

## Elemen Basis Data

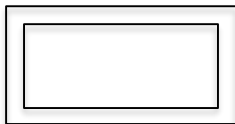
Entity: segala sesuatu yg ada di dunia nyata dan keberadaannya bisa secara konsep atau fisik.

Jenis:

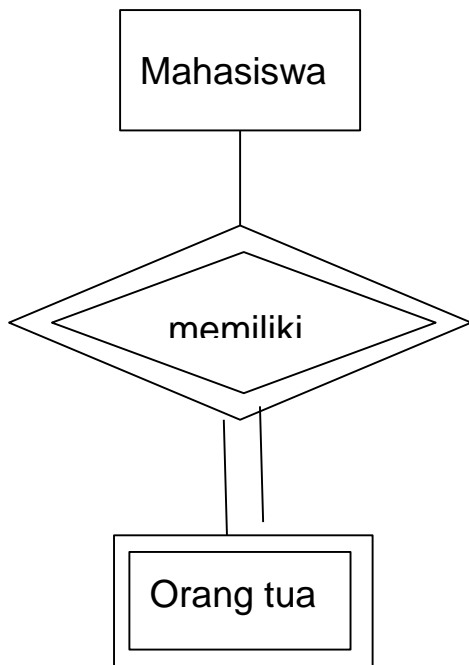
1. E. Kuat



2. E. Lemah



No	E. Kuat (Strong E.)	E. Lemah (Weak E.)
1.	Wajib ada di dalam sistem	Tidak wajib ada di dalam sistem (sesuai kebutuhan)
2.	Dapat berdiri sendiri dan tidak bergantung pada yang lain	Bergantung pada entity yang lain
3.	Simbolnya hanya persegi panjang saja	Simbolnya juga persegi panjang dan terdapat simbol persegi panjang lagi di dalamnya
4.	Punya key atribut	Punya partial key attribute
5.	Entitas yang kuat memungkinkan atau mungkin tidak memiliki partisipasi total dalam hubungan	Entitas yang lemah selalu memiliki partisipasi total dalam hubungan identifikasi yang ditunjang oleh garis ganda

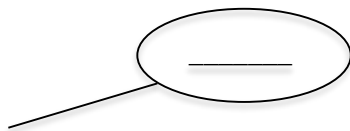


## Attribute

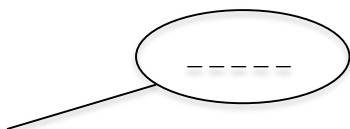
1. Mendeskripsikan karakter dan keterangan yang terdapat pada sebuah entitas dan perlu disimpan dalam sebuah basis data.
2. Karakteristik dari entitas atau relasi yang menyediakan penjelasan detail tentang entitas atau relasi tersebut.

Jenis2 attribute ada 8:

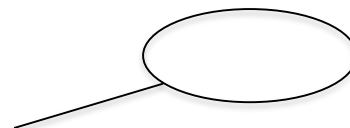
1. Key Attribute (NIM)



2. Partial key attribute (id Ortu)

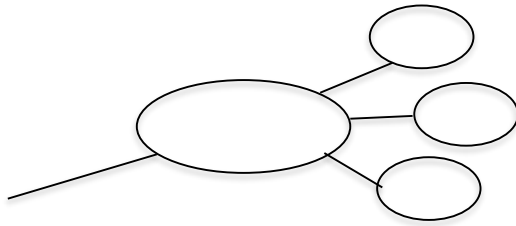


3. Atribut sederhana (Simple Attribute) (jenis kelamin)



4. Composite Attribute (nama: nama depan, nama tengah, nama belakang) (alamat: jalan, kota, provinsi, kode

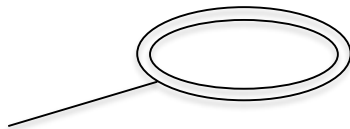
pos)



5. Single value Attribute (Nama orangtua)



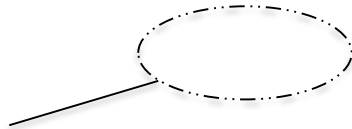
6. Multivalued Attribute (no.telpon, hobi, Alamat tinggal)



7. Stored Attribute (tanggal lahir)



8. Atribut turunan (Derived attribute) (umur)



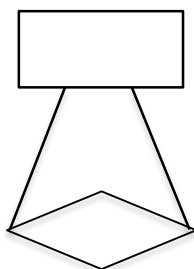
## Relationship

Hubungan antar entitas.

