
COMSATS UNIVERSITY ISLAMABAD

ATTOCK CAMPUS



Document Title : Assignment No. 4

Subtitle : “DATABASE SYSTEM”

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Submitted To : Sir Waseem Khan

QUESTION 1:-

TABLE:-

Inv-num	Vendor-code	Sale-date	Prod-description	Prod-num	Vendor-date
Num-prod-sold		Prod-price			

1NF:- Identify all the dependencies

Primary Key

Full Functional:- $\left[\text{Inv-num}, \text{Prod-num} \right] \rightarrow \text{Vendor-code}, \text{Sale-date}, \text{Prod-description}, \text{Vendor-date}, \text{Num-prod-sold}, \text{Prod-price}$

Partial :- $\text{Inv-num} \rightarrow \text{Sale-date}$

Partial :- $\text{Prod-num} \rightarrow \text{Vendor-code}, \text{Prod-description}, \text{Vendor-date}, \text{Prod-price}$

Transitive:- $\text{Vendor-code} \rightarrow \text{Vendor-date}$

2NF:- Remove Partial Dependency

<u>Inv-num</u>	<u>Prod-num</u>	Num-prod-sold
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<u>Inv-num</u>	Sale-date
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<u>Prod-num</u>	Prod-description	Vendor-date	Prod-price	Vendor-code
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3NF:- Remove Transitive Dependency

<u>Inv-num</u>	<u>Prod-num</u>	Num-prod-sold
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<u>Inv-num</u>	Sale-date
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<u>Vendor-code</u>	Vendor-date
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<u>Prod-num</u>	Prod-description	Prod-price	<u>Vendor-code</u>
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QUESTION 2 :-

staffNo	dentistName	patNo	patName	appointment date Time	SurgeryNo
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Fill the Missing values.

staffNo	dentistName	patNo	patName	appDate	appTime	SurgeryNo
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1NF :- Find all the Functional Dependencies

Full Functional:- $\overset{\text{Primary Key}}{[\text{staffNo}, \text{appDate}, \text{appTime}]} \rightarrow \text{patNo}, \text{patName}$

Partial:- $\text{staffNo} \rightarrow \text{dentistName}$

Partial:- $\text{staffNo}, \text{appDate} \rightarrow \text{surgeryNo}$

Transitive:- $\text{patNo} \rightarrow \text{patName}, \text{surgeryNo}$

2NF :- Remove Partial Dependencies.

<u>staffNo</u>	<u>appDate</u>	<u>appTime</u>	patNo	patName
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<u>staffNo</u>	<u>appDate</u>	surgeryNo
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<u>staffNo</u>	dentistName
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3NF:- Remove Transitive Dependency

<u>staffNo</u>	<u>appDate</u>	<u>appTime</u>	<u>patNo</u>
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<u>staffNo</u>	DentistName
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<u>staffNo</u>	<u>appDate</u>	surgeryNo
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<u>patNo</u>	patName
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FINAL TABLE:-

staffNo	dentistName
S1011	Tony Smith
S1024	Helen Pearson
S1032	Robin Plevin

staffNo	appDate	appTime	patNo
S1011	12-Sep-13	10:00	P100
S1011	12-Sep-13	12:00	P105
S1024	12-Sep-13	10:00	P108
S1024	14-Sep-13	14:00	P108
S1032	14-Sep-13	16:30	P105
S1032	15-Sep-13	18:00	P110

staffNo	appDate	surgeryNo
S1011	12-Sep-13	S15
S1024	12-Sep-13	S10
S1024	14-Sep-13	S10
S1032	14-Sep-13	S15
S1032	15-Sep-13	S13

patNo	patName
P100	Gillian White
P105	Jill Bell
P108	Ian Mackey
P110	John Walker

QUESTION 3:-

TABLE:-

NIN	contractNo	hours	eName	hNo	hLoc
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1NF:- Find all the Functional Dependencies.

