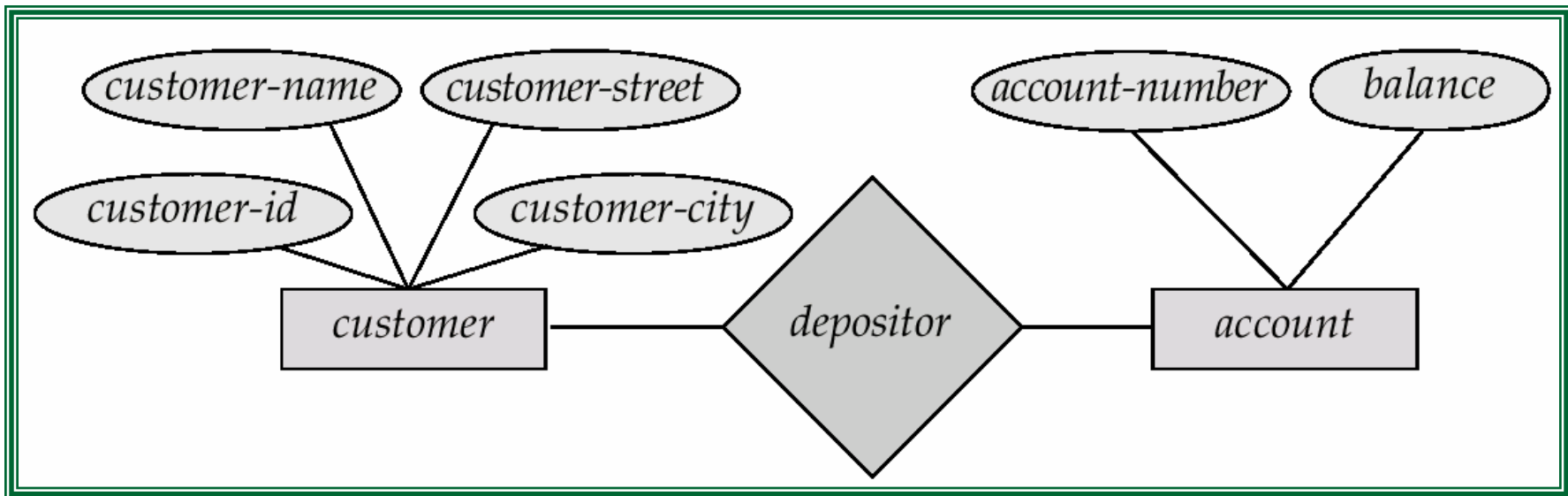
- Requirement Analysis
  - Didefinisikan dengan mewawancarai produsen dan pemakai data
  - Membuat kontrak spesifikasi basis data
  - Entity Relationship Diagram
- Logical Database Design
  - Conceptual Data Model
- Physical Database Design
  - Physical Data Model
- Implementasi
  - Membuat Query SQL
  - Aplikasi ke DBMS

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# Entity Relationship Diagram (ERD)

- E-R model untuk dunia nyata
  - Entitas/objek
    - customers, accounts, bank branch
  - Relasi antar entitas
    - Account A-101 dimiliki oleh customer Johnson
    - Relasi *depositor* menghubungkan customer dengan account
  - Atribut
    - customer-name, customer-id, .....

# Entity Relationship Diagram (ERD)



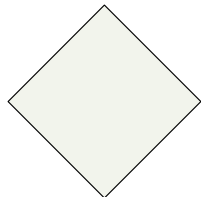
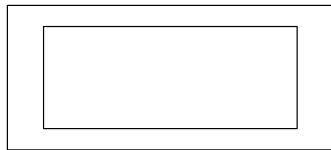
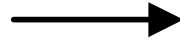
# Entity Relationship Diagram (ERD)

