PROJECT PROPOSAL

Railway Station

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1. Stations

This table stores details about metro stations.

Fields:

- StationID (Primary Key): Unique identifier for each station.
- StationName: The name of the station.
- Location: Geographic location or area (could include city, district, etc.).
- StationType: Type of station (e.g., terminal, transfer, intermediate).
- Latitude and Longitude: Coordinates for location.

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2. Trains

This table stores information about the trains that operate on the metro system.

Fields:

- TrainID (Primary Key): Unique identifier for each train.
- TrainModel: Model or type of the train (e.g., type A, type B).
- Capacity: Maximum number of passengers the train can carry.
- Status: Operational status of the train (e.g., active, under maintenance, inactive).

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3. Schedules

This table tracks the schedule for train arrivals and departures at various stations.

Fields:

- ScheduleID (Primary Key): Unique identifier for each schedule.
- TrainID (Foreign Key): Linked to the Trains table.
- StationID (Foreign Key): Linked to the Stations table.
- DepartureTime: The scheduled time of departure from the station.
- ArrivalTime: The scheduled time of arrival at the station.
- DayOfWeek: Days on which the schedule applies (e.g., Monday, Tuesday).

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4. Passengers

This table stores data related to the passengers.

Fields:

- PassengerID (Primary Key): Unique identifier for each passenger.
- FullName: Passenger's full name.
- DateOfBirth: Passenger's date of birth.
- ContactDetails: Phone number or email for contact purposes.
- Gender: Gender of the passenger.

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5. Tickets

This table stores the details of tickets purchased by passengers.

Fields:

- TicketID (Primary Key): Unique ticket identifier.
- PassengerID (Foreign Key): Linked to the Passengers table.
- ScheduleID (Foreign Key): Linked to the Schedules table (for the specific train).
- TicketType: Type of ticket (e.g., one-way, round-trip, student).
- Fare: Price of the ticket.
- PaymentStatus: Payment status (e.g., paid, pending, refunded).
- PurchaseDate: Date and time the ticket was purchased.

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6. Staff

This table holds information about the staff involved in the operations of the metro system.

Fields:

- StaffID (Primary Key): Unique identifier for each staff member.
- FullName: Staff member's full name.
- Role: The staff member's role (e.g., driver, conductor, maintenance worker).
- StationID (Foreign Key): Station where the staff is assigned (optional).

- TrainID (Foreign Key): Train they operate (optional for drivers).
- StartDate: Date the staff member started working.

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7. Maintenance Records

This table stores details about train and track maintenance schedules.

Fields:

- MaintenanceID (Primary Key): Unique identifier for each maintenance record.
- TrainID (Foreign Key): Linked to the Trains table.
- MaintenanceType: Type of maintenance (e.g., preventive, corrective).
- MaintenanceDate: Date and time when maintenance is performed.
- Duration: Duration of maintenance (in hours or minutes).
- Status: Maintenance status (e.g., completed, in-progress).

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8. Operations

This table tracks daily operations, including train runs and status updates.

Fields:

- OperationID (Primary Key): Unique identifier for each operation record.
- TrainID (Foreign Key): Linked to the Trains table.
- OperationDate: Date the operation occurred.
- DepartureStationID (Foreign Key): Linked to the Stations table for the departure station.
- ArrivalStationID (Foreign Key): Linked to the Stations table for the arrival station.
- Status: Operational status (e.g., on-time, delayed, cancelled).

Relationships Between Entities:

1. **Stations ↔ Schedules ↔ Trains:** Each station can have multiple schedules for different trains. Each schedule references a specific train that operates on that route.
2. **Passengers ↔ Tickets:** Each passenger can purchase multiple tickets, but each ticket is linked to a specific schedule.

3. **Staff ↔ Trains/Stations:** Staff are assigned to either specific trains or stations. For example, train drivers are linked to specific trains, while station personnel are linked to specific stations.
4. **Maintenance ↔ Trains:** Maintenance records are linked to specific trains, helping to track when maintenance was done on each train.
