# **DBMS PROJECT NORMALIZATION**

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**tbl\_users**

**1NF:**

Each column contains atomic values (no repeating groups or arrays).

No composite or multi-valued attributes.

Primary key is present.

**2NF:**

All non-key attributes are fully functionally dependent on the entire primary key.

No partial dependencies.

**3NF:**

All non-key attributes are dependent only on the primary key.

No transitive dependencies.

**Conclusion:**

The table is already in 1NF, 2NF, and 3NF.

**tbl\_dea\_cust**

**1NF:**

Each column contains atomic values.

No composite or multi-valued attributes.

Primary key is present.

**2NF:**

All non-key attributes are fully functionally dependent on the entire primary key.

No partial dependencies.

**3NF:**

All non-key attributes are dependent only on the primary key.

No transitive dependencies.

**Conclusion:**

The table is already in 1NF, 2NF, and 3NF.

**tbl\_transactions**

**1NF:**

Each column contains atomic values.

No composite or multi-valued attributes.

Primary key is present.

**2NF:**

All non-key attributes are fully functionally dependent on the entire primary key.

No partial dependencies.

**3NF:**

All non-key attributes are dependent only on the primary key.

No transitive dependencies.

**Conclusion:**

The table is already in 1NF, 2NF, and 3NF.

**tbl\_transaction\_detail**

**1NF:**

Each column contains atomic values.

No composite or multi-valued attributes.

Primary key is present.

**2NF:**

All non-key attributes are fully functionally dependent on the entire primary key.

No partial dependencies.

**3NF:**

All non-key attributes are dependent only on the primary key.

No transitive dependencies.

**Conclusion:**

The table is already in 1NF, 2NF, and 3NF.

**tbl\_products**

**1NF:**

Each column contains atomic values.

No composite or multi-valued attributes.

Primary key is present.

**2NF:**

All non-key attributes are fully functionally dependent on the entire primary key.

No partial dependencies.

**3NF:**

There is a transitive dependency on the category column. To achieve 3NF, we need to replace it with category\_id, referencing the primary key of tbl\_categories.

**Conclusion:**

The table is in 1NF and 2NF, but it needs modification for 3NF to remove the transitive dependency.

**tbl\_categories**

**1NF:**

Each column contains atomic values.

No composite or multi-valued attributes.

Primary key is present.

**2NF:**

All non-key attributes are fully functionally dependent on the entire primary key.

No partial dependencies.

**3NF:**

All non-key attributes are dependent only on the primary key.

No transitive dependencies.

**Conclusion:**

The table is already in 1NF, 2NF, and 3NF.

**Summary**

Most of the tables are already in 1NF, 2NF, and 3NF except for tbl\_products, which needs modification to achieve 3NF by removing the transitive dependency on the category column.