PERTEMUAN V

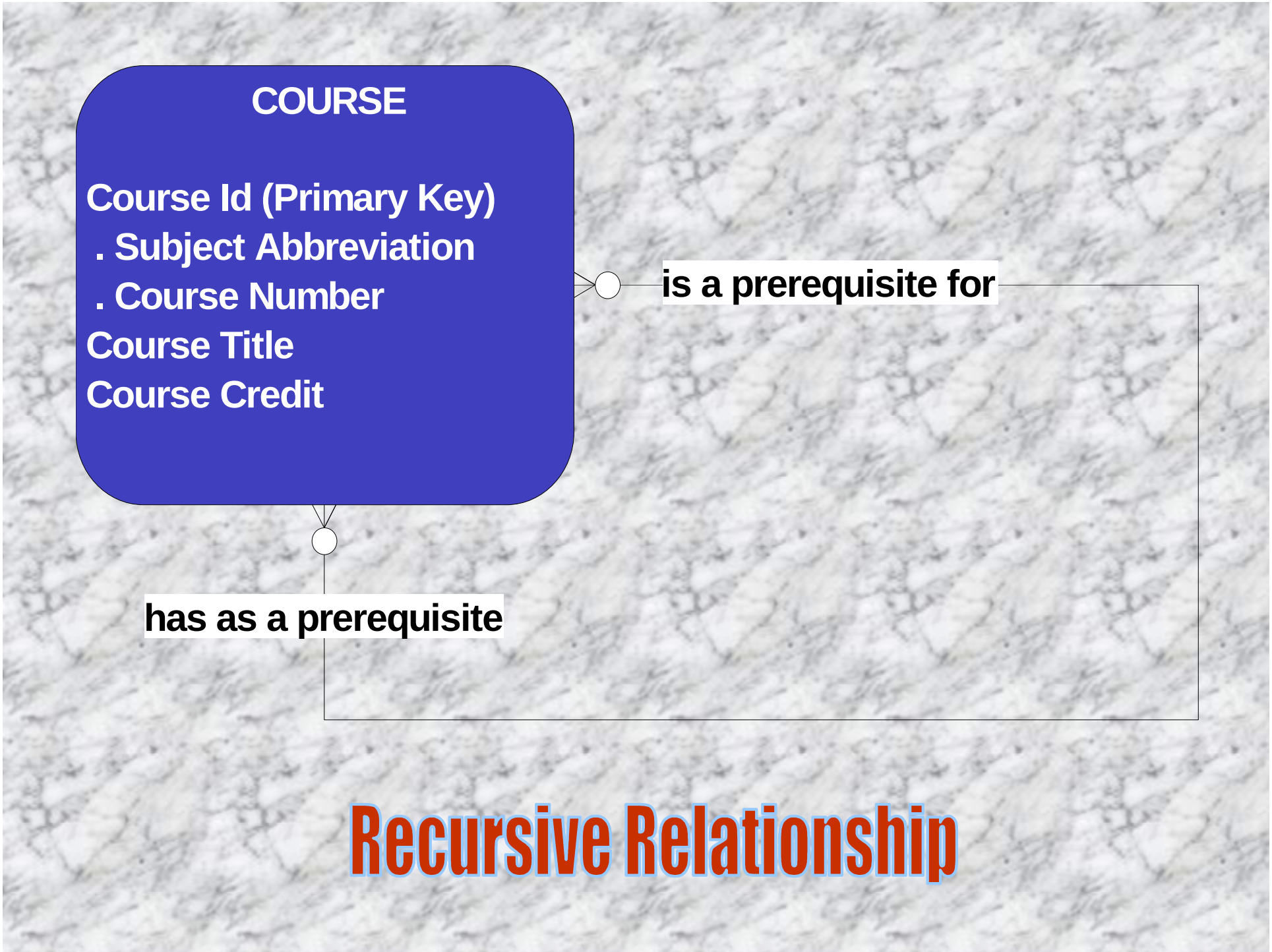
Data dan Proses Modeling



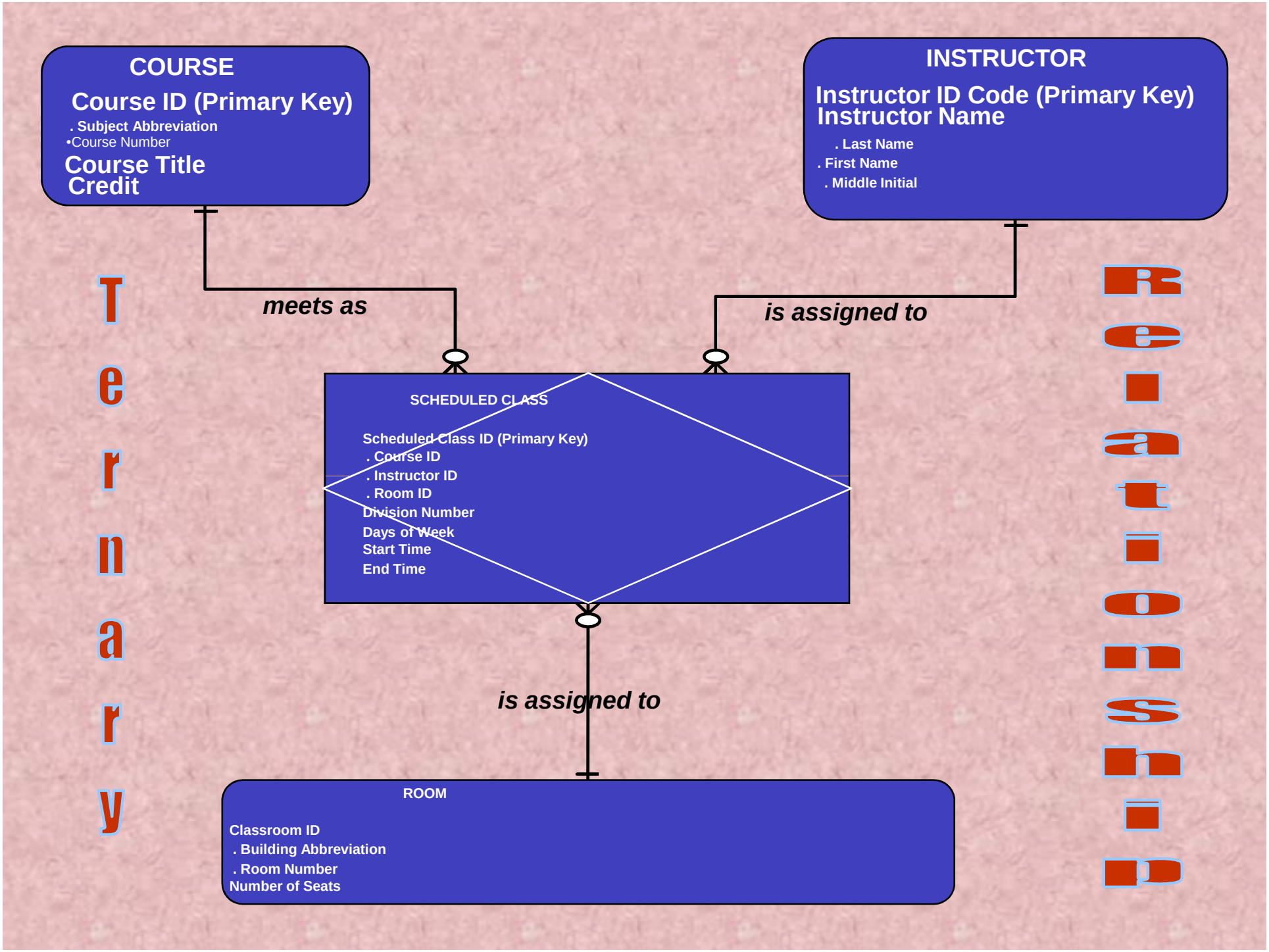
