

Project Progress

CSD317: Introduction to Database Systems

[Smart City Public Transport Management]

⇒ Examining model for functional dependencies, and normalization
→ using real life information

① Human (ID-No, F-name, L-name, DOB, AGE, V-id) → R1

ID-No is a appropriate primary key here

all other attributes are functionally dependent on ID-no

no transitive relations or partially dependent attributes here

∴ R1 is in BCNF

② Vehicle (Vehicle-ID, Current-loc, status, last-update) → R2

All attributes completely dependent on vehicle-id

vehicle-id is primary key

∴ R2 is in BCNF

③ Route - followed (Vehicle-ID, RT-ID) → R3

Exists in BCNF, both attributes are primary keys

∴ R3 in BCNF

④ Route (Journey-time, R-ID, start-point, end-point, distance) → R4

Similar to above

∴ R4 in BCNF

⑤ Schedule - Followed (R-ID, S-ID) → R5

Similar to above

∴ R5 in BCNF

⑥ Schedule (Schedule-ID, R-ID, V-ID, departure-time, arrival-time) → R6

Similar to above

∴ R6 in BCNF

⑦ Operator-on (V-id, S-id) → R7

Similar to above

∴ R7 in BCNF

⑧ Accident - History (V-id, I-id) → R8

Similar to above ∴ R8 in BCNF

⑨ Incident (incident-id, vid, description, report-time-date) $\rightarrow R_9$
Similar to above
 $\therefore R_9$ in BCNF

⑩ Maintenance-History (m-id, v-id) $\rightarrow R_{10}$
Similar to above
 $\therefore R_{10}$ in BCNF

⑪ Maintenance (maintenance-id, vid, issue-reported, repair-status) $\rightarrow R_{11}$
Similar to above
 $\therefore R_{11}$ in BCNF

⑫ Performs maintenance (m-id, staff-id) $\rightarrow R_{12}$
Similar to above
 $\therefore R_{12}$ in BCNF

⑬ Payment (amount, Payment-ID, passenger-ID, method) $\rightarrow R_{13}$
Similar to above
 $\therefore R_{13}$ in BCNF

Thus all the relations in this schema are normalized
upto BCNF.

```
mysql> CREATE DATABASE smartcity;
Query OK, 1 row affected (0.00 sec)

mysql> USE smartcity;
Database changed
```

Creating Database “smartcity” and Selecting it

```
mysql> -- Create VEHICLE table
mysql> CREATE TABLE VEHICLE (
  ->   VEHICLE_ID INT PRIMARY KEY,
  ->   CURRENT_LOCATION VARCHAR(100),
  ->   STATUS VARCHAR(50),
  ->   LAST_UPDATE DATETIME
  -> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> -- Create HUMAN table
mysql> CREATE TABLE HUMAN (
  ->   ID_NO INT PRIMARY KEY,
  ->   FNAME VARCHAR(50),
  ->   LNAME VARCHAR(50),
  ->   DOB DATE,
  ->   AGE INT,
  ->   V_ID INT,
  ->   FOREIGN KEY (V_ID) REFERENCES VEHICLE(VEHICLE_ID)
  -> );
Query OK, 0 rows affected (0.05 sec)

mysql>
mysql> -- Create ROUTE table
mysql> CREATE TABLE ROUTE (
  ->   R_ID INT PRIMARY KEY,
  ->   JOURNEY_TIME TIME,
  ->   START_POINT VARCHAR(100),
  ->   END_POINT VARCHAR(100),
  ->   DISTANCE DECIMAL(10, 2)
  -> );
Query OK, 0 rows affected (0.04 sec)

mysql> -- Create ROUTE_FOLLOWED junction table
mysql> CREATE TABLE ROUTE_FOLLOWED (
  ->   VEHICLE_ID INT,
  ->   RT_ID INT,
  ->   PRIMARY KEY (VEHICLE_ID, RT_ID),
  ->   FOREIGN KEY (VEHICLE_ID) REFERENCES VEHICLE(VEHICLE_ID),
  ->   FOREIGN KEY (RT_ID) REFERENCES ROUTE(R_ID)
  -> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> -- Create SCHEDULE table
mysql> CREATE TABLE SCHEDULE (
  ->   SCHEDULE_ID INT PRIMARY KEY,
  ->   R_ID INT,
  ->   V_ID INT,
  ->   DEPARTURE_TIME TIME,
  ->   ARRIVAL_TIME TIME,
  ->   FOREIGN KEY (R_ID) REFERENCES ROUTE(R_ID),
  ->   FOREIGN KEY (V_ID) REFERENCES VEHICLE(VEHICLE_ID)
  -> );
Query OK, 0 rows affected (0.05 sec)

mysql>
mysql> CREATE TABLE SCHEDULE_FOLLOWED (
  ->   R_ID INT,
  ->   S_ID INT,
  ->   PRIMARY KEY (R_ID, S_ID),
  ->   FOREIGN KEY (R_ID) REFERENCES ROUTE(R_ID),
  ->   FOREIGN KEY (S_ID) REFERENCES SCHEDULE(SCHEDULE_ID)
  -> );
Query OK, 0 rows affected (0.04 sec)
```

Creating Tables

```

mysql> CREATE TABLE OPERATES_ON (
->     V_ID INT,
->     S_ID INT,
->     PRIMARY KEY (V_ID, S_ID),
->     FOREIGN KEY (V_ID) REFERENCES VEHICLE(VEHICLE_ID),
->     FOREIGN KEY (S_ID) REFERENCES SCHEDULE(SCHEDULE_ID)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> -- Create INCIDENT table
mysql> CREATE TABLE INCIDENT (
->     INCIDENT_ID INT PRIMARY KEY,
->     V_ID INT,
->     DESCRIPTION TEXT,
->     REPORT_TIME_DATE DATETIME,
->     FOREIGN KEY (V_ID) REFERENCES VEHICLE(VEHICLE_ID)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> CREATE TABLE ACCIDENT_HISTORY (
->     V_ID INT,
->     I_ID INT,
->     PRIMARY KEY (V_ID, I_ID),
->     FOREIGN KEY (V_ID) REFERENCES VEHICLE(VEHICLE_ID),
->     FOREIGN KEY (I_ID) REFERENCES INCIDENT(INCIDENT_ID)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql> -- Create MAINTENANCE table
mysql> CREATE TABLE MAINTENANCE (
->     MAINTENANCE_ID INT PRIMARY KEY,
->     V_ID INT,
->     ISSUE_REPORTED TEXT,
->     REPAIR_STATUS VARCHAR(50),
->     FOREIGN KEY (V_ID) REFERENCES VEHICLE(VEHICLE_ID)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> -- Create PERFORMS_MAINTENANCE junction table
mysql> CREATE TABLE PERFORMS_MAINTENANCE (
->     M_ID INT,
->     STAFF_ID INT,
->     PRIMARY KEY (M_ID, STAFF_ID),
->     FOREIGN KEY (M_ID) REFERENCES MAINTENANCE(MAINTENANCE_ID),
->     FOREIGN KEY (STAFF_ID) REFERENCES HUMAN(ID_NO)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> -- Create MAINTENANCE_HISTORY table
mysql> CREATE TABLE MAINTENANCE_HISTORY (
->     M_ID INT,
->     V_ID INT,
->     PRIMARY KEY (M_ID, V_ID),
->     FOREIGN KEY (M_ID) REFERENCES MAINTENANCE(MAINTENANCE_ID),
->     FOREIGN KEY (V_ID) REFERENCES VEHICLE(VEHICLE_ID)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql> -- Create PAYMENT table
mysql> CREATE TABLE PAYMENT (
->     PAYMENT_ID INT PRIMARY KEY,
->     PASSENGER_ID INT,
->     AMOUNT DECIMAL(10, 2),
->     METHOD VARCHAR(50),
->     FOREIGN KEY (PASSENGER_ID) REFERENCES HUMAN(ID_NO)
-> );
Query OK, 0 rows affected (0.04 sec)