Attributes

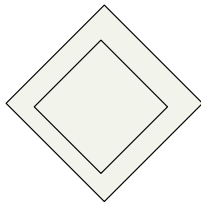
<i>Customer-id</i>	<i>customer-name</i>	<i>customer-street</i>	<i>customer-city</i>	<i>account-number</i>
192-83-7465	Johnson	Alma	Palo Alto	A-101
019-28-3746	Smith	North	Rye	A-215
192-83-7465	Johnson	Alma	Palo Alto	A-201
321-12-3123	Jones	Main	Harrison	A-217
019-28-3746	Smith	North	Rye	A-201

# Entity Relationship Diagram (ERD)

- Simbol-simbol dasar ERD



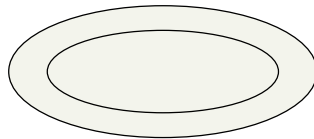
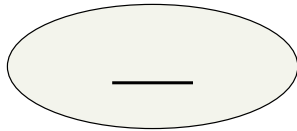
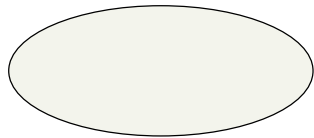
Relasi



Entitas



# Entity Relationship Diagram (ERD)



Atribut multivalue

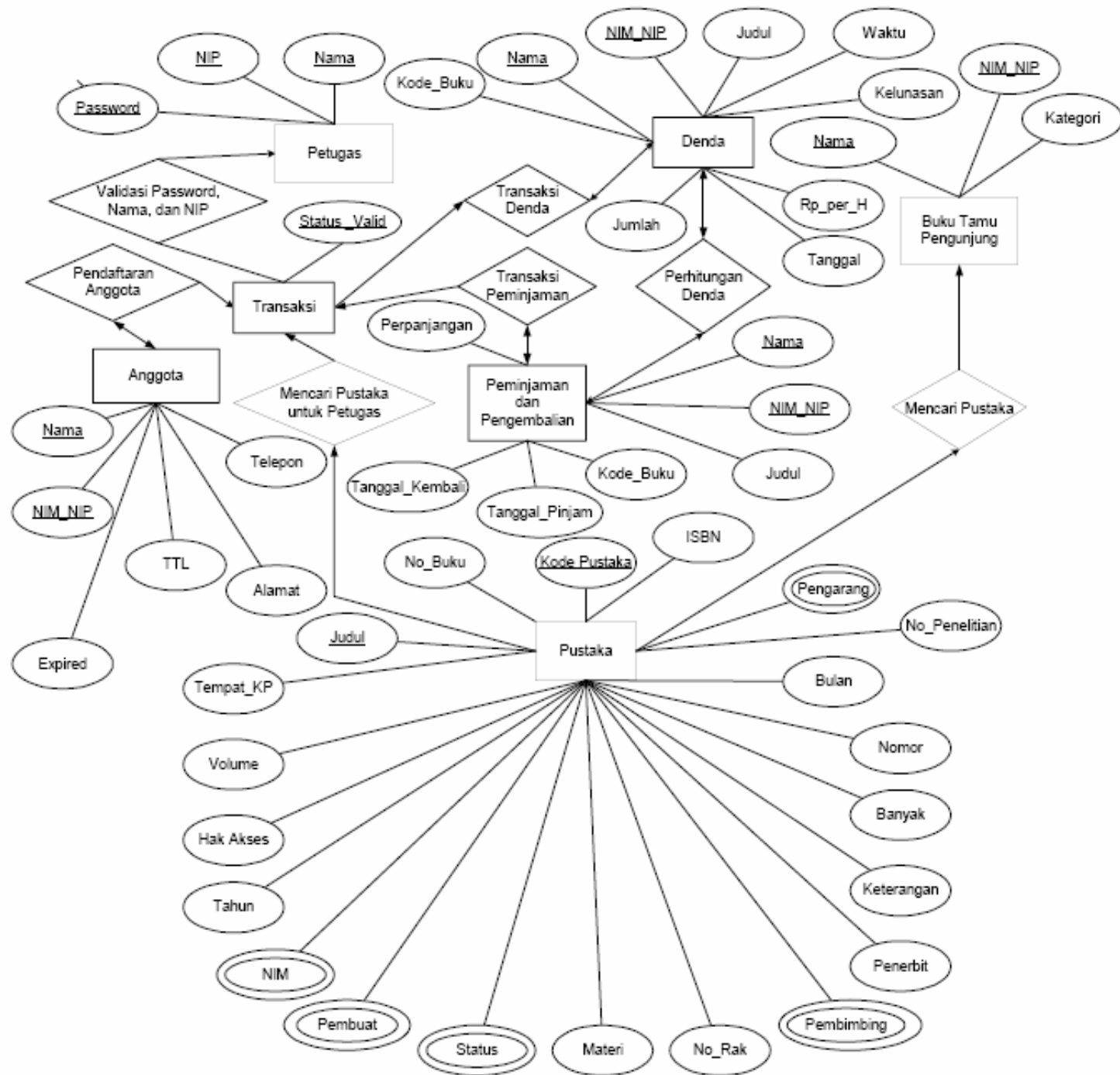
AAA

Atrib

