

## Lab 6 Exercise Normalization

- 1) An agency called MegaSupply supplies part-time/temporary staff to hotels throughout Melaka. The table shown in Figure 1 lists the time spent by agency staff working at two hotels. The National Insurance Number (NIN) is unique for employee.

NIN	contractNo	hoursPerWeek	eName	hotelNo	hotelLocation
113567WD	C1024	16	John Smith	H25	Edinburgh
234111XA	C1024	24	Diane Hocine	H25	Edinburgh
712670YD	C1025	28	Sarah White	H4	Glasgow
113567WD	C1025	16	John Smith	H4	Glasgow

Figure 1: Employees of MegaSupply and their contracts to work at hotels

- (a) The table shown in Figure 1 is susceptible to update anomalies. Briefly explain and provide examples of insertion, deletion, and modification anomalies.
- (b) Describe and illustrate (by using dependency diagram) the process of normalizing the table shown in Figure 1 to 3NF. State any assumptions you make about the data shown in this table.
- 2) Figure 2 shown the table of Big Patient. Convert that table into 3NF. The functional dependencies are shown in table 2 can be use as your reference. Draw the functional dependency diagram, and show the result of each step in the normalization process.

<u>VisitNo</u>	<u>VisitDate</u>	<u>PatNo</u>	<u>PatAge</u>	<u>PatCity</u>	<u>ProvNo</u>	<u>ProvSpecialty</u>	<u>Diagnosis</u>
V10020	1/13/2007	P1	35	DENVER	D1	INTERNIST	EAR INFECTION
V10020	1/13/2007	P1	35	DENVER	D2	NURSE PRACTITIONER	INFLUENZA
V93030	1/20/2007	P3	17	ENGLEWOOD	D2	NURSE PRACTITIONER	PREGNANCY
V82110	1/18/2007	P2	60	BOULDER	D3	CARDIOLOGIST	MURMUR

Figure 2: Sample Data for the Big Patient table

- 3) The manager of a company dinner club would like to have an information system that assists him to plan the meals and to keep track of who attends the dinners, and so on. Because the manager is not an IS expert, the following table is used to store the information. As a member can attend many dinners and a member will not attend more than 1 dinner on the same date, the primary key of the following table is Member Num + Dinner Num. Dinners can have many courses, from one-course dinner to as many courses as the chef desired.

<u>MEMBER NUM</u>	MEMBER NAME	MEMBER ADDRESS	<u>DINNER NUM</u>	DINNER DATE	VENUE CODE	VENUE DESCRIPTION	FOOD CODE	FOOD DESCRIPTION
214	Peter Wong	325 Meadow Park	D0001	15-Mar-10	B01	Grand Ball Room	EN3	Stu ed crab
							DE8	Chocolate mousse
235	Mary Lee	123 Rose Court	D0002	15-Mar-10	B02	Petit Ball Room	EN5	Marinated steak
							DE8	Chocolate mousse
250	Peter Wong	9 Nine Ave	D0003	20-Mar-10	C01	Café	SO1	Pumpkin soup
							EN5	Marinated steak
							DE2	Apple pie
235	Mary Lee	123 Rose Court	D0003	20-Mar-10	C01	Café	SO1	Pumpkin soup
							EN5	Marinated steak
							DE2	Apple pie
300	Paul Lee	123 Rose Court	D0004	20-Mar-10	E10	Petit Ball Room	SA2	Apple pie

Figure 3: Sample Data for the Dinner Club's Member table

- The table shown in Figure 3 is susceptible to update anomalies. Briefly explain and provide examples of insertion, deletion, and modification anomalies.
- Describe and illustrate (by using dependency diagram) the process of normalizing the table shown in Figure 3 to 3NF.