Data Modeling

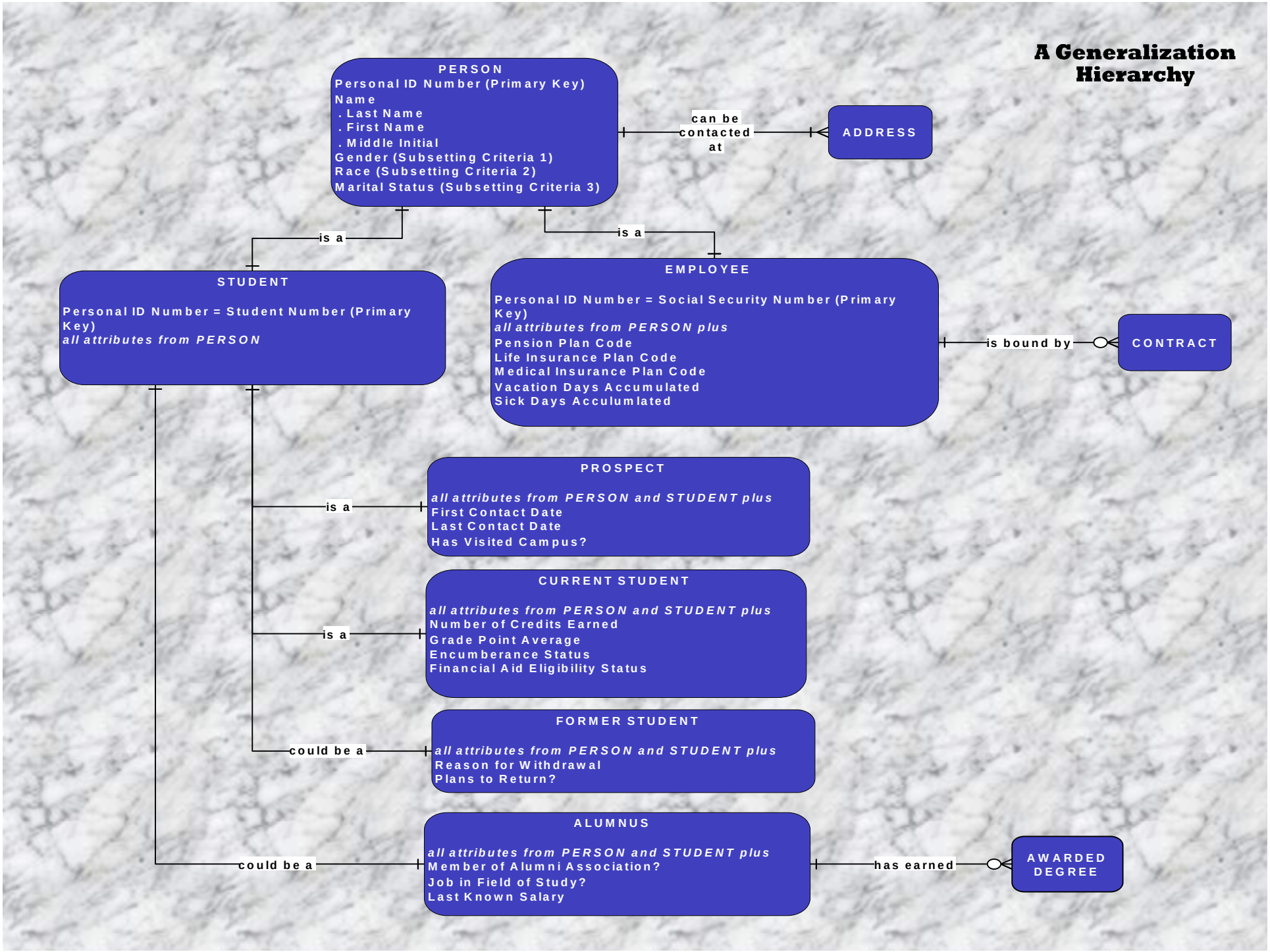
Suatu teknik untuk mengorganisasikan dan Mendokumentasikan suatu data sistem

