DATABASE DESIGN & MANAGEMENT
SI10317

PROGRAM STUDI SISTEM INFORMASI
UIVERRSITAS TARUMANAGARA

Course Schedule

1   Entity Relationship Modeling dan Alternative ER Notation – Appendix C

2   Exercises

3.   Enhanced Entity–Relationship Modeling

4.   Exercises

5.   Normalization dan Exerises

6.   Advanded Normalization dan Exercises

7.   Reiew and the *DreamHome* Case Study

8.   Presentasi Project UTS

Course Schedule

9. Methodology—Conceptual Database Design

10. Methodology—Logical Database Design

11. Exercises: Case Study Appendix A, B1, B2

12. Presentasi Project: Case Study

13. Query Processing

14. Distributed DBMSs—Concepts and Design

15. Replication and Mobile Databases

16. Presentasi Project UAS

Review dan Studi Kasus: Branch User Views of DreamHome (Appendix A1, A2)

Berdasarkan pada Appendix A1, peningkatan terhadap model hubungan antar entitas (EER), jawabannya dapat dilihat pada gambar 12.8 dengan asumsi yg mendukung:

Figure 12.8 An Enhanced Entity–Relationship (EER) model of the Branch user views of DreamHome with specialization/ generalization

Berikut ini adalah model relational dari Figure 12.8

DreamHome has branch offices in cities throughout the United Kingdom. Each branch office is allocated members of staff including a Manager to manage the operations of the office. **The data held on a branch office includes a unique branch number, address (street, city, and postcode), telephone numbers (up to a maximum of three),** and the name of the member of staff who currently manges the office. Additional data is held on each Manager, which includes the date that the Manager assumed his or her position at the current branch office, and a monthly bonus payment based upon his or her performance in the property for rent market. [lihat RELATION STAFF]

Branch

brancNO	Address	City	Postcode	Phone
B003	163 Main St	Glasgow	G11 9QX	339-2178; 339-4439
B005	22 Deer Rd	London	SW1 4EH	339-2288
B002	56 Clover Rd	London	NW10 6EU	339-4332; 333-5564

Branch

brancNO	Address	City	Postcode	Phone
B003	163 Main St	Glasgow	G11 9QX	339-2178; 339-4439
B005	22 Deer Rd	London	SW1 4EH	339-2288
B002	56 Clover Rd	London	NW10 6EU	339-4332; 333-5564

Perhatikan bahwa Phone terjadi repeating group, maka:

Branch

brancNO	Address	City	Postcode
B003	163 Main St	Glasgow	G11 9QX
B005	22 Deer Rd	London	SW1 4EH
B002	56 Clover Rd	London	NW10 6EU

telBranch

brancNO	Phone
B003	339-2178
B003	339-4439
B005	339-2288
B002	339-4332
B002	333-5564

PK Branch : branchNO, FK Branch : staffNO; telBranch menjadi weak entity. Apakah phone bisa sebagai PK? atau apakan telBranch dapat dijadikan strong entity?

DreamHome has branch offices in cities throughout the United Kingdom. **Each branch office is allocated members of staff including a Manager to manage the operations of the office.** The data held on a branch office includes a unique branch number, address (street, city, and postcode), telephone numbers (up to a maximum of three), and the name of the member of staff who currently manges the office. Additional data is held on each Manager, which includes the date that the Manager assumed his or her position at the current branch office, and a monthly bonus payment based upon his or her performance in the property for rent market. [lihat RELATION STAFF]

Manager

branchNO	sDate	fDate	Bonus	staffNO
B005	05/04/18	04/03/19	10.000	SL21
B002	10/12/18	09/11/19	12.000	SL41

PK table Manager : branchNO, staffNO
FK table Manager : brachNO, reference to Branch
FK table Manager : staffNO, reference to Staff

Members of staff with the role of Supervisor are responsible for the day-to-day activities of an allocated group of staff called Assistants (up to a maximum of 10, at any one time). Not all members of staff are assigned to a Supervisor. The data stored on each member of staff includes staff number, name, address, **position,** salary, name of Supervisor (where applicable), and the details of the branch office at which a member of staff is currently working. The staff number is unique across all branches of DreamHome.

