

MODUL TIK UNTUK SMA

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Mari Berbagi Ilmu Dengan Yang Lain

Pesan soal-soal matematika untuk SD, SMP dan SMA ?

Soal ulangan harian, ulangan mid, ulangan semester, soal-soal UAN dll.

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DATABASE ORACLE

KELAS XI-IPA Pertemuan-2

RELATIONSHIP

Setiap relationship:

1. Menunjukkan sesuatu yang penting/signifikan dari suatu bisnis
2. Menunjukkan bagaimana entities direlasikan dengan yang lainnya
3. Selalu diantara dua entities (satu atau dua kali entities)
4. Selalu memiliki 2 sisi
5. Memiliki nama di kedua ujungnya
6. Memiliki sifat optionality
7. Memiliki degree atau cardinality

Contoh relasi sederhana:

1. Antara SEAT dan PASSENGER
Each SEAT may be sold to one or more PASSENGERS.

Each passenger may purchase one SEAT.

2. Antara SONG dan TYPE
SONG (music/soundtrack) is classified by TYPE
TYPE is a classification for SONG

Secara lebih terperinci:

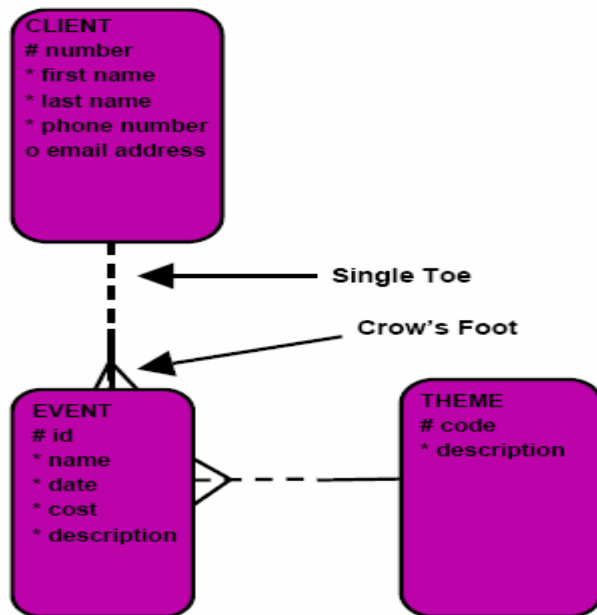
Each SONG must be classified by one (and only one) TYPE

Each TYPE may be a classification for one or more SONGs

ER DRAWING CONVENTIONS

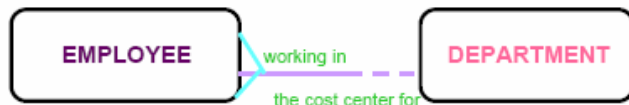
- Entities are represented by softboxes.
- Entity names go in the softboxes.
- Entity names are always singular and written with all capital letters.
- Attributes are listed under the entity names.
- Mandatory attributes are marked with an asterisk: "*"
- Optional attributes are marked with a circle: "o"
- Unique identifiers are marked with a hash sign: "#"

Contoh ERD (Entity Relationship Diagram):



The components of ERDish

1. EACH
2. Entity A
3. OPTIONALITY (must be/may be)
4. RELATIONSHIP NAME
5. CARDINALITY (one and only one/ one or more)
6. Entity B



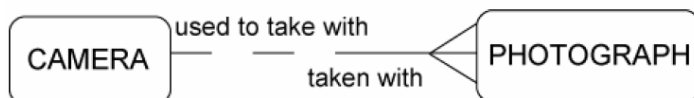
- | | |
|---|--|
| 1. EACH | 1. EACH |
| 2. EMPLOYEE (entity A) | 2. DEPARTMENT (entity B) |
| 3. MUST BE (optionality, solid line) | 3. MAY BE (optionality, dotted line) |
| 4. WORKING IN (relationship name) | 4. THE COST CENTER FOR (relationship name) |
| 5. ONE AND ONLY ONE (cardinality, single toe) | 5. ONE OR MORE (cardinality, crow's foot) |
| 6. DEPARTMENT (entity B) | 6. EMPLOYEE (entity A) |