1. Entities
2. Attributes
3. Relationships



Recursive Relationship


COURSE
Course ID (Primary Key)
. Subject Abbreviation
•Course Number
Course Title
Credit
INSTRUCTOR
Instructor ID Code (Primary Key)
Instructor Name
. Last Name
. First Name
. Middle Initial
meets as
is assigned to
SCHEDULED CLASS
Scheduled Class ID (Primary Key)
. Course ID
. Instructor ID
. Room ID
Division Number
Days of Week
Start Time
End Time
is assigned to
ROOM
Classroom ID
. Building Abbreviation
. Room Number
Number of Seats
Ternary Relationship


A Generalization Hierarchy
PERSON
Personal ID Number (Primary Key)
Name
. Last Name
. First Name
. Middle Initial
Gender (Subsetting Criteria 1)
Race (Subsetting Criteria 2)
Marital Status (Subsetting Criteria 3)
can be contacted at
ADDRESS
is a
is a
STUDENT
Personal ID Number = Student Number (Primary Key)
all attributes from PERSON
EMPLOYEE
Personal ID Number = Social Security Number (Primary Key)
all attributes from PERSON plus
Pension Plan Code
Life Insurance Plan Code
Medical Insurance Plan Code
Vacation Days Accumulated
Sick Days Acculumlated
is bound by
CONTRACT
PROSPECT
all attributes from PERSON and STUDENT plus
First Contact Date
Last Contact Date
Has Visited Campus?
is a
CURRENT STUDENT
all attributes from PERSON and STUDENT plus
Number of Credits Earned
Grade Point Average
Encumberance Status
Financial Aid Eligibility Status
is a
FORMER STUDENT
all attributes from PERSON and STUDENT plus
Reason for Withdrawal
Plans to Return?
could be a
ALUMNUS
all attributes from PERSON and STUDENT plus
Member of Alumni Association?
Job in Field of Study?
Last Known Salary
could be a
has earned
AWARDED DEGREE

Proses Logika Data Modeling

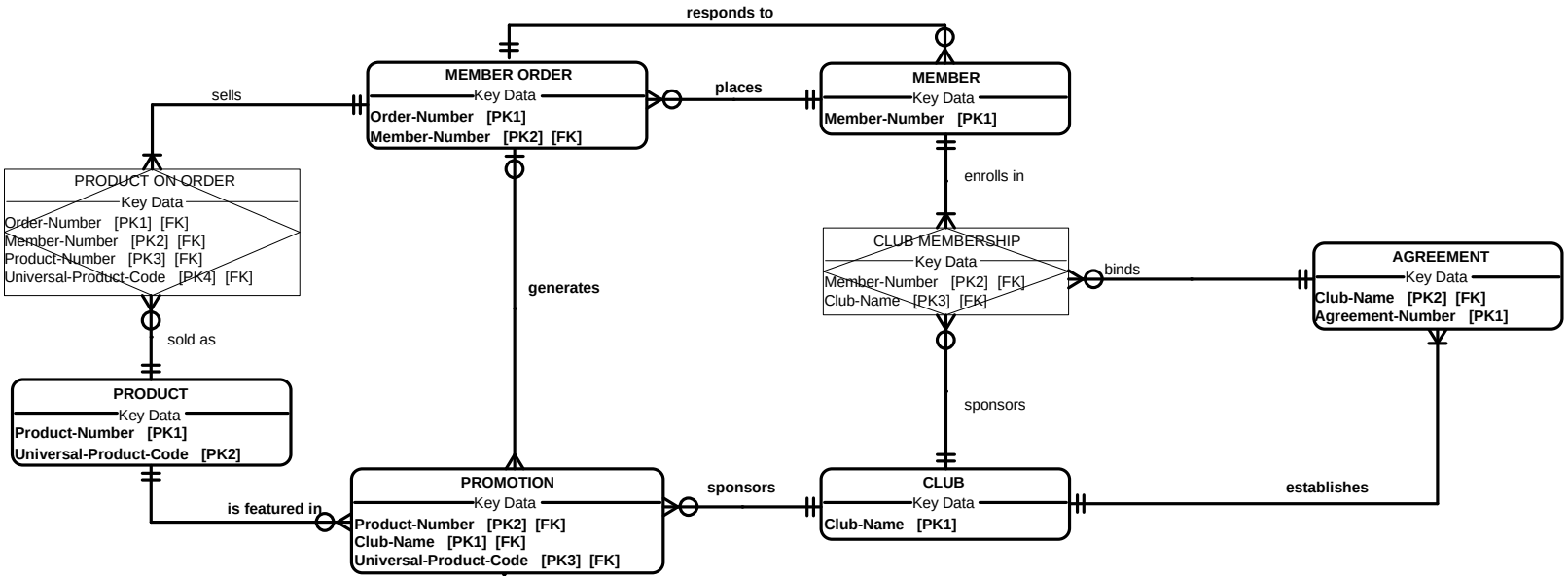
1. Stratejik Data Modeling
2. Data Modeling Selama Analisis Sistem
3. Menentukan arus data dan mentransformasikan data
4. Menemukan Kumpulan data dan Informasi
5. Computer-Aided Systems Engineering (Case) for Data Modeling