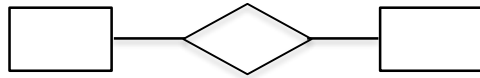
## Jenis Relationship

1. Berdasarkan derajat atau jumlah entity terhubung

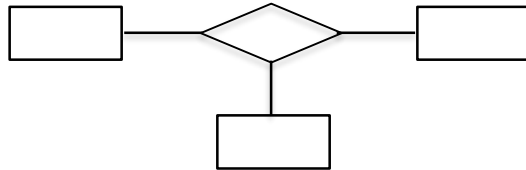
a. Unary Relationship (satu entitas)



b. Binary Relationship (dua entitas)



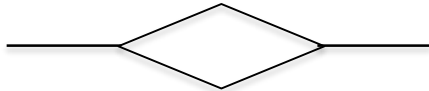
c. Ternary Relationship (tiga entitas)



d. N-ary Relationship (lebih dari tiga/ banyak entitas/tak terhingga)

2. Berdasarkan fungsi hubungan

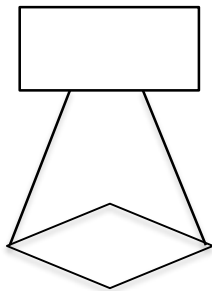
a. Regular Relationship: s-s, s-w, w-w



b. Identifying Relationship (relasi kepemilikan): s-w, w-w



c. Recursive Relationship: a. s-s, w-w; b. w-w, terhubung ke diri sendiri (unary relationship)



## Constraint

I. Cardinality Ratio

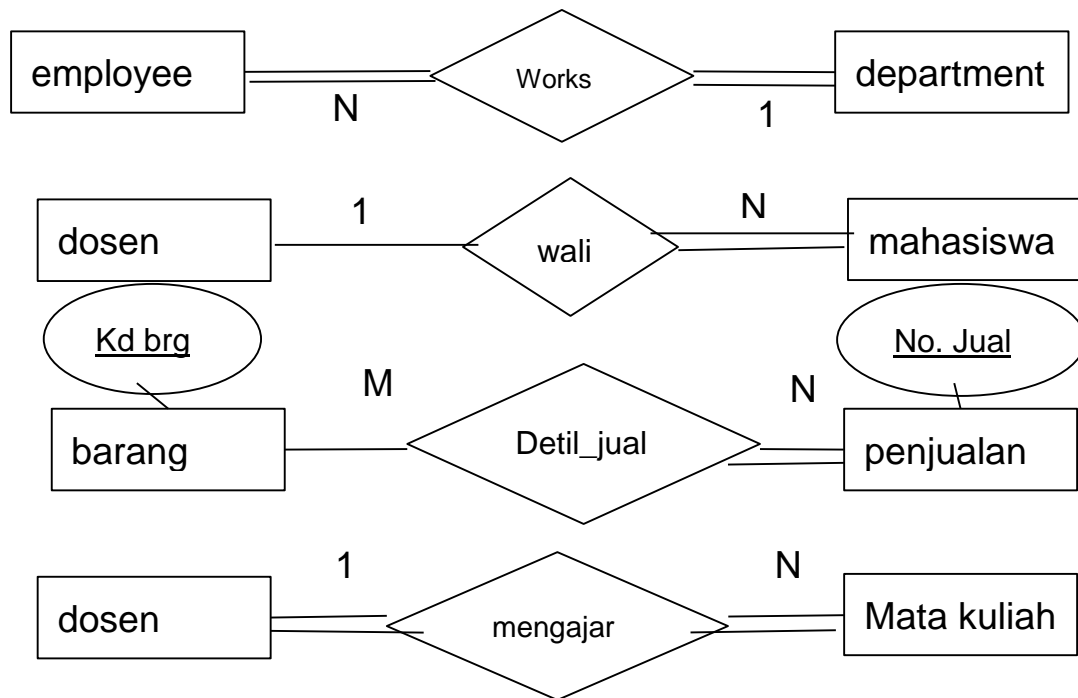
1. Many to many(m:n)