```

```
mysql> INSERT INTO VEHICLE (VEHICLE_ID, CURRENT_LOCATION, STATUS, LAST_UPDATE) VALUES
-> (1, 'New York', 'Active', '2025-03-30 10:00:00'),
-> (2, 'Los Angeles', 'Inactive', '2025-03-30 10:05:00'),
-> (3, 'Chicago', 'Active', '2025-03-30 10:10:00'),
-> (4, 'Houston', 'Maintenance', '2025-03-30 10:15:00'),
-> (5, 'Phoenix', 'Active', '2025-03-30 10:20:00'),
-> (6, 'Philadelphia', 'Inactive', '2025-03-30 10:25:00'),
-> (7, 'San Antonio', 'Active', '2025-03-30 10:30:00'),
-> (8, 'San Diego', 'Maintenance', '2025-03-30 10:35:00'),
-> (9, 'Dallas', 'Active', '2025-03-30 10:40:00'),
-> (10, 'San Jose', 'Inactive', '2025-03-30 10:45:00'),
-> (11, 'Austin', 'Active', '2025-03-30 10:50:00'),
-> (12, 'Jacksonville', 'Maintenance', '2025-03-30 10:55:00'),
-> (13, 'Fort Worth', 'Active', '2025-03-30 11:00:00'),
-> (14, 'Columbus', 'Inactive', '2025-03-30 11:05:00'),
-> (15, 'San Francisco', 'Active', '2025-03-30 11:10:00'),
-> (16, 'Charlotte', 'Maintenance', '2025-03-30 11:15:00'),
-> (17, 'Indianapolis', 'Active', '2025-03-30 11:20:00'),
-> (18, 'Seattle', 'Inactive', '2025-03-30 11:25:00'),
-> (19, 'Denver', 'Active', '2025-03-30 11:30:00'),
-> (20, 'Washington', 'Maintenance', '2025-03-30 11:35:00'),
-> (21, 'Boston', 'Active', '2025-03-30 11:40:00'),
-> (22, 'El Paso', 'Inactive', '2025-03-30 11:45:00'),
-> (23, 'Nashville', 'Active', '2025-03-30 11:50:00'),
-> (24, 'Detroit', 'Maintenance', '2025-03-30 11:55:00'),
-> (25, 'Oklahoma City', 'Active', '2025-03-30 12:00:00'),
-> (26, 'Portland', 'Inactive', '2025-03-30 12:05:00'),
-> (27, 'Las Vegas', 'Active', '2025-03-30 12:10:00'),
-> (28, 'Memphis', 'Maintenance', '2025-03-30 12:15:00'),
-> (29, 'Louisville', 'Active', '2025-03-30 12:20:00'),
-> (30, 'Baltimore', 'Inactive', '2025-03-30 12:25:00'),
-> (31, 'Milwaukee', 'Active', '2025-03-30 12:30:00'),
-> (32, 'Albuquerque', 'Maintenance', '2025-03-30 12:35:00'),
-> (33, 'Tucson', 'Active', '2025-03-30 12:40:00'),
-> (34, 'Fresno', 'Inactive', '2025-03-30 12:45:00'),
-> (35, 'Sacramento', 'Active', '2025-03-30 12:50:00'),
-> (36, 'Mesa', 'Maintenance', '2025-03-30 12:55:00'),
-> (37, 'Kansas City', 'Active', '2025-03-30 13:00:00'),
-> (38, 'Atlanta', 'Inactive', '2025-03-30 13:05:00'),
-> (39, 'Long Beach', 'Active', '2025-03-30 13:10:00'),
-> (40, 'Omaha', 'Maintenance', '2025-03-30 13:15:00'),
-> (41, 'Raleigh', 'Active', '2025-03-30 13:20:00'),
-> (42, 'Miami', 'Inactive', '2025-03-30 13:25:00'),
-> (43, 'Oakland', 'Active', '2025-03-30 13:30:00'),
-> (44, 'Minneapolis', 'Maintenance', '2025-03-30 13:35:00'),
-> (45, 'Tulsa', 'Active', '2025-03-30 13:40:00'),
-> (46, 'Cleveland', 'Inactive', '2025-03-30 13:45:00'),
-> (47, 'Wichita', 'Active', '2025-03-30 13:50:00'),
-> (48, 'New Orleans', 'Maintenance', '2025-03-30 13:55:00'),
-> (49, 'Arlington', 'Active', '2025-03-30 14:00:00'),
-> (50, 'Bakersfield', 'Inactive', '2025-03-30 14:05:00');
Query OK, 50 rows affected (0.01 sec)
Records: 50 Duplicates: 0 Warnings: 0
```