Membangun Model Data

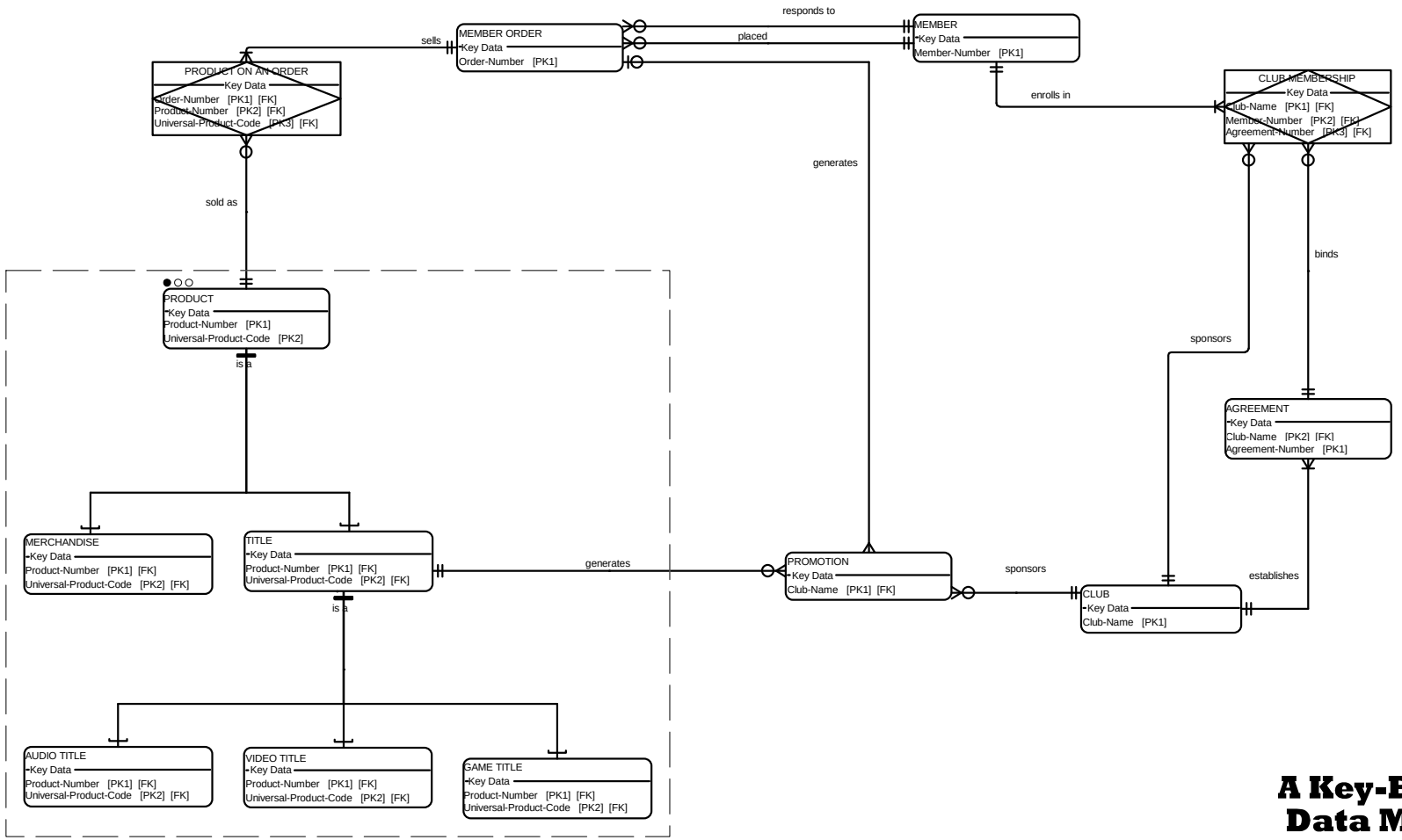
- Menentukan Entities
- Membuat Hubungan Data
- Menentukan "Key Word"
- Menentukan Tingkatan Arus Data
- Menentukan Atribusi Secara Menyeluruh
- Menjelaskan Model Secara Menyeluruh

Entity Name	Business Definition
AGREEMENT	A contract whereby a member agrees to purchase a certain number of products within a certain time. After fulfilling that agreement, the member becomes eligible for bonus credits that are redeemable for free or discounted products. Note: A major system improvement objective is to make agreements more flexible with respect to other clubs. Currently, only purchases within the club that issued an agreement count toward credits. Another system improvement objective would award bonus credits for each purchase leading up to fulfillment of the agreement, with accelerated bonuses after fulfillment of the agreement.
CLUB	A SoundStage membership group to which members can belong. Clubs tend to be organized according to product interests such as music versus movies versus games; or specialized media interests such as Digital Video Disks (DVD) or Nintendo. Note: Cross-club interaction is a desired objective for the new system.
MEMBER	An active member of one or more clubs. Note: A target system objective is to re-enroll inactive members as opposed to deleting them.
MEMBER ORDER	An order generated for a member as part of a monthly promotion, or an order initiated by a member. Note: The current system only supports orders generated from promotions; however, customer initiated orders have been given a high priority as an added option in the proposed system.
PRODUCT	An inventoried product available for promotion and sale to members. Note: System improvement objectives include (1) compatibility with new bar code system being developed for the warehouse, and (2) adaptability to a rapidly changing mix of products.
PROMOTION	A monthly or quarterly event whereby dated orders are generated for all members in a club. Members then have some period of time to cancel or accelerate fulfillment of that order, after which the order is automatically filled.

