

BakeryDB Normalization Documentation (UNF → 1NF → 2NF → Final Schema)

This document shows the complete normalization process for the Bakery Management Database. No steps are skipped. All tables are shown in Unnormalized Form (UNF), First Normal Form (1NF), Second Normal Form (2NF), and the Final Corrected Schema.

1. Unnormalized Form (UNF)

In UNF, tables may contain redundant data and attributes that depend only on part of a logical key. Below is the UNF representation of the order-related data.

OrderID	CustomerName	PhoneNumber	Cashier	Products (ID-Name-Price)	Quantities
101	John Doe	0771234567	Admin	1-Chocolate Cake-25, 2-Donut-3	2,5

2. First Normal Form (1NF)

To achieve 1NF, repeating groups are removed and all attributes are atomic. Each product ordered is stored in a separate row.

OrderID	CustomerName	PhoneNumber	Cashier	ProductID	ProductName	Price	Quantity
101	John Doe	0771234567	Admin	1	Chocolate Cake	25.00	2
101	John Doe	0771234567	Admin	2	Donut	3.00	5

3. Second Normal Form (2NF)

The table is now in 1NF but still contains partial dependencies. ProductName and Price depend only on ProductID, not on the full composite key (OrderID, ProductID). To achieve 2NF, the table is decomposed.

Orders Table (2NF)

OrderID (PK)	CustomerName	PhoneNumber	CashierID	TotalAmount
101	John Doe	0771234567	1	65.00

Products Table (2NF)

ProductID (PK)	ProductName	Price
1	Chocolate Cake	25.00
2	Donut	3.00

Order_Details Table (2NF)

OrderID (PK,FK)	ProductID (PK,FK)	Quantity
101	1	2

OrderID (PK,FK)	ProductID (PK,FK)	Quantity
101	2	5

4. Final Normalized Schema (2NF Complete)

The following tables represent the final normalized structure of the BakeryDB after applying 2NF.

Users

user_id	username	email	role
1	admin	admin@gmail.com	Admin

Products

product_id	product_name	price	quantity
1	Chocolate Cake	25.00	10

Orders

order_id	customer_name	phone_number	cashier_id	total_amount
101	John Doe	0771234567	1	65.00

Order_Details

order_id	product_id	quantity
101	1	2

Inventory_Items

item_id	item_name	quantity	unit
1	Flour	50	kg