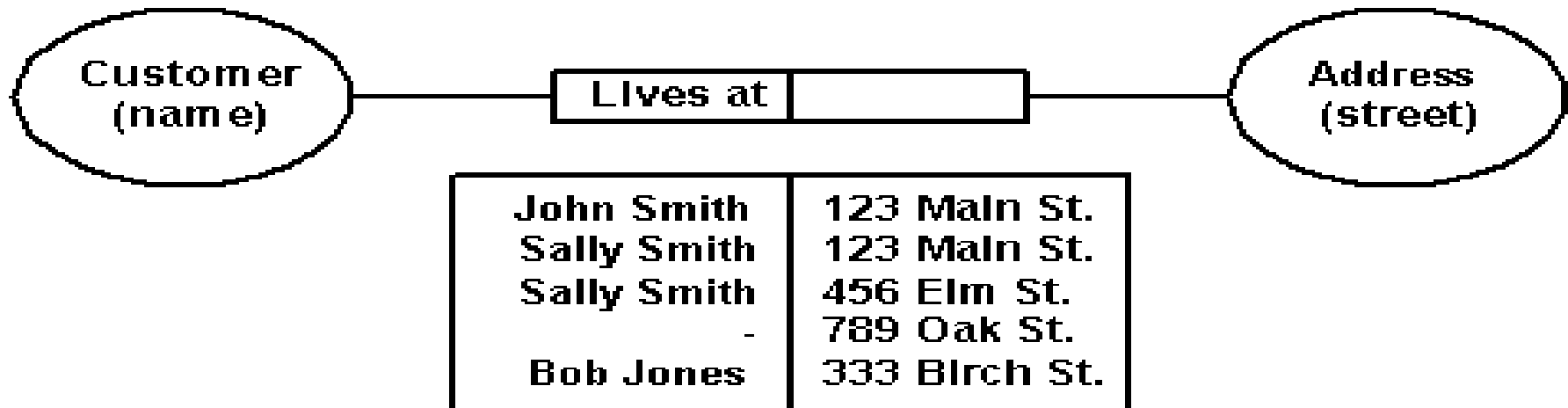


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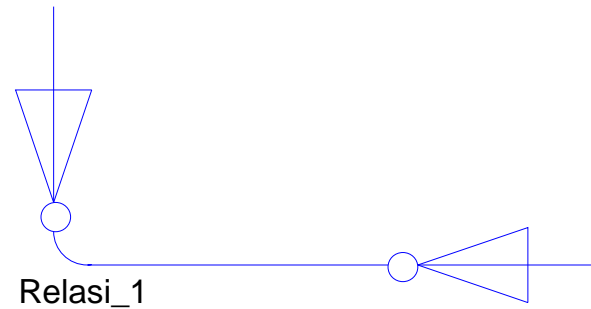
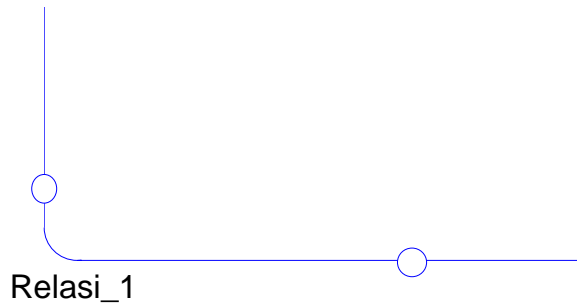
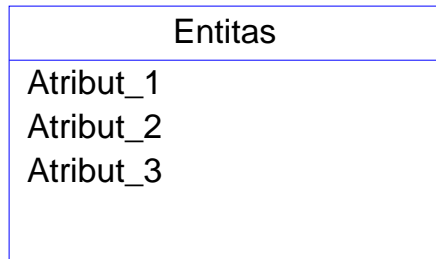
Atribut



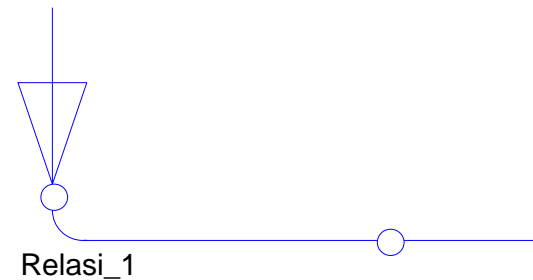
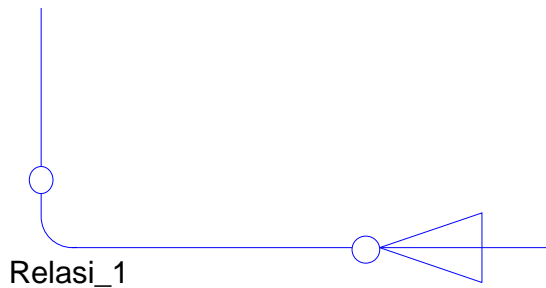
# Object-Role Modeling