Staff

staffNO	Name	Address	Position	Salary	branchNO
SL21	John White	London	Manager	30.000	B005
SG37	An Beech	Glasgow	Supervisor	12.000	B003
SL41	Julie Lee	London	Manager	35.000	B002

Supervisor

staffNOsuper	staffNO
SG37	SG14
SG37	SA9
SG14	SG5
……	…..

PK table Staff dan Supervisor : staffNO
FK table Staff : branchNO reference to Branch
FK table Supervisor : staffNOsuper reference to Staff (staffNO)

UNTAR
Universitas Tarumanagara

UNTAR untuk INDONESIA

Properties for rent.

Each branch office offers a range of properties for rent. The data stored on each property includes property number, address (street, city, postcode), type, number of rooms, monthly rent, and the details of the property owner (lihat Owner). The property number is unique across all branch offices. The management of a property is assigned to a member of staff whenever it is rented out or requires to be rented out. A member of staff may manage a maximum of 100 properties for rent at any one time.

ProprtyForRent

propertyNO	Street	City	Postcode	Type	Room	Rent	ownweNO	staffNO	branchNO
PA14	16 Holdhear	Aberdeen	AB7	House	6	650	CO46	SA9	B007
PL94	6 Argyll	London	NW2	Flat	4	400	CO87	SL41	B002
PG36	2 Manor	Glasgow	G32	Flat	3	475	CO93	SG37	B003

PK table PropertyForRent : propertyNO

FK table PropertyForRent : ownerNO referece to Owner; staffNO referece to Staff, branchNO reference to Branch

Property owners.
The details of property owners are also stored. There are two main types of property owner: private owners and business owners. The data stored on private owners includes owner number, name, address, and telephone number. The data stored on business owners includes name of business, type of business, address, telephone number, and contact name.

privateOwner

privateNO	Name	Address	Phone
CO46	Joe K	Fergus	861212
CO87	Carol A	Acray	357 7459
CO93	Tony	Park Pl	225 7025

businessOwner

bName	bType	Address	Phone	cName
Gettom	partnership	London	345 2254	Lisa
Lee Corp	corporation	London	345 2331	Alexis
Leen	Corporation	Fergus	872333	Lisa

PK table privateOwner : privateNO
PK table businessOwner : bName

Tugas seorang Database Desighner salah satunya adalah menentukan primary key jika candidate key lebih dari satu, atau apabila relasi yang ada belum teridentifikasi atribut yang unik. Pada bagian ini kita dapat menambahkan businessNO sebagai primary key. Perhatikan kembali tentang jenis atribut (single value, simple, composite, dst) untuk dipilih sebagai super key.

businessOwner

businessNO	bName	bType	Address	Phone	cName
BO45	Gettom	partnership	London	345 2254	Lisa
BO91	Lee Corp	corporation	London	345 2331	Alexis
BO34	Leen	Corporation	Fergus	872333	Lisa

PK table businessOwner : businessNO

Kita dapat melakukan generalisasi terhadap kedua relasi private dan business menjadi satu relasi seperti berikut:

Owner

ownerNO	Name	bType	Address	Phone	cName
BO45	Gettom	partnership	London	345 2254	Lisa
BO91	Lee Corp	corporation	London	345 2331	Alexis
BO34	Leen	Corporation	Fergus	872333	Lisa
CO46	Joe K	Null	Null	Fergus	861212
CO87	Carol A	Null	Null	Acray	357 7459
CO93	Tony	null	Null	Park Pl	225 7025

PK table Owner : ownerNO

Clients.

DreamHome refers to members of the public interested in renting property as clients. To become a client, a person must first register at a branch office of DreamHome. **The data stored on clients includes client number, name, telephone number, preferred type of accommodation, and the maximum rent the client is prepared to pay**. Also stored is the name of the member of staff who processed the registration, the date the client joined, and some details on the branch office at which the client registered. The client number is unique across all DreamHome branches.