Inserting into Vehicle Table

```
mysql> INSERT INTO ROUTE (R_ID, JOURNEY_TIME, START_POINT, END_POINT, DISTANCE) VALUES
-> (1, '02:30:00', 'New York', 'Boston', 320.50),
-> (2, '04:15:00', 'Los Angeles', 'San Francisco', 615.00),
-> (3, '01:45:00', 'Chicago', 'Milwaukee', 148.30),
-> (4, '05:10:00', 'Houston', 'Dallas', 385.60),
-> (5, '03:20:00', 'Miami', 'Orlando', 328.40),
-> (6, '06:45:00', 'Denver', 'Salt Lake City', 835.50),
-> (7, '04:05:00', 'Seattle', 'Portland', 280.20),
-> (8, '02:55:00', 'Atlanta', 'Charlotte', 365.10),
-> (9, '07:30:00', 'San Diego', 'Las Vegas', 530.75),
-> (10, '03:40:00', 'Detroit', 'Cleveland', 275.80),
-> (11, '08:15:00', 'Phoenix', 'Albuquerque', 750.90),
-> (12, '04:50:00', 'Philadelphia', 'Washington DC', 225.50),
-> (13, '02:20:00', 'San Antonio', 'Austin', 125.70),
-> (14, '06:30:00', 'Minneapolis', 'Kansas City', 700.30),
-> (15, '05:50:00', 'Indianapolis', 'Louisville', 385.40),
-> (16, '03:10:00', 'Columbus', 'Pittsburgh', 290.60),
-> (17, '02:40:00', 'Buffalo', 'Rochester', 120.90),
-> (18, '07:20:00', 'Las Vegas', 'Phoenix', 500.80),
-> (19, '06:00:00', 'Memphis', 'Nashville', 380.70),
-> (20, '05:25:00', 'St. Louis', 'Oklahoma City', 630.50),
-> (21, '03:35:00', 'Baltimore', 'Richmond', 250.40),
-> (22, '02:50:00', 'Charlotte', 'Raleigh', 260.30),
-> (23, '04:10:00', 'Portland', 'Boise', 670.20),
-> (24, '05:15:00', 'Milwaukee', 'Indianapolis', 410.90),
-> (25, '06:40:00', 'New Orleans', 'Baton Rouge', 170.80),
-> (26, '07:50:00', 'Salt Lake City', 'Boise', 660.70),
-> (27, '03:45:00', 'Omaha', 'Des Moines', 210.60),
-> (28, '04:55:00', 'Tampa', 'Jacksonville', 360.50),
-> (29, '02:35:00', 'Hartford', 'Providence', 110.90),
-> (30, '08:00:00', 'Anchorage', 'Fairbanks', 860.40),
-> (31, '03:05:00', 'Reno', 'Sacramento', 220.30),
-> (32, '07:10:00', 'Tulsa', 'Little Rock', 380.20),
-> (33, '05:05:00', 'Colorado Springs', 'Albuquerque', 560.70),
-> (34, '02:25:00', 'Albany', 'Syracuse', 150.90),
-> (35, '06:20:00', 'San Francisco', 'Reno', 350.60),
-> (36, '04:30:00', 'El Paso', 'Tucson', 430.50),
-> (37, '03:25:00', 'Knoxville', 'Lexington', 240.80),
-> (38, '07:40:00', 'Wichita', 'Kansas City', 320.70),
-> (39, '06:50:00', 'Birmingham', 'Montgomery', 155.40),
-> (40, '04:45:00', 'Augusta', 'Savannah', 250.30),
-> (41, '05:35:00', 'Charleston', 'Columbia', 210.20),
-> (42, '02:15:00', 'Manchester', 'Boston', 90.70),
-> (43, '06:10:00', 'Boise', 'Spokane', 590.80),
-> (44, '03:55:00', 'Lubbock', 'Amarillo', 200.50),
-> (45, '07:00:00', 'Corpus Christi', 'San Antonio', 250.90),
-> (46, '08:20:00', 'Honolulu', 'Hilo', 420.60),
-> (47, '04:35:00', 'Springfield', 'St. Louis', 310.40),
-> (48, '05:45:00', 'Greensboro', 'Raleigh', 280.50),
-> (49, '02:45:00', 'Sioux Falls', 'Omaha', 270.30),
-> (50, '06:55:00', ' Fargo', 'Minneapolis', 395.20);
Query OK, 50 rows affected (0.01 sec)
Records: 50 Duplicates: 0 Warnings: 0
```

Inserting in Route Table

```
mysql>
mysql> INSERT INTO HUMAN (ID_NO, FNAME, LNAME, DOB, AGE, V_ID) VALUES
-> (1, 'John', 'Doe', '1985-06-15', 39, 1),
-> (2, 'Alice', 'Smith', '1990-03-22', 34, 2),
-> (3, 'Bob', 'Johnson', '1982-08-10', 42, 3),
-> (4, 'Emily', 'Davis', '1995-11-25', 29, 4),
-> (5, 'Michael', 'Brown', '1987-05-30', 37, 5),
-> (6, 'Sarah', 'Miller', '1993-07-12', 31, 6),
-> (7, 'David', 'Wilson', '1980-09-18', 44, 7),
-> (8, 'Jessica', 'Moore', '1998-12-05', 26, 8),
-> (9, 'Daniel', 'Taylor', '1983-04-29', 41, 9),
-> (10, 'Laura', 'Anderson', '1992-06-20', 32, 10),
-> (11, 'Chris', 'Thomas', '1986-10-14', 38, 11),
-> (12, 'Sophia', 'Jackson', '1997-01-07', 27, 12),
-> (13, 'Matthew', 'White', '1989-02-17', 35, 13),
-> (14, 'Olivia', 'Harris', '1994-08-30', 30, 14),
-> (15, 'James', 'Martin', '1981-07-21', 43, 15),
-> (16, 'Emma', 'Thompson', '2000-05-15', 24, 16),
-> (17, 'Ethan', 'Garcia', '1991-09-05', 33, 17),
-> (18, 'Ava', 'Martinez', '1984-12-10', 40, 18),
-> (19, 'Logan', 'Robinson', '1999-04-28', 25, 19),
-> (20, 'Mia', 'Clark', '1996-11-11', 28, 20),
-> (21, 'Alexander', 'Rodriguez', '1988-03-09', 36, 21),
-> (22, 'Isabella', 'Lewis', '1985-07-23', 39, 22),
-> (23, 'Benjamin', 'Walker', '1990-10-01', 34, 23),
-> (24, 'Charlotte', 'Hall', '2001-06-14', 23, 24),
-> (25, 'Henry', 'Allen', '1983-08-02', 41, 25),
-> (26, 'Amelia', 'Young', '1998-01-18', 26, 26),
-> (27, 'Lucas', 'King', '1982-05-25', 42, 27),
-> (28, 'Harper', 'Wright', '1995-12-31', 29, 28),
-> (29, 'Mason', 'Scott', '1992-07-07', 32, 29),
-> (30, 'Ella', 'Green', '1986-04-19', 38, 30),
-> (31, 'Elijah', 'Adams', '1993-10-22', 31, 31),
-> (32, 'Scarlett', 'Baker', '1980-03-16', 44, 32),
-> (33, 'Jacob', 'Gonzalez', '1987-09-09', 37, 33),
-> (34, 'Grace', 'Nelson', '1999-05-30', 25, 34),
-> (35, 'William', 'Carter', '1984-11-14', 40, 35),
-> (36, 'Sophie', 'Mitchell', '1997-06-08', 27, 36),
-> (37, 'Daniel', 'Perez', '1991-02-05', 33, 37),
-> (38, 'Chloe', 'Roberts', '1994-09-27', 30, 38),
-> (39, 'Jack', 'Turner', '1989-12-21', 35, 39),
-> (40, 'Lily', 'Phillips', '2002-03-11', 22, 40),
-> (41, 'Owen', 'Campbell', '1985-06-04', 39, 41),
-> (42, 'Zoey', 'Parker', '1996-08-16', 28, 42),
-> (43, 'Sebastian', 'Evans', '1983-07-25', 41, 43),
-> (44, 'Hannah', 'Edwards', '1995-01-29', 29, 44),
-> (45, 'Dylan', 'Collins', '1990-11-13', 34, 45),
-> (46, 'Madison', 'Stewart', '1988-04-07', 36, 46),
-> (47, 'Caleb', 'Sanchez', '1992-12-17', 32, 47),
-> (48, 'Victoria', 'Morris', '1993-05-03', 31, 48),
-> (49, 'Nathan', 'Rogers', '1987-10-26', 37, 49),
-> (50, 'Eleanor', 'Reed', '2000-07-12', 24, 50);
Query OK, 50 rows affected (0.01 sec)
Records: 50  Duplicates: 0  Warnings: 0
```

