

Key Milestone 2: Normalized Relational Schema



DBMS Final Project

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“On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work”

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Project: Restaurant Management System

Converted Relational Schema (from Conceptual Schema):

1. users:

```
users(  
  id PK,  
  name,  
  phone,  
  email,  
  address,  
  password  
)
```

2. employees:

```
employees(  
  id PK,  
  name,  
  role,  
  phone,  
  salary,  
  shift_timing,  
  date_of_joining  
)
```

3. carts:

```
carts(  
  id PK,  
  user_id FK,  
  food_id FK,  
  quantity  
)
```

4. Food Item:

```
food(  
  id PK,  
  title,  
  details,  
  price,  
  image)
```

5. orders:

```
orders(  
  id PK,
```

```
food_id FK,  
user_id FK,  
employee_id FK  
total_amount,  
order_status  
)
```

6. tables:

```
tables(  
id PK,  
details,  
capacity,  
status  
)
```

7. books:

```
books(  
id PK,  
table_id FK,  
phone,  
guests,  
date,  
time  
)
```

8. reviews:

```
reviews(  
id PK,  
food_id FK,  
user_id FK,  
review,  
rating,  
date  
)
```

9. invoice:

```
invoice(  
id PK,  
order_id FK,  
user_id FK,  
amount,  
status,  
date  
)
```

Stepwise Normalization To 3NF:

1. users:

Unnormalized:

users(id PK, name, phone, email, address, password)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.
- No partial dependency exists.

3NF:

- No transitive dependency.

Final Normalized Form:

users(id PK, name, phone, email, address, password)

2. employees:

Unnormalized:

employees(id PK, name, role, phone, salary, shift_timing, date_of_joining)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.
- No partial dependency exists.

3NF:

- All non-key attributes are fully dependent on id.

Final Normalized Form:

employees(id PK, name, role, phone, salary, date_of_joining, shift_timing)

3. books:

Unnormalized:

books(id PK, table_id FK, phone, guests, date)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.

- No partial dependency exists.

3NF:

- No transitive dependency. All fields depend only on id.

Final Normalized Form:

books(id PK, table_id FK, phone, guests, date)

4. carts:**Unnormalized:**

carts(id PK, user_id FK, food_id FK, quantity)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.
- No partial dependency exists.

3NF:

- No transitive dependency

Final Normalized Form:

carts(id PK, user_id FK, food_id FK, quantity)

5. tables:**Unnormalized:**

tables(id PK, details, capacity, status)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.
- No partial dependency exists.

3NF:

- id is primary key.
- No transitive dependency.

Final Normalized Form:

tables(id PK, details, capacity, status)

6. orders:

Unnormalized:

orders(id PK, food_id FK, user_id FK, employee_id FK, total_amount, order_status)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.
- No partial dependency.

3NF:

- id is primary key.

Final Normalized Form:

orders(id PK, food_id FK, user_id FK, employee_id FK, total_amount, order_status)

7. Review:**Unnormalized:**

reviews(id PK, food_id FK, user_id FK, review, rating, date)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.
- No partial dependency exists.

3NF:

- No transitive dependency.

Final Normalized Form:

reviews(id PK, food_id FK, user_id FK, review, rating, date)

8. Invoice:**Unnormalized:**

invoice(id PK, order_id FK, user_id FK, amount, status, date)

1NF:

- All Attributes are atomic.
- Already in 1NF.

2NF:

- id is the primary key.
- No partial dependency exists.

3NF:

- No transitive dependency.

Final Normalized Form:

invoice(id PK, order_id FK, user_id FK, amount, status, date)