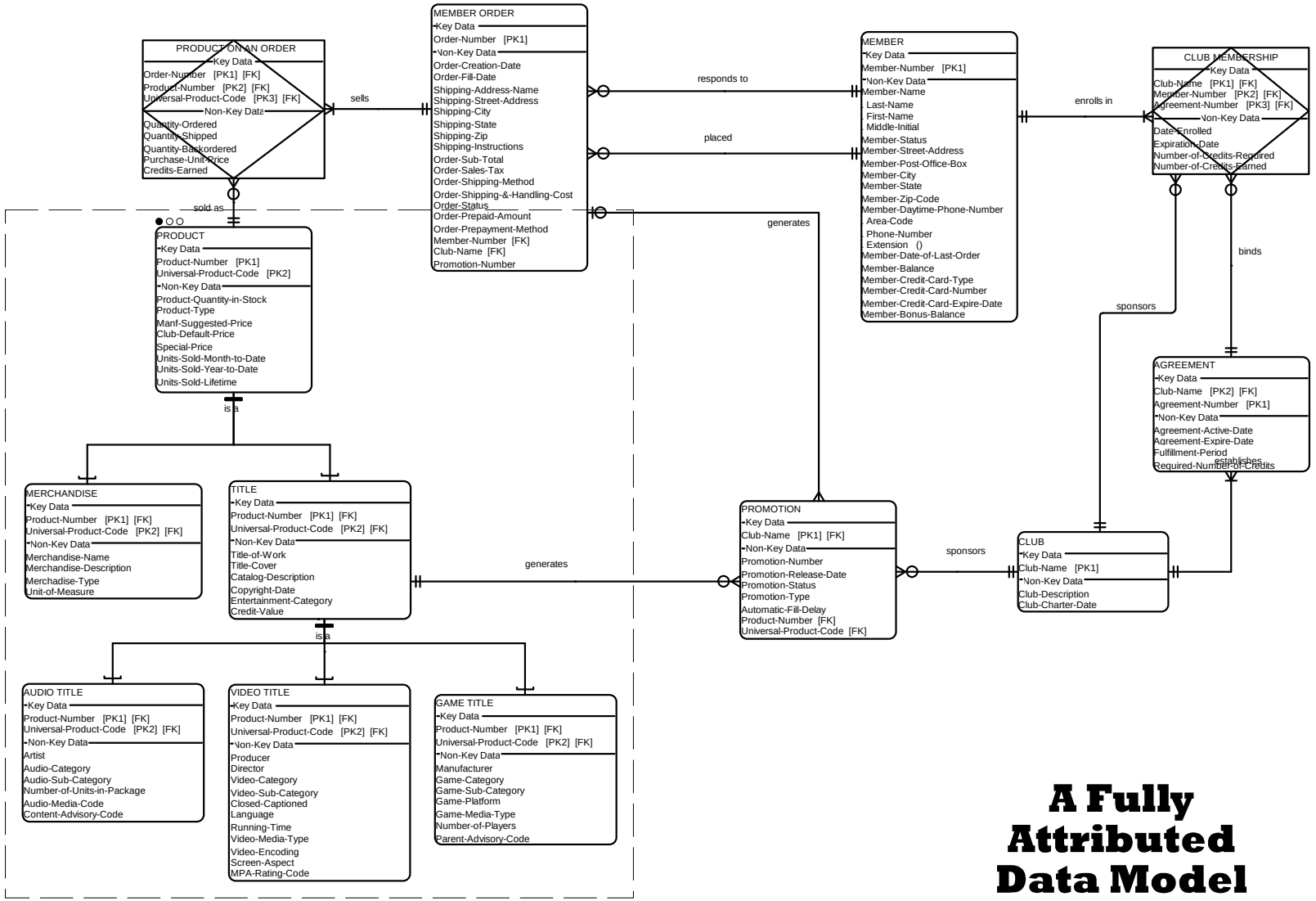
Fundamental Entities Identified for the Soundstage Project



A Key-Based Data Model



A Key-Based Data Model with a Generalization Hierarchy



A Fully Attributed Data Model

Proses Modeling

Suatu teknik untuk mengorganisasikan dan Mendokumentasikan suatu struktur dan arus data