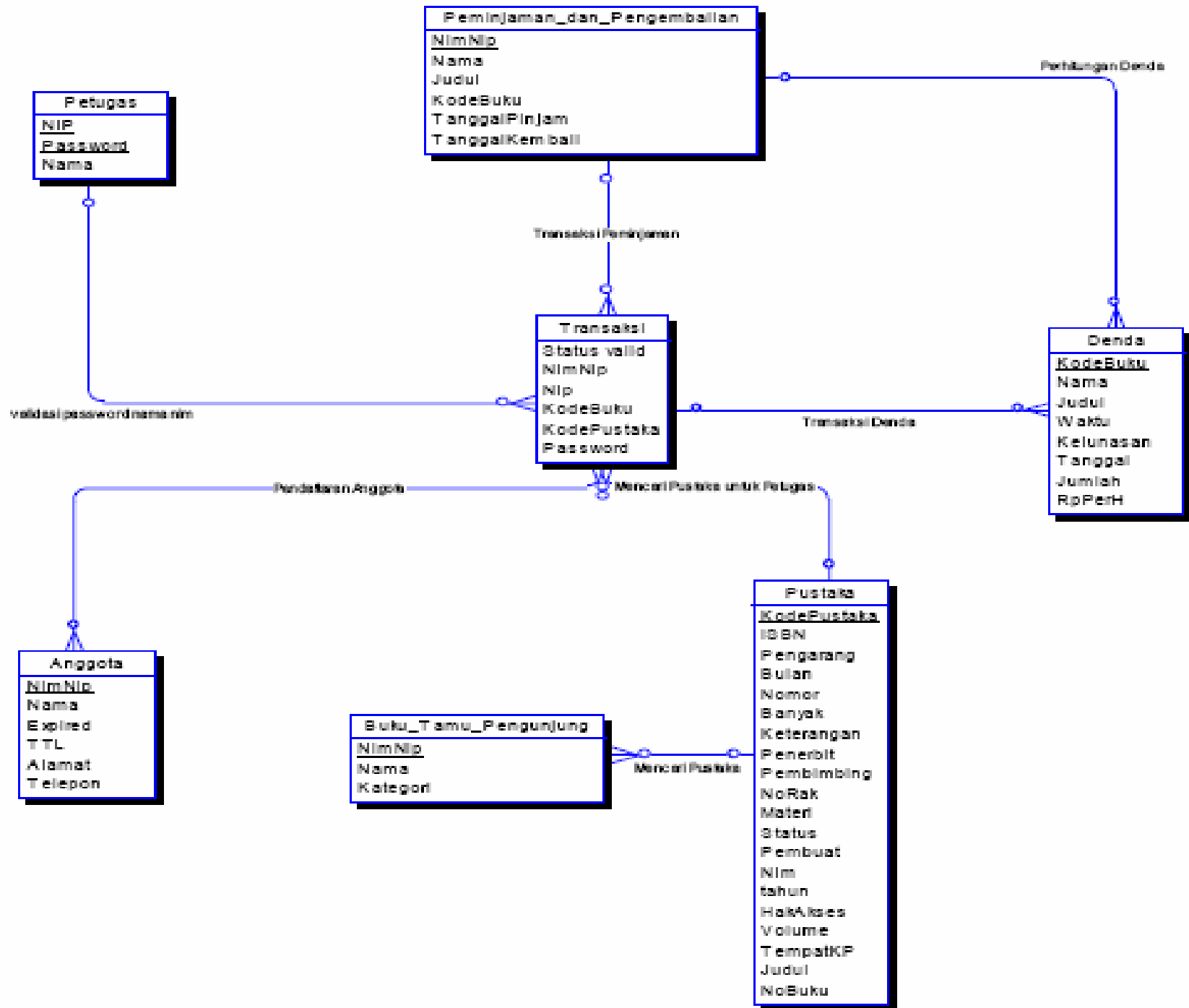


# Conceptual Data Model



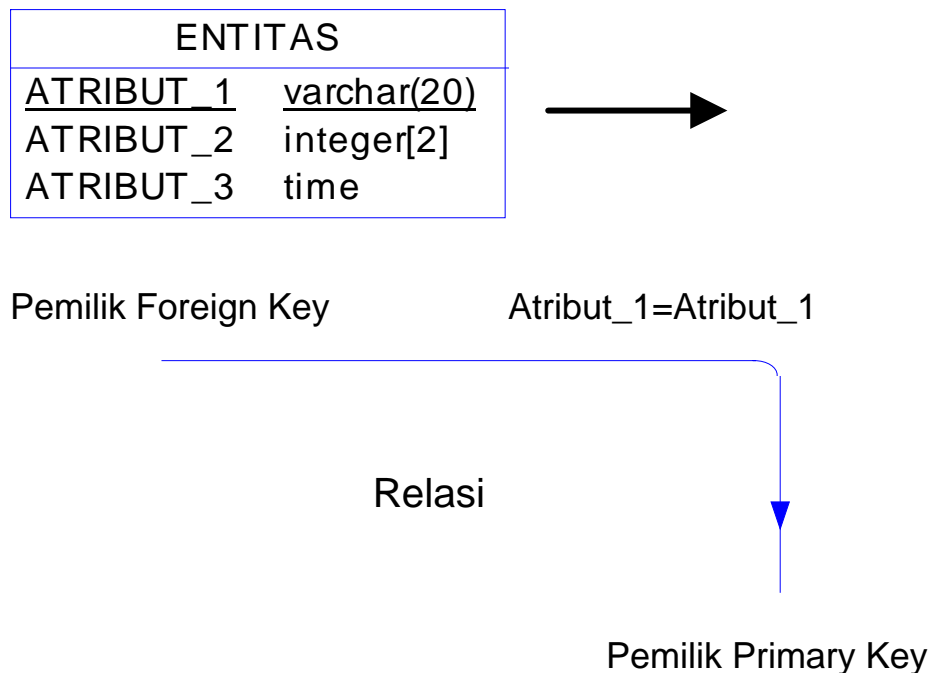