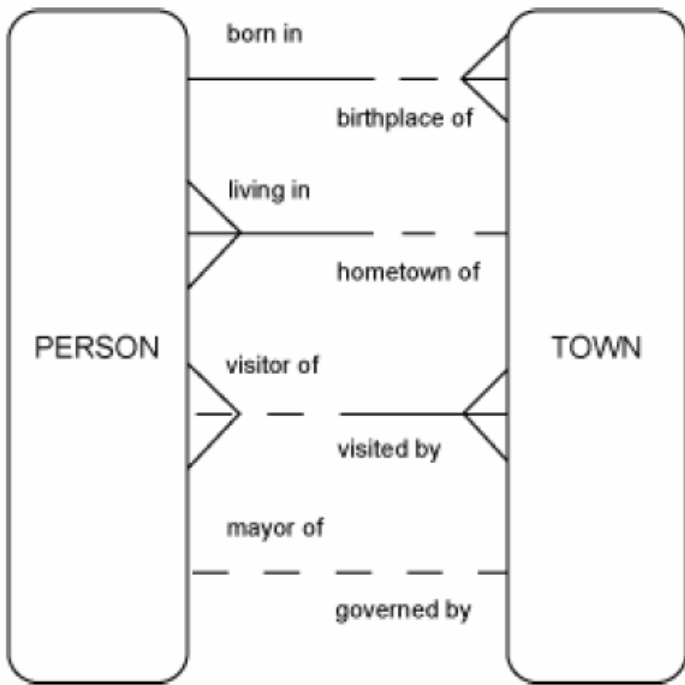
Dibaca:

Each employee must be working in one and only one department

Each department may be the cost center for one or more employee

Bagaimanakah cara membacanya ? Berikan komentar !





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DATABASE ORACLE

Beberapa Pengertian Penting

Primary Key

Adalah sebuah column atau beberapa column yang dikelompokkan secara unik mengidentifikasi row sebuah table.

Contoh:

NIS dalam entity Siswa

Hanya bisa terdapat satu primary key dalam sebuah table. Primary key mungkin berasal dari satu column atau beberapa columns. Primary key tidak boleh bernilai NULL (kosong)

Foreign Key

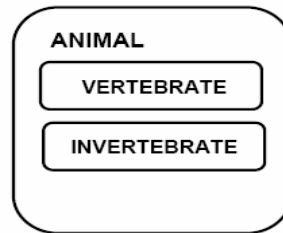
Istilah yang banyak dipakai dalam membuat relasi antara satu table dan table lainnya

SUBTYPES AND SUPERTYPES

A subtype:

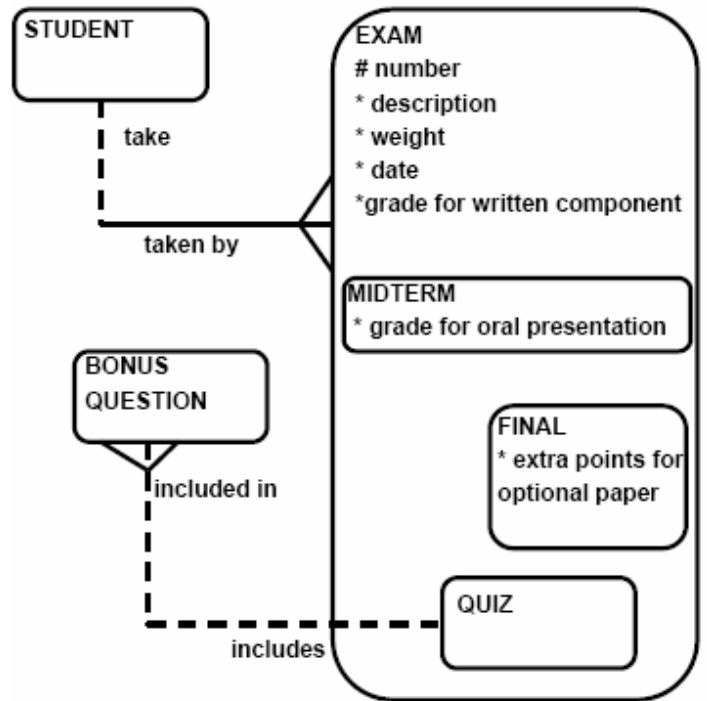
- inherits all attributes of the supertype
- inherits all relationships of the supertype
- usually has its own attributes or relationships
- is drawn within the supertype
- never exists alone
- may have subtypes of its own
- is also known as a "subentity"

Contoh:

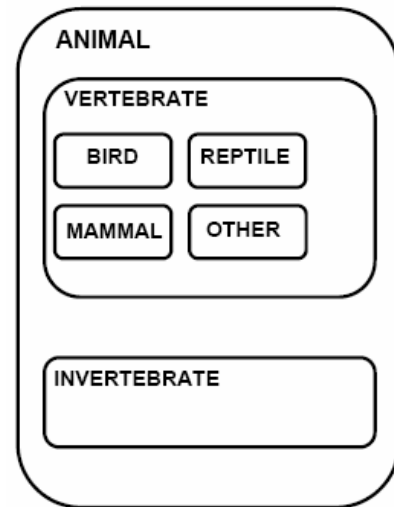


ANIMAL SUPERTYPE

EXAM is a supertype of QUIZ, MIDTERM, and FINAL.

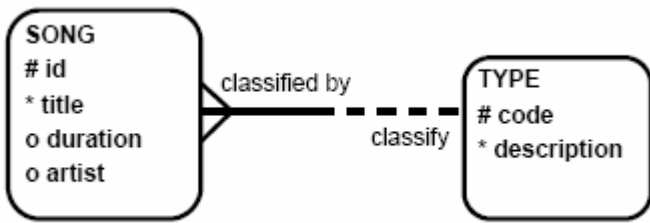


Nested Subtypes



NESTED ANIMAL SUPERTYPE

RELATIONSHIP TRANSFERABILITY



Optionality:

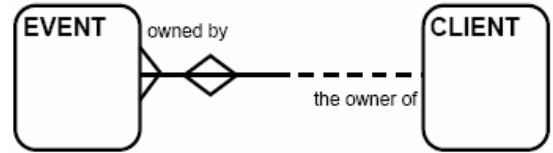
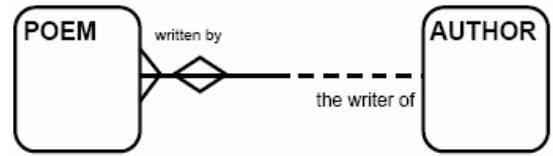
Can you have a TYPE that does not classify any SONG?
Must every SONG have a TYPE?

Cardinality:

How many SONGs can be classified under one TYPE?
How many TYPEs can a SONG have?

Transferability:

Can a SONG be changed from one TYPE to another TYPE?

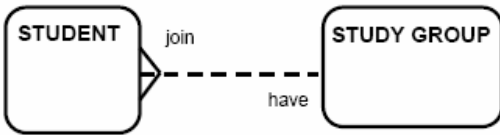
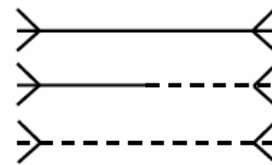


RELATIONSHIP TYPES

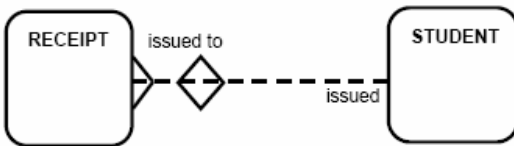
Manty-to-Many (M:M) Relationship

Relationship Types

M:M



Transferable Relationship



Nontransferable Relationship

Transferable: A STUDENT being allowed to move from one STUDY GROUP to another. There is a relationship between STUDENT and STUDY GROUP that is transferable.

Nontransferable: A STUDENT can be issued a RECEIPT for paying tuition fees, taking a certification exam, or purchasing items at the bookstore. Once a RECEIPT has been issued, it cannot be transferred to another STUDENT. If it was issued in error, it would have to be cancelled, and another RECEIPT would have to be written up. **The relationship between STUDENT and RECEIPT is nontransferable.**

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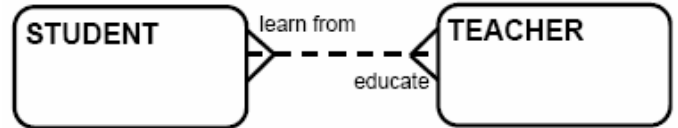
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A Nontransferable relationship is represented with the **diamond** on the relationship

Contoh lain:

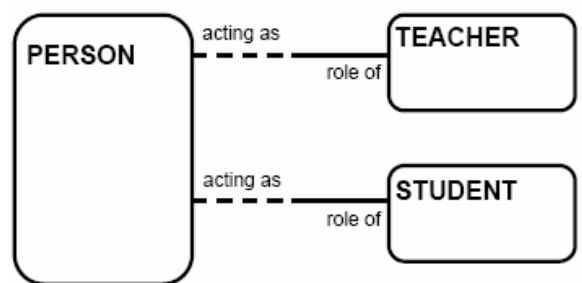
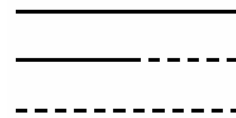


M:M Relationships

One-to-One (1:1) Relationship

Relationship Types

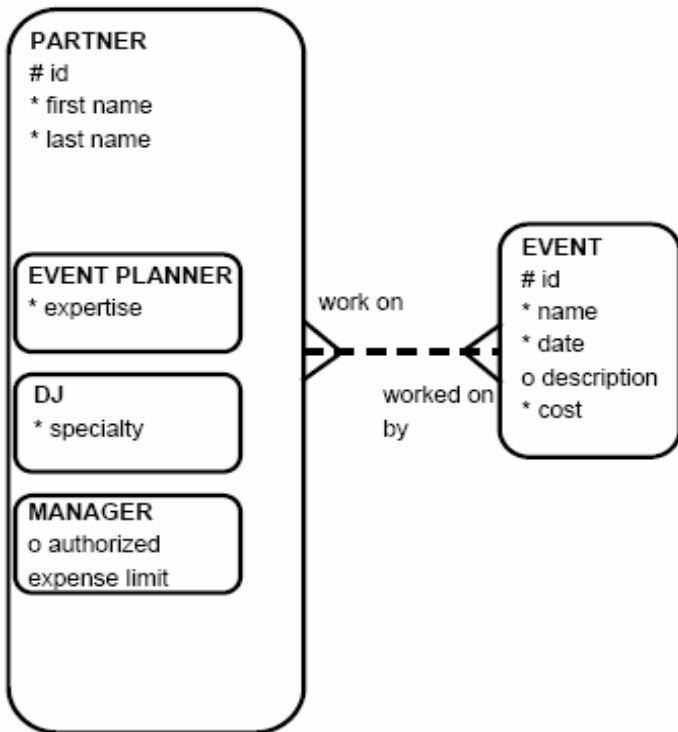
1:1



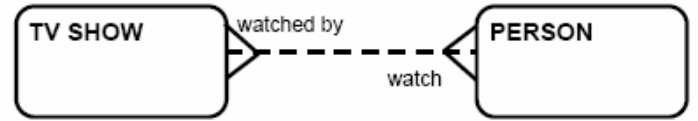
Resolving Many-to-Many (M:M) Relationship

Bentuk awal:

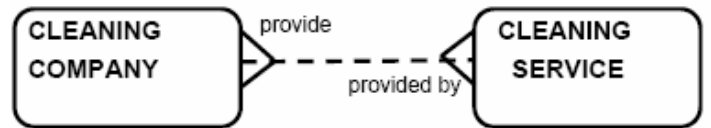
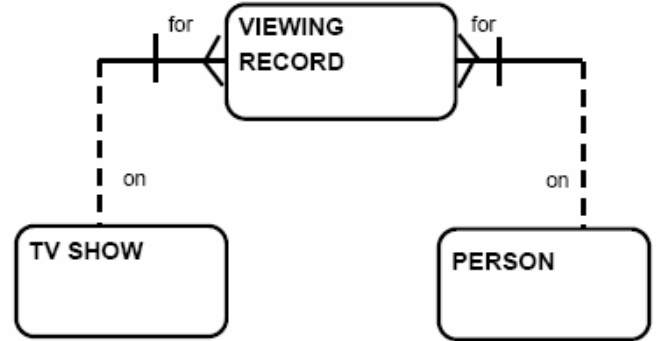
EVENT and PARTNER