Inserting in Human Table

```
mysql>
mysql> INSERT INTO ROUTE_FOLLOWED (VEHICLE_ID, RT_ID) VALUES
-> (1, 1),
-> (2, 2),
-> (3, 3),
-> (4, 4),
-> (5, 5),
-> (6, 6),
-> (7, 7),
-> (8, 8),
-> (9, 9),
-> (10, 10),
-> (11, 11),
-> (12, 12),
-> (13, 13),
-> (14, 14),
-> (15, 15),
-> (16, 16),
-> (17, 17),
-> (18, 18),
-> (19, 19),
-> (20, 20),
-> (21, 21),
-> (22, 22),
-> (23, 23),
-> (24, 24),
-> (25, 25),
-> (26, 26),
-> (27, 27),
-> (28, 28),
-> (29, 29),
-> (30, 30),
-> (31, 31),
-> (32, 32),
-> (33, 33),
-> (34, 34),
-> (35, 35),
-> (36, 36),
-> (37, 37),
-> (38, 38),
-> (39, 39),
-> (40, 40),
-> (41, 41),
-> (42, 42),
-> (43, 43),
-> (44, 44),
-> (45, 45),
-> (46, 46),
-> (47, 47),
-> (48, 48),
-> (49, 49),
-> (50, 50);
Query OK, 50 rows affected (0.01 sec)
Records: 50 Duplicates: 0 Warnings: 0
```

Inserting in Route_Followed Table


```

mysql> INSERT INTO SCHEDULE (SCHEDULE_ID, R_ID, V_ID, DEPARTURE_TIME, ARRIVAL_TIME) VALUES
-> (1, 1, 1, '08:00:00', '10:30:00'),
-> (2, 2, 2, '09:00:00', '12:45:00'),
-> (3, 3, 3, '10:15:00', '13:00:00'),
-> (4, 4, 4, '11:00:00', '14:20:00'),
-> (5, 5, 5, '12:30:00', '15:10:00'),
-> (6, 6, 6, '13:00:00', '16:30:00'),
-> (7, 7, 7, '14:45:00', '17:20:00'),
-> (8, 8, 8, '15:30:00', '18:00:00'),
-> (9, 9, 9, '16:10:00', '19:15:00'),
-> (10, 10, 10, '17:00:00', '20:00:00'),
-> (11, 11, 11, '18:30:00', '21:15:00'),
-> (12, 12, 12, '19:15:00', '22:00:00'),
-> (13, 13, 13, '20:00:00', '23:30:00'),
-> (14, 14, 14, '21:00:00', '00:30:00'),
-> (15, 15, 15, '22:10:00', '01:00:00'),
-> (16, 16, 16, '23:30:00', '02:15:00'),
-> (17, 17, 17, '00:45:00', '03:10:00'),
-> (18, 18, 18, '01:30:00', '04:00:00'),
-> (19, 19, 19, '02:15:00', '05:00:00'),
-> (20, 20, 20, '03:00:00', '06:30:00'),
-> (21, 21, 21, '04:45:00', '07:20:00'),
-> (22, 22, 22, '05:30:00', '08:00:00'),
-> (23, 23, 23, '06:10:00', '09:15:00'),
-> (24, 24, 24, '07:00:00', '10:00:00'),
-> (25, 25, 25, '08:30:00', '11:15:00'),
-> (26, 1, 26, '09:10:00', '12:00:00'),
-> (27, 2, 27, '10:00:00', '13:30:00'),
-> (28, 3, 28, '11:15:00', '14:45:00'),
-> (29, 4, 29, '12:45:00', '16:20:00'),
-> (30, 5, 30, '14:00:00', '17:30:00'),
-> (31, 6, 31, '15:30:00', '18:50:00'),
-> (32, 7, 32, '16:10:00', '19:15:00'),
-> (33, 8, 33, '17:45:00', '21:00:00'),
-> (34, 9, 34, '18:30:00', '21:45:00'),
-> (35, 10, 35, '19:00:00', '22:30:00'),
-> (36, 11, 36, '20:30:00', '23:50:00'),
-> (37, 12, 37, '21:10:00', '00:40:00'),
-> (38, 13, 38, '22:30:00', '02:00:00'),
-> (39, 14, 39, '23:45:00', '03:15:00'),
-> (40, 15, 40, '00:30:00', '04:00:00'),
-> (41, 16, 41, '01:15:00', '05:10:00'),
-> (42, 17, 42, '02:00:00', '06:00:00'),
-> (43, 18, 43, '03:20:00', '07:30:00'),
-> (44, 19, 44, '04:45:00', '08:15:00'),
-> (45, 20, 45, '05:30:00', '09:00:00'),
-> (46, 21, 46, '06:15:00', '10:20:00'),
-> (47, 22, 47, '07:00:00', '11:15:00'),
-> (48, 23, 48, '08:30:00', '12:45:00'),
-> (49, 24, 49, '12:00:00', '14:50:00'),
-> (50, 25, 50, '14:00:00', '15:20:00');
Query OK, 50 rows affected (0.02 sec)
Records: 50 Duplicates: 0 Warnings: 0

```

Inserting in Schedule Table

```
mysql> INSERT INTO SCHEDULE_FOLLOWED (R_ID, S_ID) VALUES
-> (1, 1),
-> (2, 2),
-> (3, 3),
-> (4, 4),
-> (5, 5),
-> (6, 6),
-> (7, 7),
-> (8, 8),
-> (9, 9),
-> (10, 10),
-> (11, 11),
-> (12, 12),
-> (13, 13),
-> (14, 14),
-> (15, 15),
-> (16, 16),
-> (17, 17),
-> (18, 18),
-> (19, 19),
-> (20, 20),
-> (21, 21),
-> (22, 22),
-> (23, 23),
-> (24, 24),
-> (25, 25),
-> (26, 26),
-> (27, 27),
-> (28, 28),
-> (29, 29),
-> (30, 30),
-> (31, 31),
-> (32, 32),
-> (33, 33),
-> (34, 34),
-> (35, 35),
-> (36, 36),
-> (37, 37),
-> (38, 38),
-> (39, 39),
-> (40, 40),
-> (41, 41),
-> (42, 42),
-> (43, 43),
-> (44, 44),
-> (45, 45),
-> (46, 46),
-> (47, 47),
-> (48, 48),
-> (49, 49),
-> (50, 50);
Query OK, 50 rows affected (0.01 sec)
Records: 50  Duplicates: 0  Warnings: 0
```

Inserting in Schedule_Followed Table

```
mysql> INSERT INTO OPERATES_ON (V_ID, S_ID) VALUES
-> (1, 1),
-> (2, 2),
-> (3, 3),
-> (4, 4),
-> (5, 5),
-> (6, 6),
-> (7, 7),
-> (8, 8),
-> (9, 9),
-> (10, 10),
-> (11, 11),
-> (12, 12),
-> (13, 13),
-> (14, 14),
-> (15, 15),
-> (16, 16),
-> (17, 17),
-> (18, 18),
-> (19, 19),
-> (20, 20),
-> (21, 21),
-> (22, 22),
-> (23, 23),
-> (24, 24),
-> (25, 25),
-> (26, 26),
-> (27, 27),
-> (28, 28),
-> (29, 29),
-> (30, 30),
-> (31, 31),
-> (32, 32),
-> (33, 33),
-> (34, 34),
-> (35, 35),
-> (36, 36),
-> (37, 37),
-> (38, 38),
-> (39, 39),
-> (40, 40),
-> (41, 41),
-> (42, 42),
-> (43, 43),
-> (44, 44),
-> (45, 45),
-> (46, 46),
-> (47, 47),
-> (48, 48),
-> (49, 49),
-> (50, 50);
Query OK, 50 rows affected (0.01 sec)
Records: 50 Duplicates: 0 Warnings: 0
```