Entita

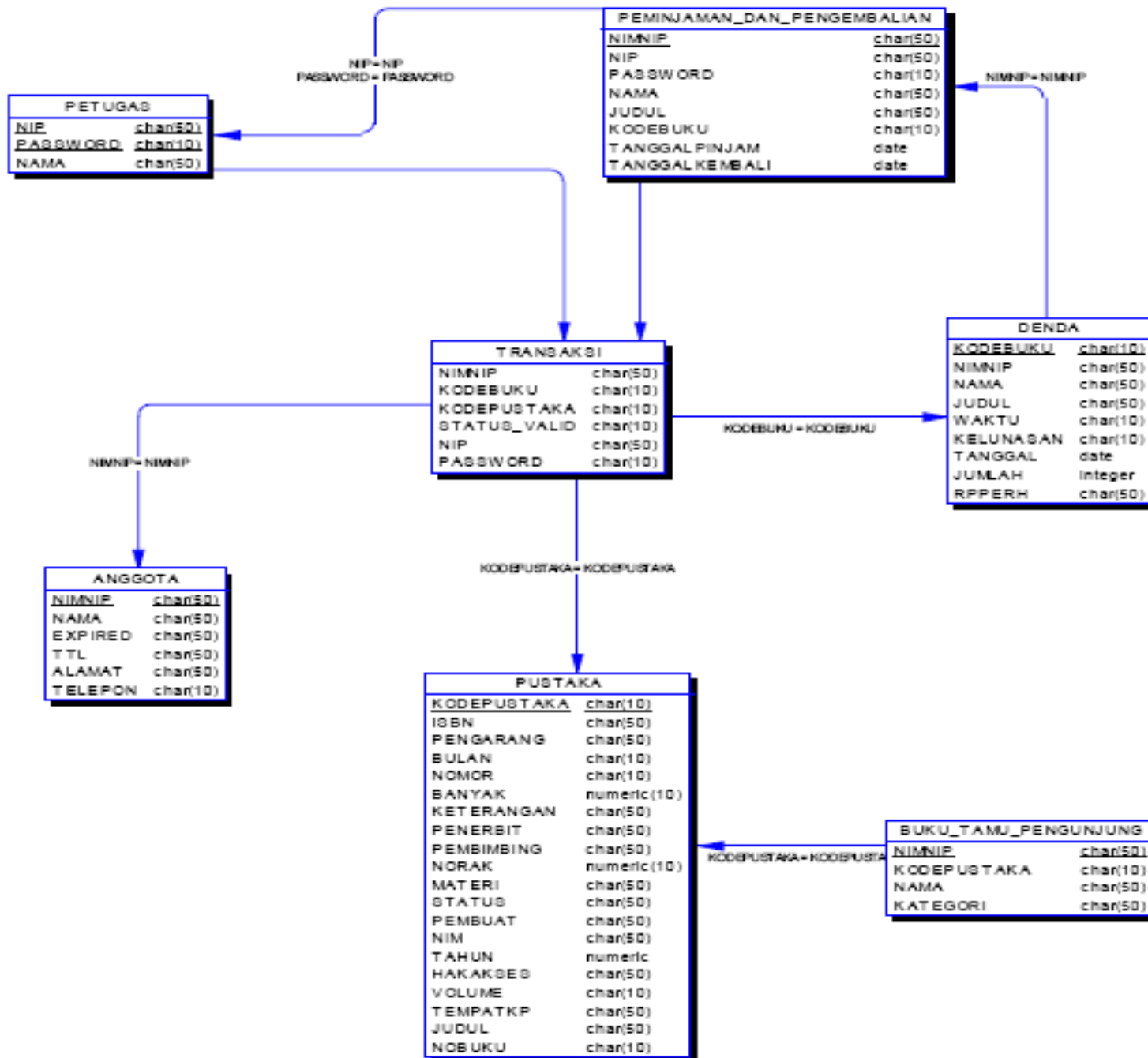




# Physical Data Model (PDM)