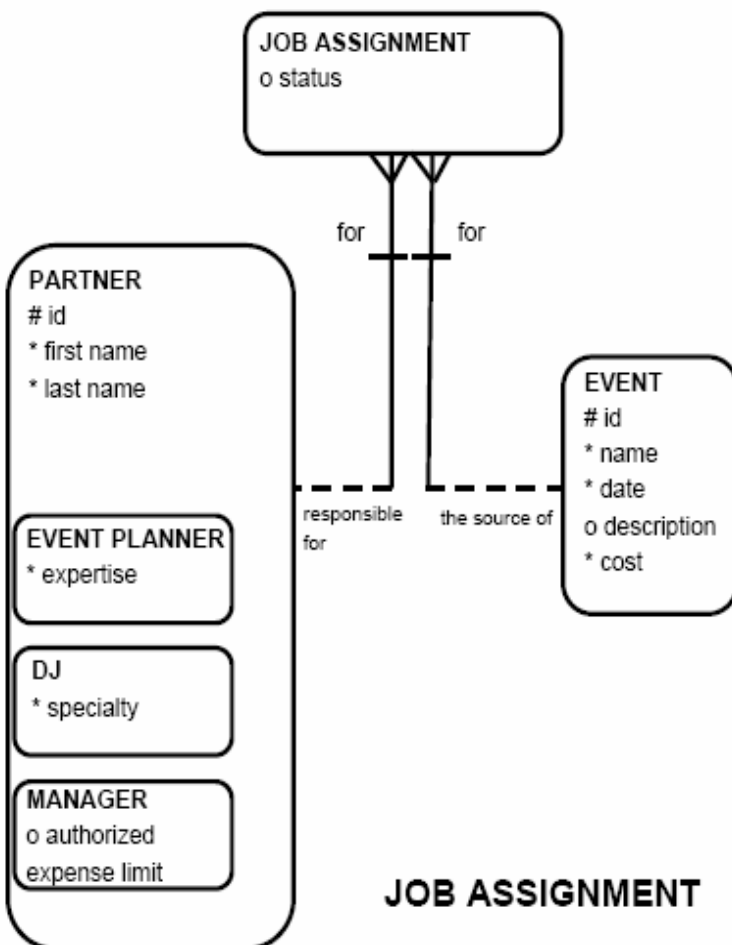
A third entity is needed to resolve the M:M relationship. This is called an "intersection" entity.



Resolution of M:M



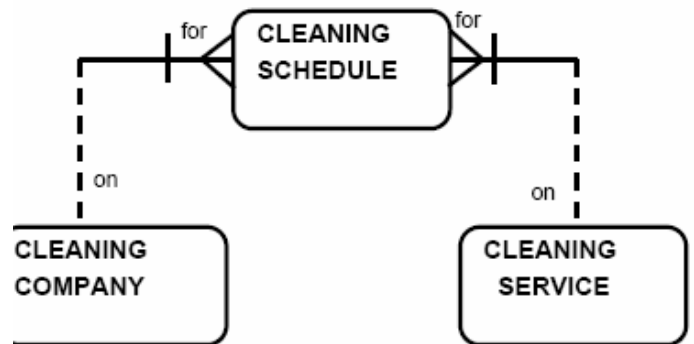
Bentuk menjadi One-to-Many (1:M) Relationship



In this case, the relationships from the originating entities to the intersection entity are called "barred" relationships.

Contoh lain:

Resolution of M:M



Latihan:

1.

Draw softboxes for each of the following. Draw relationship lines and correctly label each relationship in both directions. Indicate non-transferability when appropriate.

- Each town may be the birthplace of many people. Each person must be born in one and only one town.
- Each room may house one or more guests. Each guest may stay in one and only one room.
- Each employee must work for one and only one department. Each department may have one or more employees.
- Each hotel may be the host of one or more guests. Each guest may be hosted in one or more hotels.
- Each message must be addressed to one or more persons. Each person may be the addressee of one or more messages.
- Each garment must have one and only one price. Each price may be for one or more garments.
- Each airline coupon must be used for one and only one destination. Each destination may be visited with one or more coupons.
- Each automobile must use one and only one tire size. Each tire size may be used by one or more automobiles.

- i. Each child must have one and only one mother. Each mother must be the parent of one or more children.
- j. Each person must be of one and only one blood type. Each blood type may classify one or more persons.
- k. A person may be on one or more junk-mail lists. Each junk list may contain one or more persons.
- l. Each student may learn from one or more teachers. Each teacher may educate one or more students.
- m. Each school may be attended by one or more honor students. Each honor student must attend one and only one school.
- n. Each fingerprint must belong to one and only one person. Each person must have one and only one fingerprint.