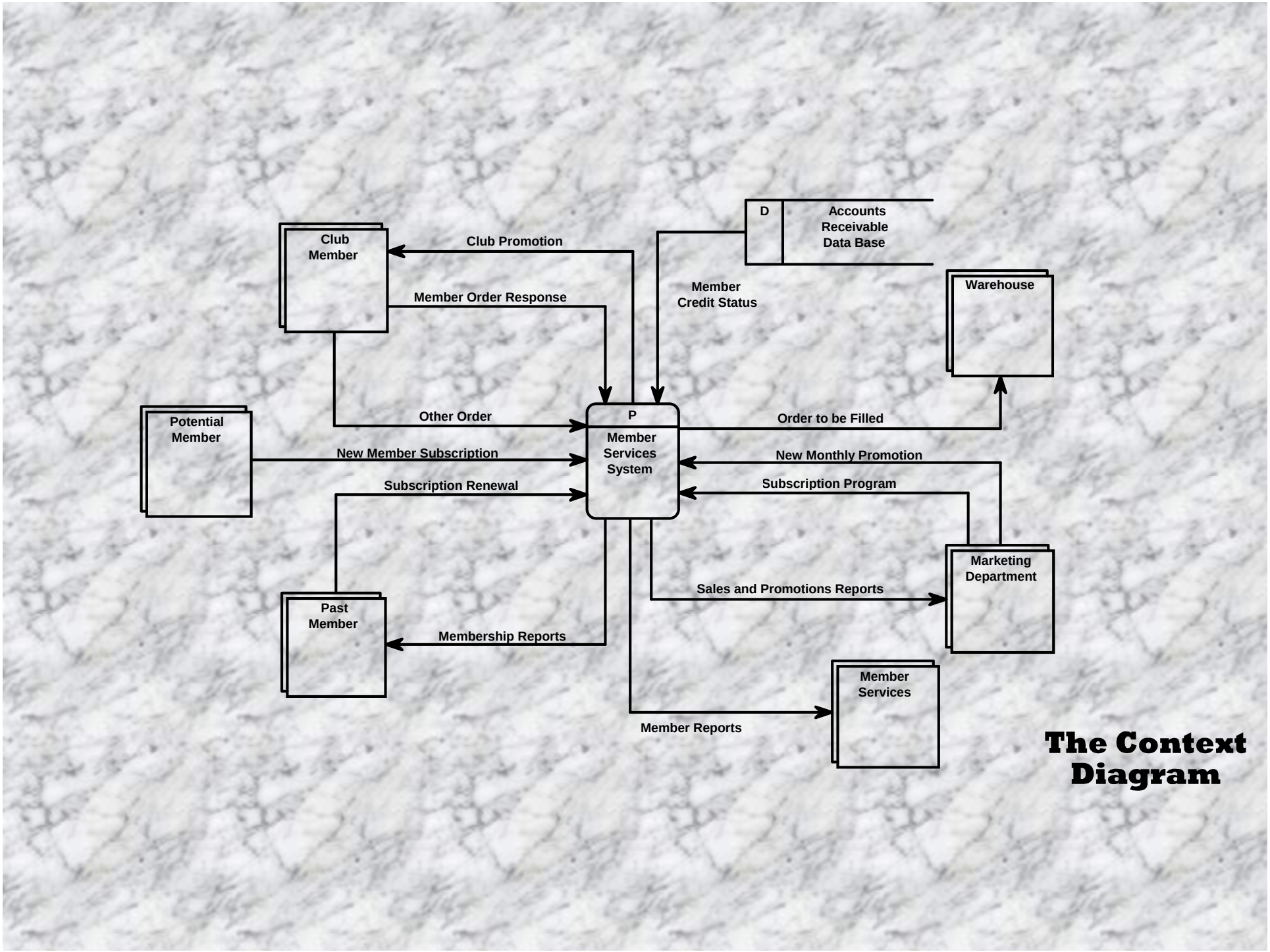
1. A System is a Process
2. Process Decomposition
3. Logical Processes & Conventions

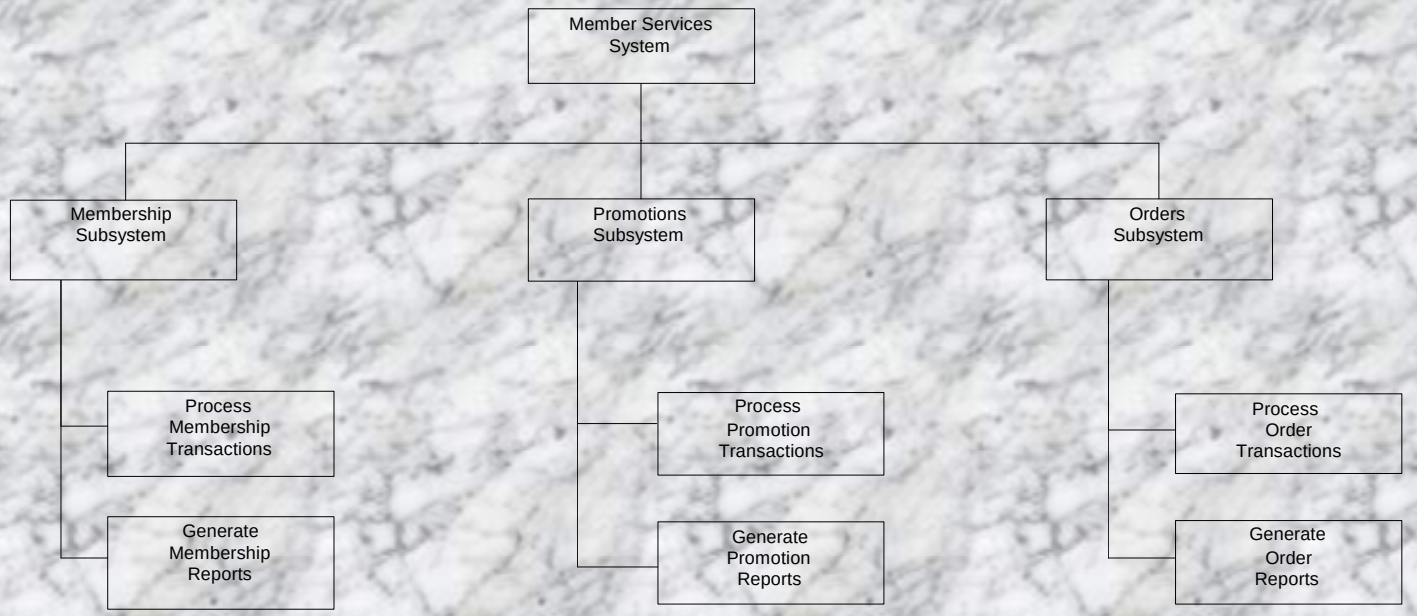
Proses Logika Modeling

1. Stratejik Proses Modeling
2. Proses Modeling Selama Analisis Sistem
3. Menentukan Proses dan mentransformasikan proses
4. Menemukan Kumpulan data dan Informasi
5. Computer-Aided Systems Engineering (Case) for Data Modeling

