

CLS-WRK

Third Normal form (3NF)

- A rln must be in 2NF and No transitive dependency for no-key attributes.
- 3NF has to reduce the data duplication.

Example No: 1

UNF	1NF	2NF	3NF
<u>Project code</u> Project title project Manager Project budget Employee No. Employee Name Department Name Department No. Hourly Rate	<u>Project code</u> Project title Project Manager Project budget <u>Project code</u> Employee No. Employee Name Department No Department Name Hourly Rate	<u>Project code</u> Project title Project manager Project budget <u>Project code</u> Employee No. Hourly rate <u>Employee No.</u> Employee Name Department No. Department Name	<u>Project code</u> Project title Hourly Rate <u>Employee No.</u> Employee Name Department No <u>Department Name</u> Department No. <u>Project Code</u> Project title project Manager Project budget

Example No: 2

UNF	1NF = Remove redundancy	2NF = Partial department	3NF= remove transitive dependency
<u>Patient No.</u> Patient surname Patient Forename Ward No. Ward Name Prescription Date Drug date Drug name Dosage Length of treatment Drug code	<u>Patient No.</u> Patient surname Patient Forename Ward No. Ward Name <u>Patient No.</u> <u>Prescription Date</u> <u>Drug code</u> Drug date Drug name Dosage Length of treatment	<u>Patient No.</u> Patient surname Patient Forename Ward No. Ward Name <u>Patient No.</u> <u>Prescription Date</u> Dosage Length of treatment <u>Drug code</u> Drug name drug date	<u>Patient No.</u> Patient surname Patient Forename Ward no. <u>Ward no.</u> Ward name <u>Patient No.</u> <u>Prescription Date</u> Dosage Length of treatment <u>Drug code</u> Drug name drug date

UNF	1NF	2NF	3NF
<u>Order No</u> customer No customer Name customer Address Telephone No Depot No Depot Name Product no Product name Product Qty Product Price	<u>Order No</u> customer No customer Name customer Address Telephone No Depot No Depot Name <u>Order No</u> <u>Product no</u> Product name Product Qty Product Price	<u>Order No</u> customer No customer Name customer Address Telephone No Depot No Depot Name <u>Order No</u> <u>Product no</u> Product Qty <u>Product no</u> Product name Product Price	<u>Order No</u> customer No depot no <u>customer No</u> customer name customer Address Telephone No <u>Depot No</u> Depot Name <u>Order No</u> <u>Product no</u> Product Qty <u>Product no</u> Product name Product Price

UNF	1NF	2NF	3NF
Branch id Branch name Branch address Post code Town country Employee id Employee F-name Employee surname Employee Ni No. Inventorybranch mana Item id Item name Item description Unit price No. in stock Price+vat Category code Category description Supplier id Supplier name Branch manager employee id Branch manager surname Franchise owner name Franchise owner id Franchise owner tel.no	<u>Branch id</u> Branch name Branch address Post code Town Country Branch manager employee id Branch manager surname Franchise owner name Franchise owner id Franchise owner tel.no Franchise owner start date <u>Branch id</u> <u>Employee id</u> Employee f-name Employee surname Employee ni-name <u>Item id</u> Item name Item description Unit price No in stock Price+vat Category code Category description	<u>Branch id</u> Branch name Branch address Post code Town Country Branch manager employee id Branch manager surname Franchise owner name Franchise owner id Franchise owner tel.no Franchise owner start date <u>Branch id</u> <u>Employee id</u> Employee f-name Employee surname Employee ni-name <u>Item id</u> Item name Item description Unit price No in stock Category code Category description	<u>Branch id</u> Branch name Branch manager employee id Branch manager surname Franchise owner name Franchise owner id Franchise owner tel.no Franchise owner start date <u>Post code</u> <u>Post code</u> Town address Country Town <u>Employee id</u> Employee f-name Employee surname Employee ni-name <u>Item id</u> Item name Item description Unit price No in stock Category code

Franchise start date	<u>Supplier id</u> Supplier Name	<u>Supplier id</u> Supplier Name <u>Branch id</u> <u>Item id</u> <u>Employee id</u> <u>Supplier id</u> <u>Price+vat</u>	<u>Category code</u> Category description <u>Supplier id</u> Supplier Name <u>Branch id</u> <u>Item id</u> <u>Employee id</u> <u>Supplier id</u> <u>Price+vat</u>
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UNF	1NF	2NF	3NF
Order No	<u>Order no</u>	<u>Customer id</u>	<u>Customer id</u>
Order date	First name	First name	First name
Customer Id	Last name	Last name	Last name
Title	Address	Address	Telephone
First name	Town	Town	Post code
Last name	Country	Country	
Address	Post code	Post code	
Town	Telephone	Telephone	<u>Post code</u>
Country	Customer id		Address
Post code	Order date	<u>Order No</u>	Town
Telephone	Title	Order date	Country
Book id		Title	
Isbn	<u>Order no</u>		
Book title	<u>Book id</u>		<u>Order No</u>
Author	Isbn	<u>Book id</u>	Order date
Publisher	Book title	Isbn	Title
price	Author	Book title	
Qty	Publisher	Author	
	price	Publisher	<u>Book id</u>
	Qty	price	Isbn
			Book title
			Author
			Publisher
			price
		<u>customer id</u>	
		<u>book id</u>	
		<u>order no</u>	
		<u>qty</u>	<u>order no</u>
			<u>customer id</u>
			<u>book id</u>
			<u>qty</u>

UNF	1NF	2NF	3NF
<u>Customer</u> <u>Acc.NO</u> Customer name Customer address Customer tel.no Holiday references No. Booking date Hotel name Holiday resort Flight no Departure airport Arrival airport Departure date Return date	<u>Customer</u> <u>Acc.NO</u> Customer name Customer address Customer tel.no Holiday references No. Booking date Hotel name Holiday resort <u>Customer</u> <u>acc.no</u> <u>Flight no</u> Departure airport Arrival airport Departure date Return date	<u>Customer</u> <u>Acc.NO</u> Customer name Customer address Customer tel.no <u>Holiday</u> <u>Reference no.</u> Booking date Hotel name Holiday resort <u>Flight no</u> Departure airport Arrival airport Departure date Return date <u>Customer acc</u> <u>no</u> <u>Holiday</u> <u>reference.no</u> <u>Flight no.</u>	<u>Customer</u> <u>Acc.NO</u> Customer name Customer address Customer tel.no <u>Holiday</u> <u>Reference no.</u> Hotel name Holiday resort <u>Flight no</u> Departure airport Arrival airport Departure date Return date <u>Booking date</u> Customer acc.no Holiday ref.no Booking date