Graciella M. Suman

CSCI-UA 60

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Assignment 3

1. **Order Form**

   Assumption: The partType is not attributed to a particular cageCode

- This table is in 1NF because there is a composite primary key and there are no repeating groups.

order

customerNumber (PK)	custome	customerType	date	time	employee	partNumber (PK)	name	partType	cageCode	quantityOrdered	unitPrice
HG54587	Jeff Peter	Consumer	7/1/202	10:30 AM	D. Harrison	10654	Float Control	Plumbing	G413	4	12
HG54587	Jeff Peter	Consumer	7/1/202	10:30 AM	D. Harrison	10456	Modulator	Electrical	H433	3	7
HG54587	Jeff Peter	Consumer	7/1/202	10:30 AM	D. Harrison	10776	Hose Assembly	Plumbing	G413	7	9
HG54587	Jeff Peter	Consumer	7/1/202	10:30 AM	D. Harrison	10657	Float Assembly	Plumbing	G413	5	10

- The previous table has multiple partial dependencies – the customer name and type only rely on the customer number, and the part name and type rely on the part number. To resolve for partial dependencies, three tables were made to differentiate between

customer, part and order. These tables are in 2NF since there are no more partial dependencies.

customer		
customerNumber (PK)	customerName	customerType
HG54587	Jeff Peterson	Consumer

part				
partNumber (PK)	name	partType	cageCode	unitPrice
10654	Float Control	Plumbing	G413	12
10456	Modulator	Electrical	H433	7
10776	Hose Assembly	Plumbing	G413	9
10657	Float Assembly	Plumbing	G413	10

order					
customerNumber (PK)	**partNumber (PK)**	quantityOrdered	date	time	employee
HG54587	**10654**	4	7/1/2024	10:30 AM	D. Harrison
HG54587	**10456**	3	7/1/2024	10:30 AM	D. Harrison
HG54587	**10776**	7	7/1/2024	10:30 AM	D. Harrison
HG54587	**10657**	5	7/1/2024	10:30 AM	D. Harrison

- To reduce redundancy, a separate table was made for “order” and “order_details.” The table below is in 3NF because the non-key attributes rely on the primary key, therefore removing transitive dependencies.

customer		
customerNumber (PK)	customerName	customerType
HG54587	Jeff Peterson	Consumer

customer_order			
customerNumber (PK,FK)	date	time	employee
HG54587	7/1/2024	10:30 AM	D. Harrison

part				
partNumber (PK)	name	partType	cageCode	unitPrice
10654	Float Control	Plumbing	G413	12
10456	Modulator	Electrical	H433	7
10776	Hose Assembly	Plumbing	G413	9
10657	Float Assembly	Plumbing	G413	10

order_details		
customerNumber (PK,	***partNumber (PK, FK)***	quantityOrdered
HG54587	***10654***	4
HG54587	***10456***	3
HG54587	***10776***	7
HG54587	***10657***	5

2. Therapist appointments

- The original table is not in 1NF because there are multiple values under the “appointment” field. To turn it into 1NF, the appointment date and time are separated into their own fields. The table also has a composite primary key; therefore, it is now in 1NF form.

staffNo (PK)	therapistName	**patNo (PK)**	patName	apptDate	apptTime	branchNo
S1011	Fred Smith	**P100**	Lily White	9/12/2022	10:00	M15
S1011	Fred Smith	**P105**	Jill Baker	9/12/2022	12:00	M15
S1024	Heidi Pierce	**P108**	Andy McKee	9/12/2022	10:00	Q10
S1024	Heidi Pierce	**P108**	Andy McKee	9/14/2022	14:00	Q10
S1032	Richard Levin	**P105**	Jill Baker	9/14/2022	16:30	M15
S1032	Richard Levin	**P110**	Jimmy Winter	9/15/2022	18:00	B13

- In the previous table, there are still partial dependencies hence why it isn’t in 2NF – the patName depends on patNo, which is only one of the columns that make up the composite PK. The therapistName depends on staffNo which is also only one column of the composite PK. To resolve for the partial dependency, one table is designated for staff, and another is designated for patient. The appointment table has a composite primary key that uniquely identifies each row.

staff

staffNo (PK)	therapistName
S1011	Fred Smith
S1024	Heidi Pierce
S1032	Richard Levin

patient

patNo (PK)	patName
P100	Lily White
P105	Jill Baker
P108	Andy McKee
P110	Jimmy Winter

appointment

staffNo (PK)	**patNo (PK)**	apptDate	apptTime	branchNo
S1011	**P100**	9/12/2022	10:00	M15
S1011	**P105**	9/12/2022	12:00	M15
S1024	**P108**	9/12/2022	10:00	Q10
S1024	**P108**	9/14/2022	14:00	Q10
S1032	**P105**	9/14/2022	16:30	M15
S1032	**P110**	9/15/2022	18:00	B13

- The staff and patient tables are in 3NF as there are no transitive dependencies. The appointment and branch tables are also in 3NF form because the branchNo is dependent on the composite key of apptDate and apptTime, assuming that the branch where the appointment will take place in is determined based on the date and time.

staff	
staffNo (PK)	therapistName
S1011	Fred Smith
S1024	Heidi Pierce
S1032	Richard Levin

patient	
patNo (PK)	patName
P100	Lily White
P105	Jill Baker
P108	Andy McKee
P110	Jimmy Winter

appointment		
apptDate (PK)	**apptTime (PK)**	*branchNo (FK)*
9/12/2022	**10:00**	*M15*
9/12/2022	**12:00**	*M15*
9/12/2022	**10:00**	*Q10*
9/14/2022	**14:00**	*Q10*
9/14/2022	**16:30**	*M15*
9/15/2022	**18:00**	*B13*

branch
branchNo (PK)
M15
Q10
B13

3. Event staff

The original table is already in 1NF because there is a composite primary key and no repeating groups.

eNo (PK)	contractNo (PK)	hours	eName	eventNo (PK)	eventLoc
1135	**C1024**	16	Smith J	**H25**	Queens
1057	**C1024**	24	Hocine D	**H25**	Queens
1068	**C1025**	28	White T	**H4**	Yonkers
1135	**C1025**	15	Smith J	**H4**	Yonkers
1135	**C1026**	10	Smith J	**H25**	Queens

The above table has multiple partial dependencies: eName relies on eNo, eventLoc relies on eventNo. To normalize into 2NF, a separate table for employee and event was created. In the employee_work table, the hours fully depend on the composite primary key. Since there are no dependencies on non-key attributes in each of the tables, they are in 3NF.

employee	
eNo (PK)	eName
1135	Smith J
1057	Hocine D
1068	White T

employee_work			
contractNo (PK)	*eventNo (FK)*	***eNo (PK, FK)***	hours
C1024	*H25*	***1135***	16
C1024	*H25*	***1057***	24
C1025	*H4*	***1068***	28
C1025	*H4*	***1135***	15
C1026	*H25*	***1135***	10

event	
eventNo (PK)	eventLoc
H25	Queens
H4	Yonkers