Membangun Model Data

- Membuat Hubungan Proses
- Membagi Proses Berdasarkan Fungsi
- Membuat Rincian Tugas Suatu Bagian
- Membagi Rincian Tugas dari Suatu Bagian
- Membuat Diagram Kejadian
- Menentukan Sistem Diagram


Club Member
Club Promotion
Member Order Response
D
Accounts Receivable Data Base
Member Credit Status
Warehouse
Potential Member
Other Order
P
Member Services System
Order to be Filled
New Member Subscription
New Monthly Promotion
Subscription Renewal
Subscription Program
Marketing Department
Sales and Promotions Reports
Past Member
Membership Reports
Member Services
Member Reports
The Context Diagram

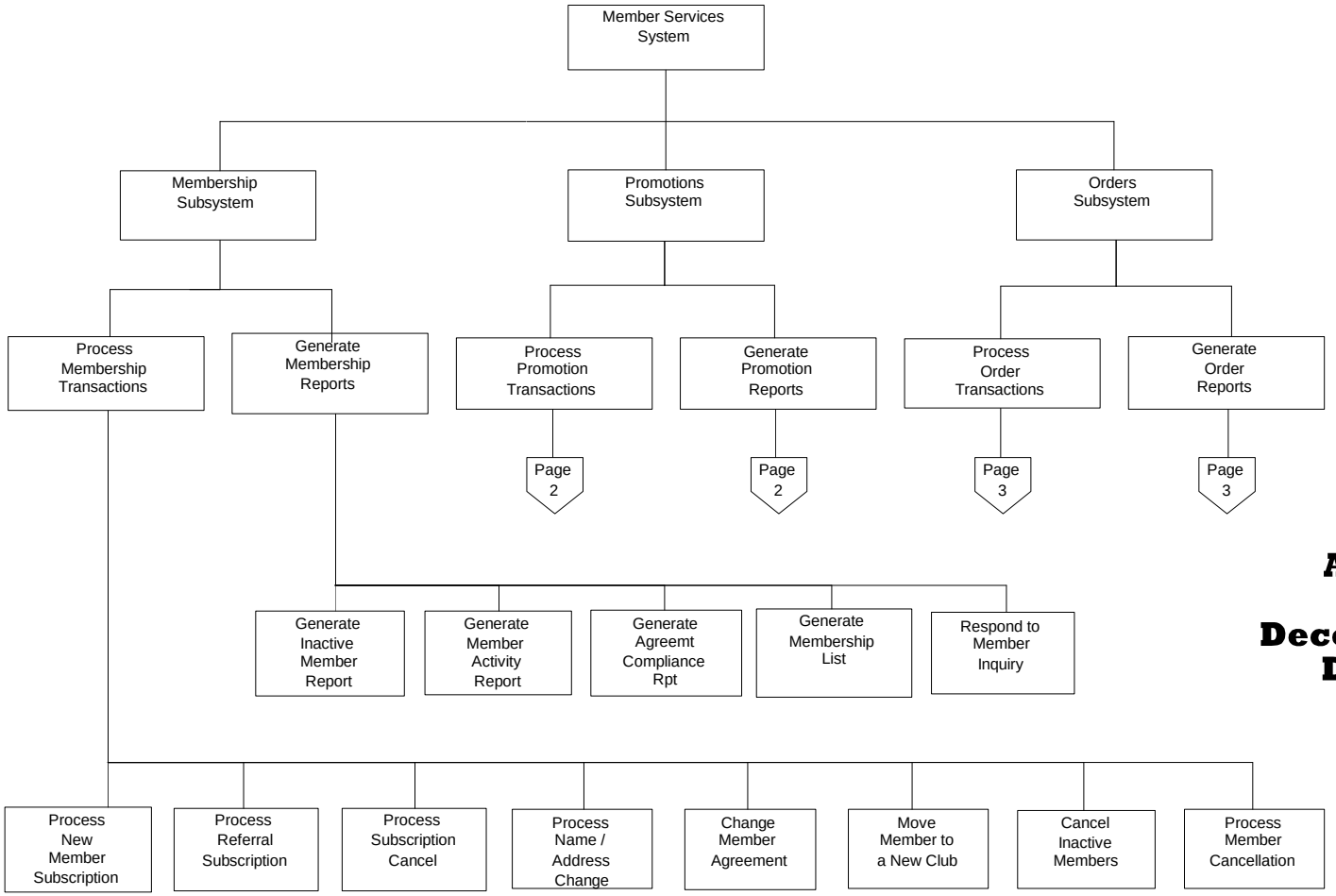


A Functional Decomposition Diagram

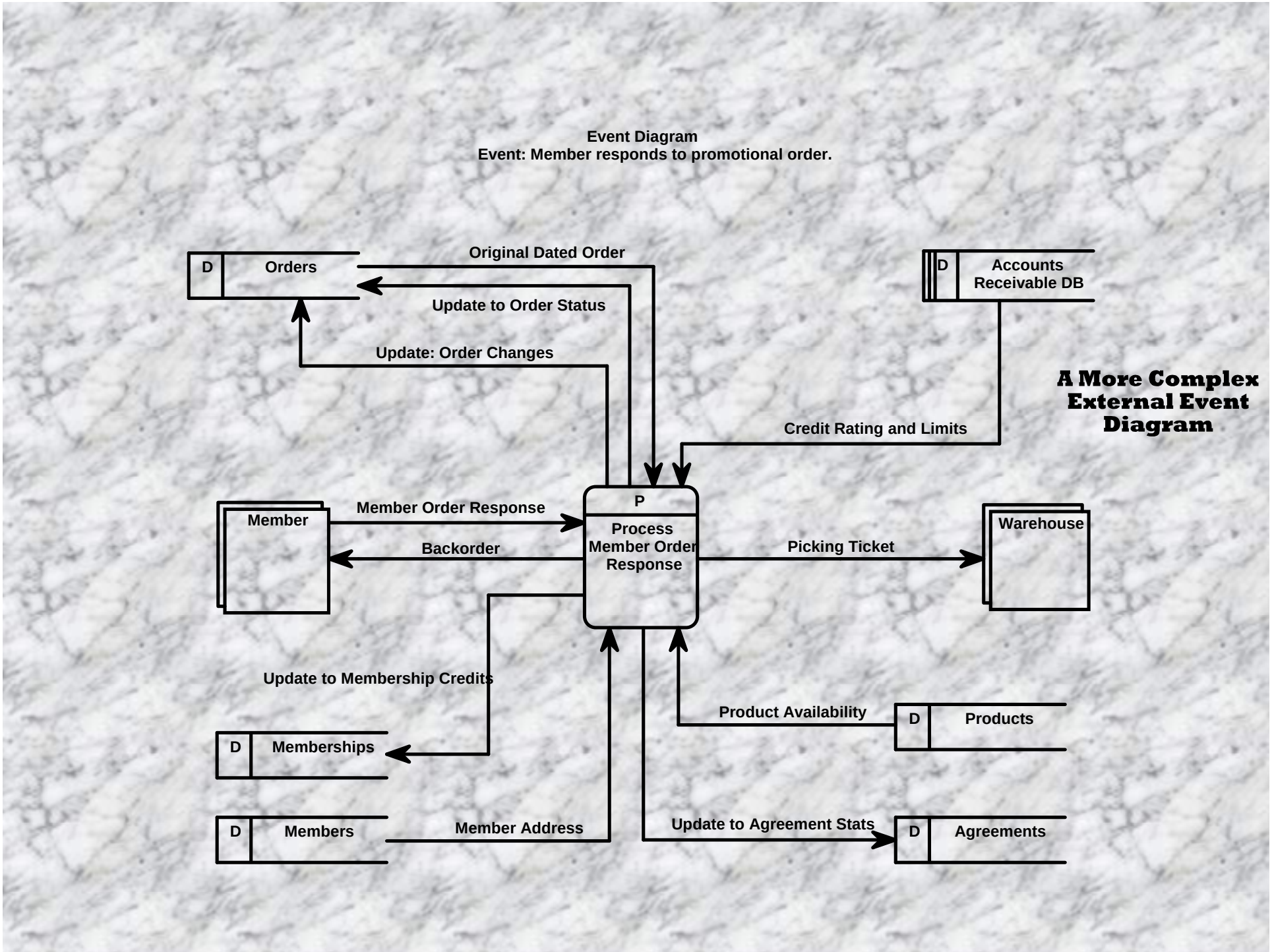
EVENT LIST

Event Description	Trigger (Inputs)	Responses (Outputs)
Marketing department establishes a new membership plan and offer.	SUBSCRIPTION PROGRAM	SUBSCRIPTION PLAN CONFIRMATION CREATE AGREEMENT
Marketing department terminates a membership offer.	SUBSCRIPTION PROGRAM TERMINATION	SUBSCRIPTION PLAN TERMINATION NOTICE DELETE AGREEMENT UPDATE MEMBERS
Potential member responds to a subscription offer.	NEW MEMBER SUBSCRIPTION	SUBSCRIPTION CONFIRMATION SUBSCRIPTION REJECTION CREATE MEMBER
Potential member is referred to membership by a current member.	REFERAL SUBSCRIPTION REFERAL BONUS ORDER	SUBSCRIPTION CONFIRMATION SUBSCRIPTION REJECTION CREATE MEMBER