2. Many to one (m:1) / one to many(1:n)

3. One to one(1:1)

## Participation

1. Partial (garis tunggal)
2. Total (garis dobel)



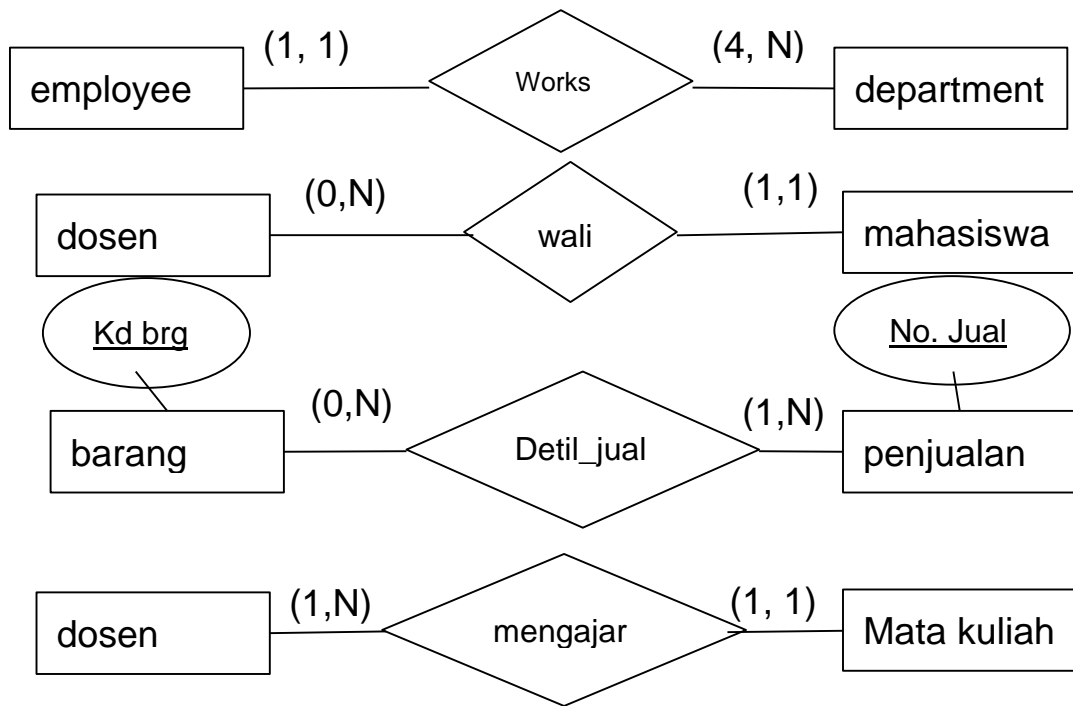
## II. Structural Constraint (min, max)

Min = partisipasi

0 → partisipasi partial

> 0 → partisipasi total

Max = rasio kardinalitas



## Tabel Elemen Basis Data Berdasarkan User Requirement Company

**Tabel 1 Objek dan Data**

Objek	Data
Department	Name Location Number Number of Employee
Project	Location Number Name
Employee	SSN Bdate Sex Salary Name Address
Dependent	Name Sex Birth_date Relationship

**Tabel 2 Relasi Antar Objek**

<b>Relasi</b>	<b>Objek 1</b>	<b>Objek 2</b>	<b>Data</b>
Works_For	Employee	Department	
Manages	Employee	Department	Start_Date
Control	Department	Project	
Work_On	Employee	Project	Hours
Dependent_Of	Employee	Dependent	
Supervision	Employee	Employee	

**Tabel 3 Entity dan Attribute**

<b>Nama Entity</b>	<b>Attribute</b>
Department ( <b>Strong Entity</b> )	DName ( <b>Key Attribute</b> ) DLocation ( <b>Multivalued Attribute</b> ) DNumber ( <b>Key Attribute</b> ) Number of Employee ( <b>Derived Attribute</b> )
Project ( <b>Strong Entity</b> )	PLocation ( <b>Single value Attribute</b> ) PNumber ( <b>Key Attribute</b> ) PName ( <b>Key Attribute</b> )
Employee( <b>Strong Entity</b> )	Ssn ( <b>Key Attribute</b> ) Bdate ( <b>Stored Attribute</b> ) Sex ( <b>Simple Attribute</b> ) Salary ( <b>Simple Attribute</b> ) Name ( <b>Composite Attribute: FName, LName, MInit</b> ) Address ( <b>Simple Attribute</b> )
Dependent ( <b>Weak Entity</b> )	Dependent_Name ( <b>Key Attribute</b> ) Sex ( <b>Simple Attribute</b> ) Birth_date ( <b>Stored Attribute</b> ) Relationship ( <b>Simple Attribute</b> )

**Tabel 4 Hubungan Antar Entity**

<b>Relationship</b>	<b>Entity 1</b>	<b>Entity 2</b>	<b>Attribute</b>
Works_For ( <b>Regular R</b> )	Employee	Department	
Manages ( <b>Regular R</b> )	Employee	Department	Start_Date ( <b>Simple Attribute</b> )
Control ( <b>Regular R</b> )	Department	Project	
Works_On ( <b>Regular R</b> )	Employee	Project	Hours ( <b>Simple Attribute</b> )
Dependent_Of ( <b>Identifying R</b> )	Employee	Dependent	
Supervision ( <b>Recursive R</b> )	Employee	Employee	