Inserting in Operates_On Table

```

mysql> INSERT INTO INCIDENT (INCIDENT_ID, V_ID, DESCRIPTION, REPORT_TIME_DATE) VALUES
-> (1, 1, 'Engine failure', '2025-03-20 10:00:00'),
-> (2, 3, 'Brake malfunction', '2025-03-21 11:30:00'),
-> (3, 5, 'Overheating', '2025-03-21 12:15:00'),
-> (4, 2, 'Transmission issue', '2025-03-21 14:00:00'),
-> (5, 4, 'Flat tire', '2025-03-22 09:45:00'),
-> (6, 6, 'Fuel leakage', '2025-03-22 18:30:00'),
-> (7, 7, 'Battery drain', '2025-03-22 13:00:00'),
-> (8, 8, 'Headlight malfunction', '2025-03-22 18:20:00'),
-> (9, 9, 'Alternator failure', '2025-03-23 08:00:00'),
-> (10, 10, 'Steering issue', '2025-03-23 10:15:00'),
-> (11, 11, 'Suspension problem', '2025-03-23 14:30:00'),
-> (12, 12, 'Oil leakage', '2025-03-23 16:45:00'),
-> (13, 13, 'Radiator failure', '2025-03-23 17:00:00'),
-> (14, 14, 'Exhaust system fault', '2025-03-24 07:20:00'),
-> (15, 15, 'Tire puncture', '2025-03-24 09:10:00'),
-> (16, 16, 'Clutch failure', '2025-03-24 11:25:00'),
-> (17, 17, 'Power window malfunction', '2025-03-24 12:50:00'),
-> (18, 18, 'Horn failure', '2025-03-24 15:30:00'),
-> (19, 19, 'Airbag fault', '2025-03-24 17:40:00'),
-> (20, 20, 'Dashboard warning lights', '2025-03-24 20:00:00'),
-> (21, 21, 'Wiper malfunction', '2025-03-25 07:45:00'),
-> (22, 22, 'Speedometer issue', '2025-03-25 09:20:00'),
-> (23, 23, 'Starter motor failure', '2025-03-25 11:15:00'),
-> (24, 24, 'Water pump issue', '2025-03-25 12:30:00'),
-> (25, 25, 'Fuel pump failure', '2025-03-25 14:10:00'),
-> (26, 26, 'Door lock failure', '2025-03-25 16:30:00'),
-> (27, 27, 'Shock absorber issue', '2025-03-25 18:45:00'),
-> (28, 28, 'Ignition coil failure', '2025-03-25 20:00:00'),
-> (29, 29, 'Seatbelt malfunction', '2025-03-25 21:30:00'),
-> (30, 30, 'Head gasket issue', '2025-03-25 23:15:00'),
-> (31, 31, 'Coolant leakage', '2025-03-26 06:30:00'),
-> (32, 32, 'Differential failure', '2025-03-26 08:45:00'),
-> (33, 33, 'Timing belt issue', '2025-03-26 10:10:00'),
-> (34, 34, 'Fan belt failure', '2025-03-26 11:55:00'),
-> (35, 35, 'Air conditioning problem', '2025-03-26 13:40:00'),
-> (36, 36, 'Car alarm malfunction', '2025-03-26 15:00:00'),
-> (37, 37, 'Windshield crack', '2025-03-26 16:30:00'),
-> (38, 38, 'Parking brake failure', '2025-03-26 18:15:00'),
-> (39, 39, 'Fog light malfunction', '2025-03-26 19:45:00'),
-> (40, 40, 'Reverse gear issue', '2025-03-26 21:00:00'),
-> (41, 41, 'Turbocharger failure', '2025-03-26 22:30:00'),
-> (42, 42, 'Engine misfire', '2025-03-27 07:00:00'),
-> (43, 43, 'GPS system failure', '2025-03-27 08:30:00'),
-> (44, 44, 'Catalytic converter issue', '2025-03-27 10:00:00'),
-> (45, 45, 'Throttle body malfunction', '2025-03-27 11:15:00'),
-> (46, 46, 'AC compressor issue', '2025-03-27 12:45:00'),
-> (47, 47, 'Car key not detected', '2025-03-27 14:00:00'),
-> (48, 48, 'Brake pad wear', '2025-03-27 15:30:00'),
-> (49, 49, 'Fuel injector issue', '2025-03-27 17:00:00'),
-> (50, 50, 'Flat tire', '2025-03-27 18:45:00');
Query OK, 50 rows affected (0.01 sec)
Records: 50  Duplicates: 0  Warnings: 0

```

Inserting in Incident Table

```
mysql> INSERT INTO ACCIDENT_HISTORY (V_ID, I_ID) VALUES
-> (1, 1),
-> (2, 2),
-> (3, 3),
-> (4, 4),
-> (5, 5),
-> (6, 6),
-> (7, 7),
-> (8, 8),
-> (9, 9),
-> (10, 10),
-> (11, 11),
-> (12, 12),
-> (13, 13),
-> (14, 14),
-> (15, 15),
-> (16, 16),
-> (17, 17),
-> (18, 18),
-> (19, 19),
-> (20, 20),
-> (21, 21),
-> (22, 22),
-> (23, 23),
-> (24, 24),
-> (25, 25),
-> (26, 26),
-> (27, 27),
-> (28, 28),
-> (29, 29),
-> (30, 30),
-> (31, 31),
-> (32, 32),
-> (33, 33),
-> (34, 34),
-> (35, 35),
-> (36, 36),
-> (37, 37),
-> (38, 38),
-> (39, 39),
-> (40, 40),
-> (41, 41),
-> (42, 42),
-> (43, 43),
-> (44, 44),
-> (45, 45),
-> (46, 46),
-> (47, 47),
-> (48, 48),
-> (49, 49),
-> (50, 50);
Query OK, 50 rows affected (0.02 sec)
Records: 50  Duplicates: 0  Warnings: 0
```