Potential member exercises 10 day cancellation option.	SUBSCRIPTION CANCELLATION	SUBSCRIPTION CANCELLATION NOTICE DELETE MEMBER
Club member changes name or address.	MEMBER CHANGE OF NAME OR ADDRESS	UPDATE MEMBER
Time to cancel those inactive members.	INACTIVITY CHECK	CANCELLED MEMBERS REPORT UPDATE MEMBER
Marketing department establishes a new monthly or seasonal promotion.	MONTHLY PROMOTION SEASONAL PROMOTION	DATED ORDER CREATE ORDER
Member responds to dated promotional order.	MEMBER ORDER RESPONSE	ORDER TO BE FILLED CREDIT PROBLEM NOTIFICATION UPDATE MEMBER UPDATE ORDER UPDATE PRODUCT
Time to automatically fill order for which member has not replied to dated promotion.	DATED ORDER DEADLINE	ORDER TO BE FILLED DELETE ORDER CREATE ORDER UPDATE ORDER UPDATE MEMBER UPDATE PRODUCT
Time to produce promotion analyses	END OF PROMOTION	PROMOTION ANALYSIS REPORT
Time to analyze sales.	END OF MONTH END OF QUARTER END OF FISCAL YEAR	SALES ANALYSIS REPORT

A Partial Event-Response List



A Partial Event Decomposition Diagram


Event Diagram
Event: Member responds to promotional order.
D
Orders
Original Dated Order
Update to Order Status
Update: Order Changes
D
Accounts Receivable DB
A More Complex External Event Diagram
Credit Rating and Limits
P
Process Member Order Response
Member
Member Order Response
Backorder
Warehouse
Picking Ticket
Update to Membership Credits
Product Availability
D
Memberships
D
Products
D
Members
Member Address
Update to Agreement Stats
D
Agreements

A Primitive Diagram