Full Functional:- ^{Primary Key} $[NIN, contractNo] \rightarrow hours$

Partial:- $NIN \rightarrow eName$

Partial:- $contractNo \rightarrow hNo, hLoc$

Transitive:- $hNo \rightarrow hLoc$

2NF:- Remove Partial Dependency

<u>NIN</u>	<u>contractNo</u>	hours
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<u>NIN</u>	eName
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<u>contractNo</u>	hNo	hLoc
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3NF:- Remove Transitive Dependency

<u>NIN</u>	<u>contractNo</u>	hours
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<u>NIN</u>	eName
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<u>contractNo</u>	<u>hNo</u>
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<u>hNo</u>	hLoc
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FINAL TABLES:-

NIN	contract No	hours
1135	C1024	16
1057	C1024	24
1068	C1025	28
1135	C1025	15

NIN	eName
1135	Smith J
1057	Hocine D
1068	White T

contract No	hNo
C1024	H25
C1025	H4

hNo	hLoc
H25	East Kilbide
H4	Glasgow

QUESTION 4:-

Fill the Missing values:-

TABLE:-

patientNum	drugNo	Name	Desc	Dosage	method of Admin	units Per Day	Start Date	finish Date
fullName	wardNum	BedNum	WardName					

1NF:- Find all the Functional Dependencies

Full Functional:- patientNum, drugNo, startDate \rightarrow wardNo, wardName, unitsPerDay, finishDate

Partial:- patientNum \rightarrow fullName

Partial:- drugNo \rightarrow Name, Desc, Dosage, methodOfAdmin

Transitive:- wardNo \rightarrow wardName

2NF:- Remove Partial Dependency

<u>patientNum</u>	<u>drugNo</u>	<u>startDate</u>	wardNo	wardName	bedNo	unitsPerDay	finishDate
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<u>drugNo</u>	Name	Desc	Dosage	methodOfAdmin
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<u>patientNum</u>	fullName
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3NF:- Remove Transitive Dependency

<u>patientNum</u>	<u>drugNo</u>	<u>startDate</u>	<u>wardNo</u>	bedNo	unitsPerDay	finishDate
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<u>drugNo</u>	Name	Desc	Dosage	methodOfAdmin
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<u>patientNum</u>	fullName
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<u>wardNo</u>	wardName
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FINAL TABLES:-

patientNum	fullName
P10034	Robert MacDonald

wardNo	wardName
Ward 11	Orthopaedic

drugNo	Name	Desc	methodOfAdmin
10223	Morphine	Pain Killer	Oral
10334	Tetracycline	Antibiotic	IV

patientNum	drugNo	startDate	finishDate	wardNo	bedNo	unitsPerDay
P10034	10223	24/03/01	24/04/02	Ward 11	84	50
P10034	10334	24/03/01	17/04/01	Ward 11	84	10
P10034	10223	25/04/02	02/05/03	Ward 11	84	10

QUESTION 5:-

TABLE:-

custNo	custName	Address	Phone	artistID	artistName	artTitle
purchaseDate		salesPrice				

1NF:- Find all the Functional Dependencies.

Full Functional:- ^{Primary Key} $[\text{custNo}, \text{artistID}, \text{purchaseDate}] \rightarrow \text{artTitle}, \text{salesPrice}$

Partial:- $\text{custNo} \rightarrow \text{custName}, \text{address}, \text{phone}$

Partial:- $\text{artistID} \rightarrow \text{artistName}$

Partial:- $\text{purchaseDate} \rightarrow \text{salesPrice}$

No Transitive Dependency found in this table

2NF:- Remove Partial Dependencies

<u>custNo</u>	custName	address	phone
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<u>artistID</u>	artistName
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<u>purchaseDate</u>	salesPrice
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<u>custNo</u>	<u>artistID</u>	<u>purchaseDate</u>	artTitle
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3NF:- Remove Transitive Dependency

There is no transitive dependency so the table is already in 3NF

FINAL TABLES:-

artistID	artistName
03	Carol Channing
15	Dennis Frings

purchaseDate	SalesPrice
09/17/2000	7000.00
05/11/2000	1800.00
02/14/2002	5550.00
07/15/2003	2200.00

custNo	custName	address	phone
123	Jack son Elizabeth	4th Avenue Fonthill, ON	(206) 284- 6783

custNo	artistID	purchaseDate	artTitle
123	03	09/17/200	Laugh with Teeth
123	15	05/11/2000	South toward Emerald- Sea
123	03	02/14/2002	At the Movies
123	15	07/14/2003	South toward Emerald Sea