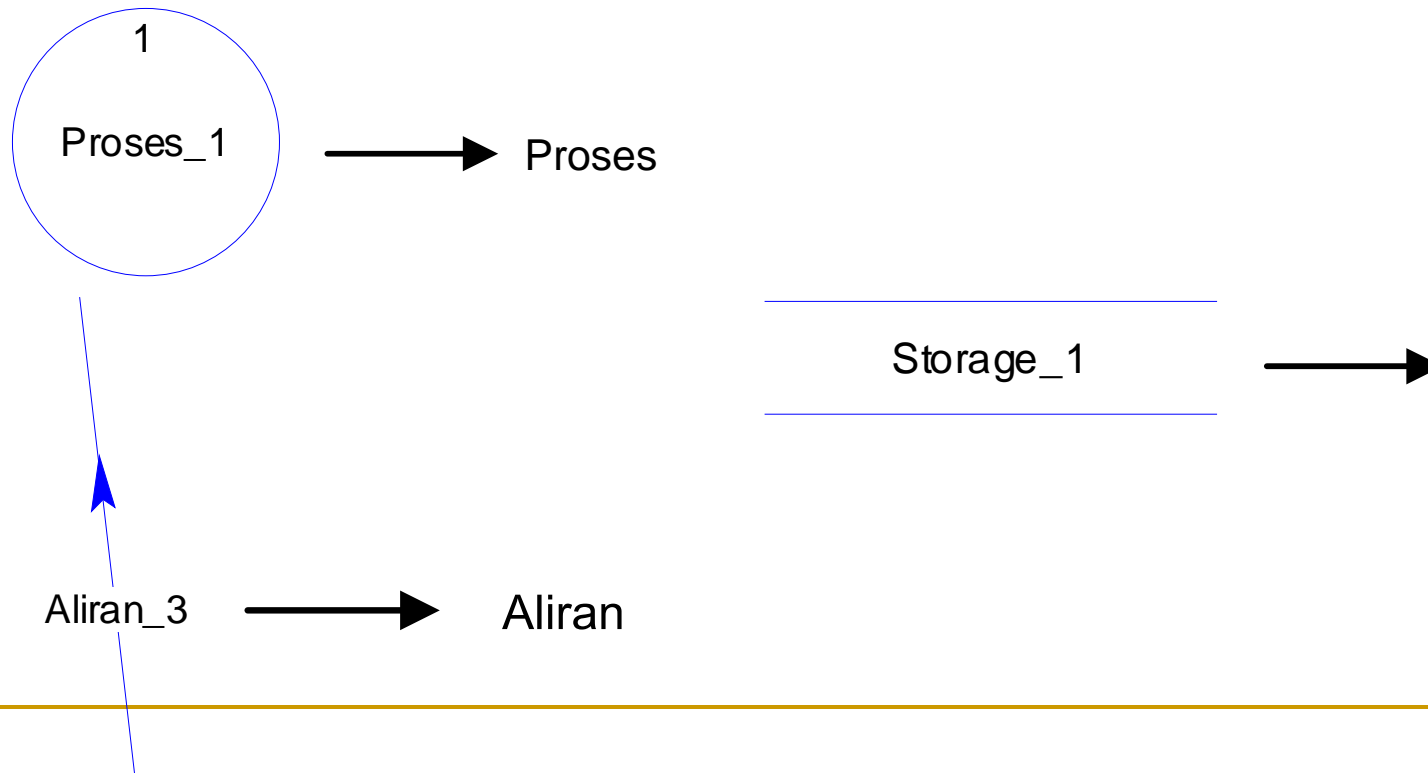
- Desain skema internal basis data (tabel, kolom, relasi tabel)