Inserting in Accident_History Table

```
mysql> INSERT INTO MAINTENANCE (MAINTENANCE_ID, V_ID, ISSUE_REPORTED, REPAIR_STATUS) VALUES
-> (1, 1, 'Oil Change Required', 'Completed'),
-> (2, 3, 'Battery Replacement', 'In Progress'),
-> (3, 5, 'Brake Pad Replacement', 'Pending'),
-> (4, 7, 'Engine Check', 'Completed'),
-> (5, 9, 'Transmission Fluid Change', 'In Progress'),
-> (6, 11, 'Suspension Check', 'Pending'),
-> (7, 13, 'Coolant Refill', 'Completed'),
-> (8, 15, 'Air Filter Change', 'In Progress'),
-> (9, 17, 'AC Repair', 'Pending'),
-> (10, 19, 'Tire Rotation', 'Completed'),
-> (11, 21, 'Brake Fluid Change', 'In Progress'),
-> (12, 23, 'Fuel Pump Replacement', 'Pending'),
-> (13, 25, 'Steering Alignment', 'Completed'),
-> (14, 27, 'Exhaust System Repair', 'In Progress'),
-> (15, 29, 'Headlight Replacement', 'Pending'),
-> (16, 31, 'Windshield Crack Repair', 'Completed'),
-> (17, 33, 'Battery Charge Check', 'In Progress'),
-> (18, 35, 'Radiator Flush', 'Pending'),
-> (19, 37, 'Door Lock Fix', 'Completed'),
-> (20, 39, 'Fuel Injector Cleaning', 'In Progress'),
-> (21, 41, 'Wiper Blade Replacement', 'Pending'),
-> (22, 43, 'Seatbelt Repair', 'Completed'),
-> (23, 45, 'Horn Malfunction Fix', 'In Progress'),
-> (24, 47, 'Head Gasket Replacement', 'Pending'),
-> (25, 49, 'Dashboard Light Fix', 'Completed'),
-> (26, 50, 'Brake Disc Resurfacing', 'In Progress'),
-> (27, 48, 'Spark Plug Replacement', 'Pending'),
-> (28, 46, 'Throttle Body Cleaning', 'Completed'),
-> (29, 44, 'Differential Fluid Change', 'In Progress'),
-> (30, 42, 'Oil Leak Repair', 'Pending'),
-> (31, 40, 'ECU Software Update', 'Completed'),
-> (32, 38, 'Clutch Replacement', 'In Progress'),
-> (33, 36, 'Power Steering Fluid Change', 'Pending'),
-> (34, 34, 'Fuel Filter Change', 'Completed'),
-> (35, 32, 'Catalytic Converter Check', 'In Progress'),
-> (36, 30, 'Drive Belt Replacement', 'Pending'),
-> (37, 28, 'Oxygen Sensor Replacement', 'Completed'),
-> (38, 26, 'Alternator Check', 'In Progress'),
-> (39, 24, 'Shock Absorber Replacement', 'Pending'),
-> (40, 22, 'Starter Motor Check', 'Completed'),
-> (41, 20, 'Timing Belt Replacement', 'In Progress'),
-> (42, 18, 'Tire Pressure Monitoring', 'Pending'),
-> (43, 16, 'Glow Plug Replacement', 'Completed'),
-> (44, 14, 'Heater Core Flush', 'In Progress'),
-> (45, 12, 'Turbocharger Inspection', 'Pending'),
-> (46, 10, 'Throttle Position Sensor Check', 'Completed'),
-> (47, 8, 'CV Joint Replacement', 'In Progress'),
-> (48, 6, 'Battery Terminal Cleaning', 'Pending'),
-> (49, 4, 'Water Pump Replacement', 'Completed'),
-> (50, 2, 'Tire Replacement', 'Pending');
Query OK, 50 rows affected (0.02 sec)
Records: 50 Duplicates: 0 Warnings: 0
```

Inserting in Maintenance Table

```
mysql>
mysql> INSERT INTO PERFORMS_MAINTENANCE (M_ID, STAFF_ID) VALUES
-> (1, 1),
-> (2, 2),
-> (3, 3),
-> (4, 4),
-> (5, 5),
-> (6, 6),
-> (7, 7),
-> (8, 8),
-> (9, 9),
-> (10, 10),
-> (11, 11),
-> (12, 12),
-> (13, 13),
-> (14, 14),
-> (15, 15),
-> (16, 16),
-> (17, 17),
-> (18, 18),
-> (19, 19),
-> (20, 20),
-> (21, 21),
-> (22, 22),
-> (23, 23),
-> (24, 24),
-> (25, 25),
-> (26, 26),
-> (27, 27),
-> (28, 28),
-> (29, 29),
-> (30, 30),
-> (31, 31),
-> (32, 32),
-> (33, 33),
-> (34, 34),
-> (35, 35),
-> (36, 36),
-> (37, 37),
-> (38, 38),
-> (39, 39),
-> (40, 40),
-> (41, 41),
-> (42, 42),
-> (43, 43),
-> (44, 44),
-> (45, 45),
-> (46, 46),
-> (47, 47),
-> (48, 48),
-> (49, 49),
-> (50, 50);
Query OK, 50 rows affected (0.01 sec)
Records: 50 Duplicates: 0 Warnings: 0
```

Inserting in Perform_Maintenance Table

```
mysql> INSERT INTO MAINTENANCE_HISTORY (M_ID, V_ID) VALUES
-> (1, 1),
-> (2, 2),
-> (3, 3),
-> (4, 4),
-> (5, 5),
-> (6, 6),
-> (7, 7),
-> (8, 8),
-> (9, 9),
-> (10, 10),
-> (11, 11),
-> (12, 12),
-> (13, 13),
-> (14, 14),
-> (15, 15),
-> (16, 16),
-> (17, 17),
-> (18, 18),
-> (19, 19),
-> (20, 20),
-> (21, 21),
-> (22, 22),
-> (23, 23),
-> (24, 24),
-> (25, 25),
-> (26, 26),
-> (27, 27),
-> (28, 28),
-> (29, 29),
-> (30, 30),
-> (31, 31),
-> (32, 32),
-> (33, 33),
-> (34, 34),
-> (35, 35),
-> (36, 36),
-> (37, 37),
-> (38, 38),
-> (39, 39),
-> (40, 40),
-> (41, 41),
-> (42, 42),
-> (43, 43),
-> (44, 44),
-> (45, 45),
-> (46, 46),
-> (47, 47),
-> (48, 48),
-> (49, 49),
-> (50, 50);
Query OK, 50 rows affected (0.01 sec)
Records: 50  Duplicates: 0  Warnings: 0
```

Inserting in Maintenance_History Table

```
mysql> INSERT INTO PAYMENT (PAYMENT_ID, PASSENGER_ID, AMOUNT, METHOD) VALUES
-> (1, 2, 15.50, 'Credit Card'),
-> (2, 5, 20.00, 'Cash'),
-> (3, 7, 18.75, 'Debit Card'),
-> (4, 10, 22.00, 'Mobile Wallet'),
-> (5, 12, 19.50, 'Credit Card'),
-> (6, 15, 17.25, 'Cash'),
-> (7, 18, 25.00, 'Debit Card'),
-> (8, 20, 30.75, 'Mobile Wallet'),
-> (9, 22, 12.00, 'Credit Card'),
-> (10, 25, 16.50, 'Cash'),
-> (11, 27, 14.75, 'Debit Card'),
-> (12, 30, 21.00, 'Mobile Wallet'),
-> (13, 32, 23.25, 'Credit Card'),
-> (14, 35, 19.00, 'Cash'),
-> (15, 38, 15.50, 'Debit Card'),
-> (16, 40, 26.00, 'Mobile Wallet'),
-> (17, 42, 28.75, 'Credit Card'),
-> (18, 45, 11.50, 'Cash'),
-> (19, 47, 22.50, 'Debit Card'),
-> (20, 49, 20.25, 'Mobile Wallet'),
-> (21, 3, 18.50, 'Credit Card'),
-> (22, 6, 24.00, 'Cash'),
-> (23, 9, 16.75, 'Debit Card'),
-> (24, 11, 12.50, 'Mobile Wallet'),
-> (25, 13, 29.00, 'Credit Card'),
-> (26, 16, 14.25, 'Cash'),
-> (27, 19, 27.50, 'Debit Card'),
-> (28, 21, 25.25, 'Mobile Wallet'),
-> (29, 23, 21.75, 'Credit Card'),
-> (30, 26, 13.50, 'Cash'),
-> (31, 28, 17.25, 'Debit Card'),
-> (32, 31, 20.00, 'Mobile Wallet'),
-> (33, 33, 15.75, 'Credit Card'),
-> (34, 36, 18.50, 'Cash'),
-> (35, 39, 24.75, 'Debit Card'),
-> (36, 41, 29.50, 'Mobile Wallet'),
-> (37, 43, 22.00, 'Credit Card'),
-> (38, 46, 16.00, 'Cash'),
-> (39, 48, 14.50, 'Debit Card'),
-> (40, 50, 19.25, 'Mobile Wallet'),
-> (41, 1, 27.75, 'Credit Card'),
-> (42, 4, 13.00, 'Cash'),
-> (43, 8, 15.25, 'Debit Card'),
-> (44, 14, 17.00, 'Mobile Wallet'),
-> (45, 17, 23.50, 'Credit Card'),
-> (46, 29, 12.75, 'Cash'),
-> (47, 34, 30.00, 'Debit Card'),
-> (48, 37, 26.25, 'Mobile Wallet'),
-> (49, 44, 22.75, 'Credit Card'),
-> (50, 49, 10.75, 'Mobile Wallet');
Query OK, 50 rows affected (0.01 sec)
Records: 50 Duplicates: 0 Warnings: 0
```