2. Identify the relationship types of the statements below

Type	Statement
	A woman must be married to a man
	A snowboard instructor may instruct one or more snowboarders
	A bicycle may be owned by a child
	Classroom crayons may be used by students in a classroom
	A passport belongs to a person
	A female elephant gives birth to an elephant

NORMALISASI (NORMALIZATION)

Normalisasi adalah proses pengaturan data secara efisien dalam sebuah database.

Tujuan utama normalisasi:
Menghilangkan redundansi; yaitu menghilangkan data sama yang disimpan dalam beberapa table

FIRST NORMAL FORM (1NF)

First Normal Form requires that there be no multivalued attributes.

Bentuk sebelum dinormalisasi:

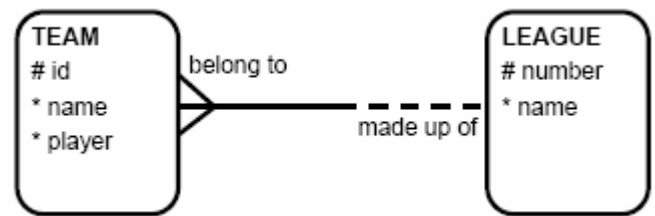
1)



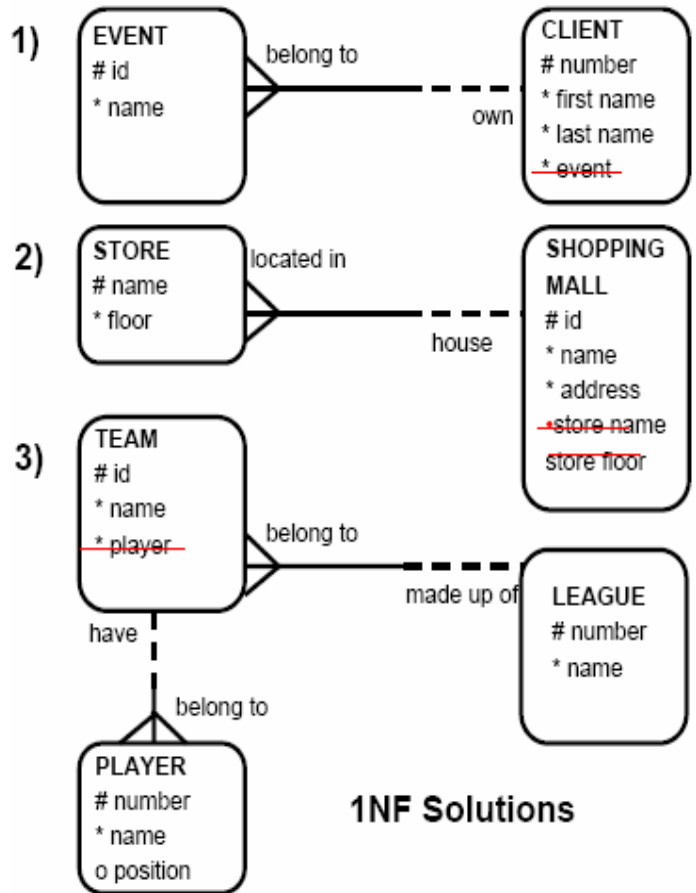
2)



3)



Bentuk setelah dinormalisasi:



First Normal Form (1NF) memberikan aturan dasar dari sebuah database:

1. Hilangkan column yang duplikat dari sebuah table
2. Buat table terpisah untuk setiap kelompok data yang berhubungan dan buat keys agar dapat membedakan setiap rows dalam table tersebut

Contoh table PENJUAL memiliki column: {No_Penjual, Status, Kota, No_barang1, No_barang2, No_barang3, Jumlah}

Setelah dinormalisasi diperoleh bentuk: PENJUAL

NO_PEN JUAL	STATUS	KOTA	NO_BRG	JUMLAH
P1	20	BDG	b1	300
P1	20	BDG	b2	200
P1	20	BDG	b3	400
P2	10	JKT	b1	100
P2	10	JKT	b2	200
P3	20	BDG	b4	100

Walaupun table PENJUAL sudah dalam bentuk 1NF, masih terdapat redundansi. Contohnya: informasi status dan kota masih diulang-ulang untuk setiap barang yang dijual.

