**Name of Group Members:**

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**RAILWAY MANAGEMENT SYSTEM**

1. **ADDRESS**(serial-no ,city , province ,home)

**1NF**=this is 1NF as there is no repeating group.

**2NF=**this is 2NF as there is no composite key.

**3NF**=this is 3NF as well as transitive dependency exist as there is no secondary key.

1. **CONTACT** (serial no, mobile no)

**1NF**=this is 1NF as there is no repeating group.

**2NF=**this is 2NF as there is no composite key.

**3NF**=this is 3NF as well as transitive dependency exist as there is no secondary key.

1. **EMPLOYEE**(serial-no, Fisrstname, Lastname, CNIC, post, qualification, gender, age, birthdate, name-of-station, salary)

**1NF**=there is no repeating group present in this table.

**2NF**=no composite key

**3NF**=transitive dependency exist so we separate it with new entity**. ”EMPINFO**”

* **EMPINFO**(CNIC , First name , Last name ,gender ,age ,birthdate ,serial-no)

**1NF**=no repeating group

**2NF**=no composite key.

**3NF**=no transitive dependency exist as no secondary key depends on other secondary keys.

* **EMPLOYEE (**serial-no, post, qualification, salary, name-of-station)

**1NF**=there is no repeating group

**2NF**=no composite key exist

**3NF**=transitive dependency exist so we will again separate it with new entity.

* **EMPLOYEE** (serial-no, qualification, post, experience, name-of-station)

**1NF**=no repeating group

**2NF**=no composite key is present

**3NF**=no transitive dependency.

* **POSTDETAIL** (post, salary)

**1NF**=no repeating group

**2NF**=no composite key

**3NF**=no transitive dependency as only 1 secondary key is present.

1. **PASSENGER** (CNIC, Full name, phone-no, gender, age, train-id)

**1NF:** This is in 1NF because **no repeating group exists**

**2NF**: This table is in 2NF because **No composite primary key is present in the table**

**3NF**: No **transitive dependency** is present …This is because **no secondary key** in the table that can uniquely identify some other secondary key

1. **HAULT-DETAIL** (train id, name of station ,stops ,departure-time, arrival-time)

**1NF:** This is in 1NF because no repeating group exists

**2NF**: No secondary key is present

**3NF**: No transitive dependency is present. This is because no secondary kill exists in the table

1. **MAIL**(serial-no, email)

**1NF**: no repeating group.

**2NF**: no secondary key is present.

**3NF**: No transitive dependency as there is no secondary key.

1. **STATION** (name of station, no of employees , no of booths , address , city , province , no of tracks , inquiry phone numbers , owner , no of platform in use)

**1NF**: no repeating groups.

**2NF**: no composite key.

**3NF**: transitive dependency exists.

* **STATION**(name of station , no of employees , no of booths , no of tracks , inquiry number , owner , no of platforms in use , address )

**1NF**: no repeating groups.

**2NF**: no composite key.

**3NF**: no secondary key depends upon another secondary key so no transitive dependency exist.

* **LOCATION**(address , city , province)

**1NF**: no repeating groups.

**2NF**: no composite key.

**3NF**: no secondary key depends upon another secondary key so no transitive dependency exist.

1. **TICKET** (ID, Seat no, from station, to station, class, train id, Passenger CNIC)

**1NF:** repeating groups exist

* TICKET-DETAIL (ID , from station, to station, class)

**1NF:** no repeating group.

**2NF:** no partial functionality exist.

**3NF:** there is no second secondary key to compare class attribute with.

* TICKET (ID, Seat no, train id, Passenger CNIC)

**1NF:** no repeating group.

**2NF:** no partial functionality exist.

**3NF:** there is no second secondary key to compare seat no attribute with.

1. **TRAIN** (Train id, Train name, from station, to station, departure date, arrival date, no of carriage, seats per carriage, name of station)

**1NF:** repeating groups exist.

* **TRAIN-DETAIL** (Train id, from station, to station)

**1NF:** no repeating group.

**2NF:** no partial functionality exist.

**3NF:** secondary key exist.

* **TRAIN** (Train id, Train name, departure date, arrival date, no of carriage, seats per carriage, name of station)

**1NF:** no repeating group.

**2NF:** no composite key

**3NF:** no transitive dependency exist.

1. **MANAGE-ACTIVITY** (Serial no, Train ID)

**1NF:** no repeating group.

**2NF:** no secondary attributes exist.

**3NF:** no secondary attributes exist.

1. **BOOK-SEAT** (Train-id, Carriage, Seat, Booked)

**1NF:** no repeating group.

**2NF:** no partial functionality exist.

**3NF:** there is no second secondary key to compare booked attribute with.