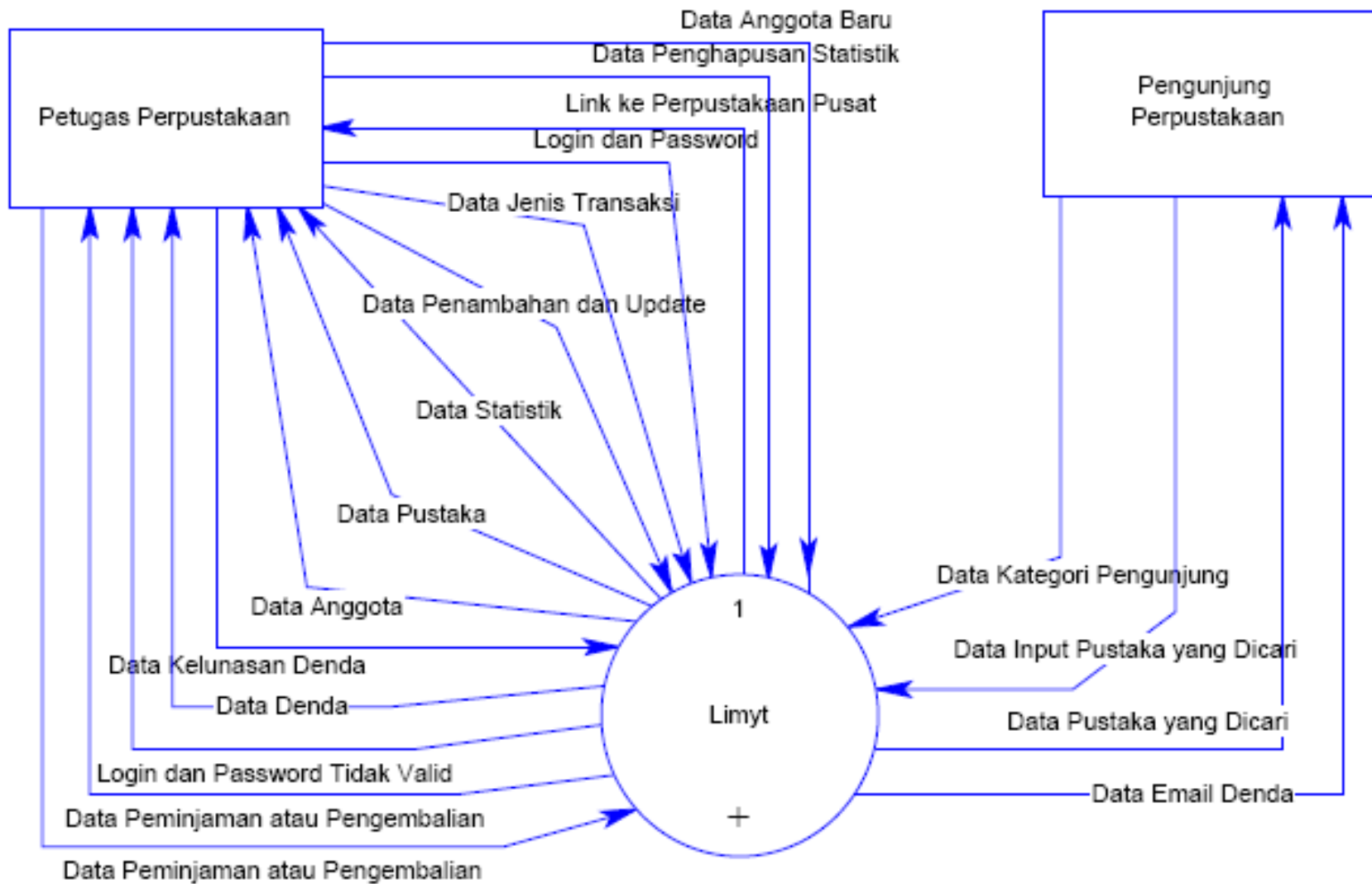
# Data Flow Diagram (DFD)

- Mendefinisikan analisa proses dan aliran data
- Context Diagram = DFD level 0





# Data Flow Diagram (DFD)



# Data Flow Diagram (DFD)