Masalah:

1. Kita tidak dapat memasukkan record baru dengan no_penjual P4 yang berada di kota Surabaya (SBY) sebelum ada barang yang terjual oleh P4
2. Jika sebuah row dihapus, bukan hanya data no_brg dan jml yang akan hilang, tetapi data penjual (no_penjual, status, kota) juga akan terhapus
3. Jika penjual P1 pindah ke kota Bandung (BDG) ke Medan (MDN), 3 rows akan dihapus

NO_PENJUAL	NO_PENJUAL	JUMLAH
P1	b1	300
P1	b2	200
P1	b3	400
P2	b1	100
P2	b2	200
P3	b4	100

SECOND NORMAL FORM (2NF)

Sebuah table berada dalam Second Normal Form (2NF) jika:

1. Table tersebut berada dalam bentuk normal pertama (1NF)
2. Setiap column yang bukan key, dependen sepenuhnya terhadap primary key.

Tabel PENJUAL diubah menjadi 2, yaitu:

PENJUAL

NO_PENJUAL	STATUS	KOTA
P1	20	BDG
P2	30	JKT
P3	20	BDG

BARANG

NO_PENJUAL	NO_PENJUAL	JUMLAH
P1	b1	300
P1	b2	200
P1	b3	400
P2	b1	100
P2	b2	200
P3	b4	100

Masalah:

1. Kita tidak dapat menambahkan kota Surabaya (SBY) dengan kode status 30, sampai terdapat seseorang penjual (no_penjual) dalam kota tersebut
2. Menghapus data penjual akan menghilangkan data status dan kota

THIRD NORMAL FORM (3NF)

Sebuah table berada dalam bentuk Third Normal Form (3NF) jika:

1. Table tersebut sudah berada dalam bentuk normal kedua (2NF)
2. Semua column dalam table hanya dependen terhadap primary key; dengan kata lain, hilangkan column yang tidak dependen terhadap primary key

Table dalam bentuk Normal Ketiga (3NF)

PENJUAL_KOTA

NO_PENJUAL	KOTA
P1	BDG
P2	JKT
P3	BDG

PENJUAL_STATUS

KOTA	STATUS
BDG	20
JKT	10

PENJUAL

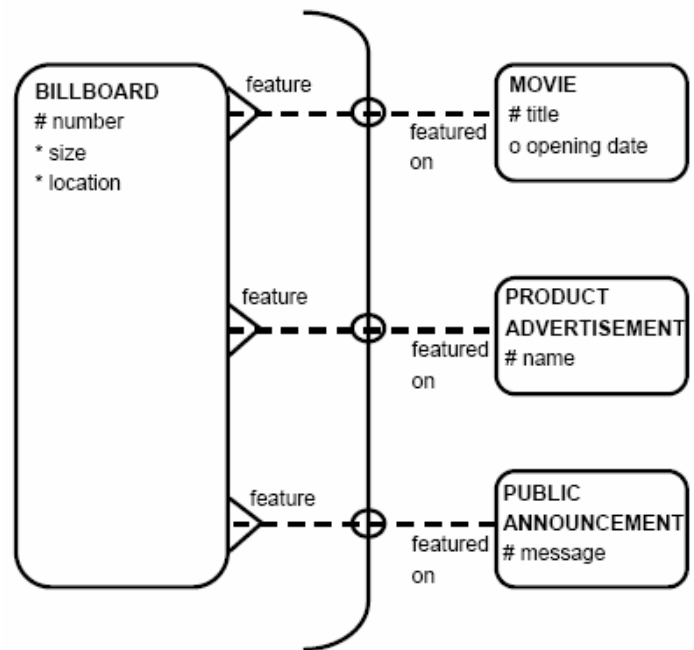
ARC

Mutually exclusive relationships (sometimes called "exclusive OR" relationships) often exist.