Client

clientNO	Name	Phone	Preftype	Maxrent
CR76	John Kay	774 5632	Flat	425
CR56	Aline Stewart	848 1825	Flat	350
CR74	Mike	392718	House	750

PK table Client : clientNO

DreamHome refers to members of the public interested in renting property as clients. **To become a client, a person must first register at a branch office of DreamHome.** The data stored on clients includes client number, name, telephone number, preferred type of accommodation, and the maximum rent the client is prepared to pay. **Also stored is the name of the member of staff who processed the registration, the date the client joined, and some details on the branch office at which the client registered. <u>The client number is unique across all DreamHome branches.</u>**

Registration

clientNO	staffNO	branchNO	dateRegister
CR76	SL41	B005	11/11/19
CR56	SG37	B003	6/12/18
CR74	SG37	B003	7/12/18

PK table Registration : clientNO, staffNO, brachNO.
Walaupun disebutkan client number adalah unique tetapi Registrasion adalah Relationship Type, maka PK adalah gabungan dari Entity Type yang berhubungan sehingga bersifat Composite Key. Disebutkan unique untuk menunjukkan bahwa Client tidak boleh registrasi di lebih dari satu Branch.

FK table Registration : clinetNO reference to Clinet; staffNO reference to Staff

Leases.

When a property is rented out, a lease is drawn up between the client and the property. The data detailed on the lease includes lease number, client number, ~~name and address~~, property number ~~and address, monthly rent~~, method of payment, an indication of whether the deposit has been paid (deposit is calculated as twice the monthly rent), ~~duration of lease~~, and the date the lease period is to start and finish.

Leases

leaseNO	clinetNO	propertyNO	methodPay	Deposit	sDate	sFinish
LE12	CR76	PL94	Cash	4.000	12/10/17	12/12/19
LE13	CR76	PG36	Transfer	2.000	5/7/17	12/7/17
LE14	CR56	PG36	Cash	2.500	2/2/18	6/5/18

Dalam hal ini leaseNO dapat bersifat unik sehingga dapat dijadikan surrogate key (kunci pengganti) dari composite key clientNO, propertyNO, sDate, sFinish. Dalam hal leaseNO sebagai PK haruslah clientNO, propertyNO, sDate, sFinish tetap unik.

FK table Leases : clientNO reference to Client; propertyNO reference to PropertyForRent

Newspapers.
When required, the details of properties for rent are advertised in local and national newspapers. The data stored includes the property number, address, type, number of rooms, rent, the date advertised, the name of the newspaper, and the cost. The data stored on each newspaper includes the newspaper name, address, telephone number, and contact name.

Newspapers

newsNO	newsName	Address	Phone	contactName
NW80	Idnews	Oregon	232 8888	Parker Lee
NW91	Wasingtonpost	Wasington	445 9812	Susan
NW93	Oregonnews	Oregon	232 8777	James Pooc

PK table Newspaper : newsNO

When required, the details of properties for rent are advertised in local and national newspapers. The data stored includes the property number, ~~address, type, number of rooms, rent,~~ the date advertised, ~~the name of the newspaper~~, and the cost. The data stored on each newspaper includes the newspaper name, address, telephone number, and contact name.

Advertises

newsNO	propertyNO	dateAdvertised	Cost
NW80	PL94	11/10/19	90
NW91	PG36	9/12/18	100
NW91	PA14	9/12/18	95
NW93	PA14	2/5/18	75

PK table Advertises : newsNO, propertyNO; bagaimana jika property yang sama diiklankan di newspaper yang sama pada tanggal berbeda?

FK table Advertises : newsNO reference to Newspapers; propertyNO reference to PropertyForRent

Thank You

Reference: Database Systems A Practical Approach to Design, Implementation, and Management Fourth Edition.

Thomas M. Connolly and Carolyn E. Begg