Inserting in Payment Table

```
mysql> SHOW TABLES;
+-----+
| Tables_in_smartcity |
+-----+
| accident_history    |
| human               |
| incident            |
| maintenance         |
| maintenance_history |
| operates_on         |
| payment             |
| performs_maintenance |
| route              |
| route_followed      |
| schedule            |
| schedule_followed   |
| vehicle             |
+-----+
13 rows in set (0.00 sec)
```

All The Tables


```
mysql> SELECT * FROM accident_history  
-> ;
```

V_ID	I_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50

```
50 rows in set (0.00 sec)
```

Entries of accident_history

```
mysql> SELECT * FROM human;
```

ID_NO	FNAME	LNAME	DOB	AGE	V_ID
1	John	Doe	1985-06-15	39	1
2	Alice	Smith	1990-03-22	34	2
3	Bob	Johnson	1982-08-10	42	3
4	Emily	Davis	1995-11-25	29	4
5	Michael	Brown	1987-05-30	37	5
6	Sarah	Miller	1993-07-12	31	6
7	David	Wilson	1980-09-18	44	7
8	Jessica	Moore	1998-12-05	26	8
9	Daniel	Taylor	1983-04-29	41	9
10	Laura	Anderson	1992-06-20	32	10
11	Chris	Thomas	1986-10-14	38	11
12	Sophia	Jackson	1997-01-07	27	12
13	Matthew	White	1989-02-17	35	13
14	Olivia	Harris	1994-08-30	30	14
15	James	Martin	1981-07-21	43	15
16	Emma	Thompson	2000-05-15	24	16
17	Ethan	Garcia	1991-09-05	33	17
18	Ava	Martinez	1984-12-10	40	18
19	Logan	Robinson	1999-04-28	25	19
20	Mia	Clark	1996-11-11	28	20
21	Alexander	Rodriguez	1988-03-09	36	21
22	Isabella	Lewis	1985-07-23	39	22
23	Benjamin	Walker	1990-10-01	34	23
24	Charlotte	Hall	2001-06-14	23	24
25	Henry	Allen	1983-08-02	41	25
26	Amelia	Young	1998-01-18	26	26
27	Lucas	King	1982-05-25	42	27
28	Harper	Wright	1995-12-31	29	28
29	Mason	Scott	1992-07-07	32	29
30	Ella	Green	1986-04-19	38	30
31	Elijah	Adams	1993-10-22	31	31
32	Scarlett	Baker	1980-03-16	44	32
33	Jacob	Gonzalez	1987-09-09	37	33
34	Grace	Nelson	1999-05-30	25	34
35	William	Carter	1984-11-14	40	35
36	Sophie	Mitchell	1997-06-08	27	36
37	Daniel	Perez	1991-02-05	33	37
38	Chloe	Roberts	1994-09-27	30	38
39	Jack	Turner	1989-12-21	35	39
40	Lily	Phillips	2002-03-11	22	40
41	Owen	Campbell	1985-06-04	39	41
42	Zoey	Parker	1996-08-16	28	42
43	Sebastian	Evans	1983-07-25	41	43
44	Hannah	Edwards	1995-01-29	29	44
45	Dylan	Collins	1990-11-13	34	45
46	Madison	Stewart	1988-04-07	36	46
47	Caleb	Sanchez	1992-12-17	32	47
48	Victoria	Morris	1993-05-03	31	48
49	Nathan	Rogers	1987-10-26	37	49
50	Eleanor	Reed	2000-07-12	24	50

```
50 rows in set (0.00 sec)
```

Entries of human

```
mysql> SELECT * FROM incident;
```

INCIDENT_ID	V_ID	DESCRIPTION	REPORT_TIME_DATE
1	1	Engine failure	2025-03-20 10:00:00
2	3	Brake malfunction	2025-03-21 11:30:00
3	5	Overheating	2025-03-21 12:15:00
4	2	Transmission issue	2025-03-21 14:00:00
5	4	Flat tire	2025-03-22 09:45:00
6	6	Fuel leakage	2025-03-22 10:30:00
7	7	Battery drain	2025-03-22 13:00:00
8	8	Headlight malfunction	2025-03-22 18:20:00
9	9	Alternator failure	2025-03-23 08:00:00
10	10	Steering issue	2025-03-23 10:15:00
11	11	Suspension problem	2025-03-23 14:30:00
12	12	Oil leakage	2025-03-23 16:45:00
13	13	Radiator failure	2025-03-23 17:00:00
14	14	Exhaust system fault	2025-03-24 07:20:00
15	15	Tire puncture	2025-03-24 09:10:00
16	16	Clutch failure	2025-03-24 11:25:00
17	17	Power window malfunction	2025-03-24 12:50:00
18	18	Horn failure	2025-03-24 15:30:00
19	19	Airbag fault	2025-03-24 17:40:00
20	20	Dashboard warning lights	2025-03-24 20:00:00
21	21	Wiper malfunction	2025-03-25 07:45:00
22	22	Speedometer issue	2025-03-25 09:20:00
23	23	Starter motor failure	2025-03-25 11:15:00
24	24	Water pump issue	2025-03-25 12:30:00
25	25	Fuel pump failure	2025-03-25 14:10:00
26	26	Door lock failure	2025-03-25 16:30:00
27	27	Shock absorber issue	2025-03-25 18:45:00
28	28	Ignition coil failure	2025-03-25 20:00:00
29	29	Seatbelt malfunction	2025-03-25 21:30:00
30	30	Head gasket issue	2025-03-25 23:15:00
31	31	Coolant leakage	2025-03-26 06:30:00
32	32	Differential failure	2025-03-26 08:45:00
33	33	Timing belt issue	2025-03-26 10:10:00
34	34	Fan belt failure	2025-03-26 11:55:00
35	35	Air conditioning problem	2025-03-26 13:40:00
36	36	Car alarm malfunction	2025-03-26 15:00:00
37	37	Windshield crack	2025-03-26 16:30:00
38	38	Parking brake failure	2025-03-26 18:15:00
39	39	Fog light malfunction	2025-03-26 19:45:00
40	40	Reverse gear issue	2025-03-26 21:00:00
41	41	Turbocharger failure	2025-03-26 22:30:00
42	42	Engine misfire	2025-03-27 07:00:00
43	43	GPS system failure	2025-03-27 08:30:00
44	44	Catalytic converter issue	2025-03-27 10:00:00
45	45	Throttle body malfunction	2025-03-27 11:15:00
46	46	AC compressor issue	2025-03-27 12:45:00
47	47	Car key not detected	2025-03-27 14:00:00
48	48	Brake pad wear	2025-03-27 15:30:00
49	49	Fuel injector issue	2025-03-27 17:00:00
50	50	Flat tire	2025-03-27 18:45:00