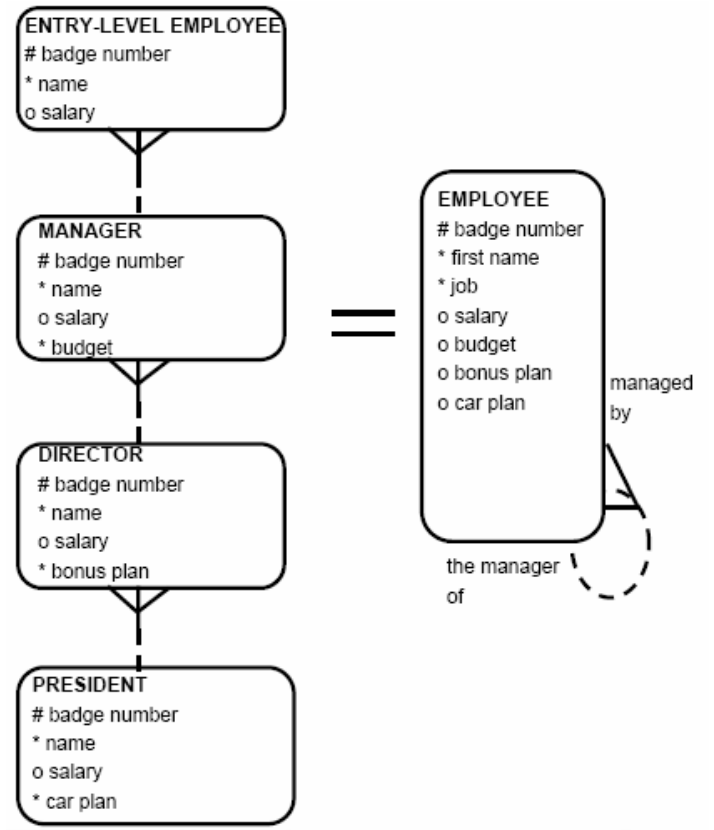
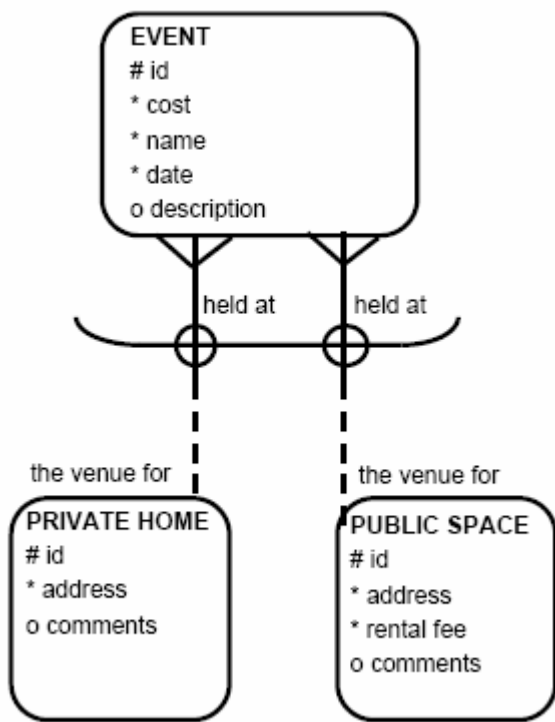
Arcs are a way to represent mutually exclusive relationships in the ERD.

Contoh:

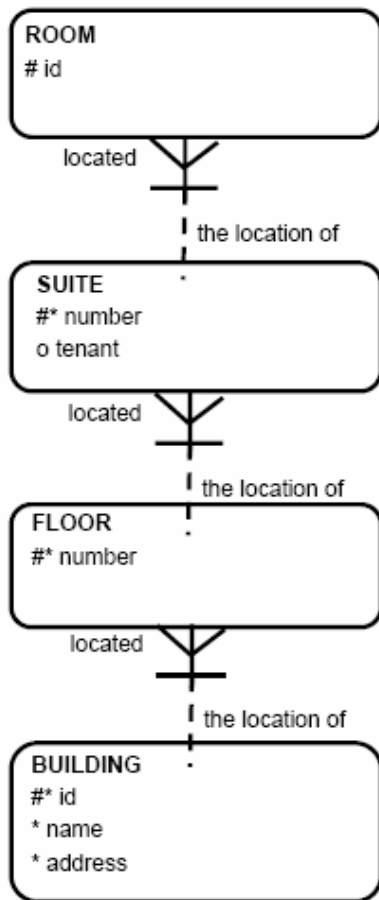
A billboard is an advertising space that can feature a movie, a product, or a public announcement. It may contain advertising about only one of these at a time. Each "feature" has its own characteristics or attributes.



The arc represents the exclusive OR relationship -- each EVENT must be held at one PRIVATE HOME or must be held at one PUBLIC SPACE, but not both.



Hierarchies and Recursive Relationships



Referensi:

1. Sahib Maricar, Noor.2005.Oracle SQL.Jakarta: Penerbit Ekuator Digital Publishing
2. Materi dari Oracle Academy, 2007

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