50 rows in set (0.00 sec)

```
mysql> SELECT * FROM maintenance;
```

MAINTENANCE_ID	V_ID	ISSUE_REPORTED	REPAIR_STATUS
1	1	Oil Change Required	Completed
2	3	Battery Replacement	In Progress
3	5	Brake Pad Replacement	Pending
4	7	Engine Check	Completed
5	9	Transmission Fluid Change	In Progress
6	11	Suspension Check	Pending
7	13	Coolant Refill	Completed
8	15	Air Filter Change	In Progress
9	17	AC Repair	Pending
10	19	Tire Rotation	Completed
11	21	Brake Fluid Change	In Progress
12	23	Fuel Pump Replacement	Pending
13	25	Steering Alignment	Completed
14	27	Exhaust System Repair	In Progress
15	29	Headlight Replacement	Pending
16	31	Windshield Crack Repair	Completed
17	33	Battery Charge Check	In Progress
18	35	Radiator Flush	Pending
19	37	Door Lock Fix	Completed
20	39	Fuel Injector Cleaning	In Progress
21	41	Wiper Blade Replacement	Pending
22	43	Seatbelt Repair	Completed
23	45	Horn Malfunction Fix	In Progress
24	47	Head Gasket Replacement	Pending
25	49	Dashboard Light Fix	Completed
26	50	Brake Disc Resurfacing	In Progress
27	48	Spark Plug Replacement	Pending
28	46	Throttle Body Cleaning	Completed
29	44	Differential Fluid Change	In Progress
30	42	Oil Leak Repair	Pending
31	40	ECU Software Update	Completed
32	38	Clutch Replacement	In Progress
33	36	Power Steering Fluid Change	Pending
34	34	Fuel Filter Change	Completed
35	32	Catalytic Converter Check	In Progress
36	30	Drive Belt Replacement	Pending
37	28	Oxygen Sensor Replacement	Completed
38	26	Alternator Check	In Progress
39	24	Shock Absorber Replacement	Pending
40	22	Starter Motor Check	Completed
41	20	Timing Belt Replacement	In Progress
42	18	Tire Pressure Monitoring	Pending
43	16	Glow Plug Replacement	Completed
44	14	Heater Core Flush	In Progress
45	12	Turbocharger Inspection	Pending
46	10	Throttle Position Sensor Check	Completed
47	8	CV Joint Replacement	In Progress
48	6	Battery Terminal Cleaning	Pending
49	4	Water Pump Replacement	Completed
50	2	Tire Replacement	Pending

50 rows in set (0.00 sec)

Entries of incident

Entries of maintenance

```
mysql> SELECT * FROM maintenance_history;
```

M_ID	V_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50

```
50 rows in set (0.00 sec)
```

Entries of maintenance_history

```
mysql> SELECT * FROM operates_on;
```

V_ID	S_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50

```
50 rows in set (0.00 sec)
```

Entries of operates_on

```
mysql> SELECT * FROM payment;
```

PAYMENT_ID	PASSENGER_ID	AMOUNT	METHOD
1	2	15.50	Credit Card
2	5	20.00	Cash
3	7	18.75	Debit Card
4	10	22.00	Mobile Wallet
5	12	19.50	Credit Card
6	15	17.25	Cash
7	18	25.00	Debit Card
8	20	30.75	Mobile Wallet
9	22	12.00	Credit Card
10	25	16.50	Cash
11	27	14.75	Debit Card
12	30	21.00	Mobile Wallet
13	32	23.25	Credit Card
14	35	19.00	Cash
15	38	15.50	Debit Card
16	40	26.00	Mobile Wallet
17	42	28.75	Credit Card
18	45	11.50	Cash
19	47	22.50	Debit Card
20	49	20.25	Mobile Wallet
21	3	18.50	Credit Card
22	6	24.00	Cash
23	9	16.75	Debit Card
24	11	12.50	Mobile Wallet
25	13	29.00	Credit Card
26	16	14.25	Cash
27	19	27.50	Debit Card
28	21	25.25	Mobile Wallet
29	23	21.75	Credit Card
30	26	13.50	Cash
31	28	17.25	Debit Card
32	31	20.00	Mobile Wallet
33	33	15.75	Credit Card
34	36	18.50	Cash
35	39	24.75	Debit Card
36	41	29.50	Mobile Wallet
37	43	22.00	Credit Card
38	46	16.00	Cash
39	48	14.50	Debit Card
40	50	19.25	Mobile Wallet
41	1	27.75	Credit Card
42	4	13.00	Cash
43	8	15.25	Debit Card
44	14	17.00	Mobile Wallet
45	17	23.50	Credit Card
46	29	12.75	Cash
47	34	30.00	Debit Card
48	37	26.25	Mobile Wallet
49	44	22.75	Credit Card
50	49	10.75	Mobile Wallet

```
50 rows in set (0.00 sec)
```

Entries of payment

```
mysql> SELECT * FROM performs_maintenance;
```

M_ID	STAFF_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50

```
50 rows in set (0.00 sec)
```

Entries of performs_maintenance

```
mysql> SELECT * FROM route;
```

R_ID	JOURNEY_TIME	START_POINT	END_POINT	DISTANCE
1	02:30:00	New York	Boston	320.50
2	04:15:00	Los Angeles	San Francisco	615.00
3	01:45:00	Chicago	Milwaukee	148.30
4	05:10:00	Houston	Dallas	385.60
5	03:20:00	Miami	Orlando	328.40
6	06:45:00	Denver	Salt Lake City	835.50
7	04:05:00	Seattle	Portland	280.20
8	02:55:00	Atlanta	Charlotte	365.10
9	07:30:00	San Diego	Las Vegas	530.75
10	03:40:00	Detroit	Cleveland	275.80
11	08:15:00	Phoenix	Albuquerque	750.90
12	04:50:00	Philadelphia	Washington DC	225.50
13	02:20:00	San Antonio	Austin	125.70
14	06:30:00	Minneapolis	Kansas City	700.30
15	05:50:00	Indianapolis	Louisville	185.40
16	03:10:00	Columbus	Pittsburgh	290.60
17	02:40:00	Buffalo	Rochester	120.90
18	07:20:00	Las Vegas	Phoenix	500.80
19	06:00:00	Memphis	Nashville	380.70
20	05:25:00	St. Louis	Oklahoma City	630.50
21	03:35:00	Baltimore	Richmond	250.40
22	02:50:00	Charlotte	Raleigh	260.30
23	04:10:00	Portland	Boise	670.20
24	05:15:00	Milwaukee	Indianapolis	410.90
25	06:40:00	New Orleans	Baton Rouge	170.80
26	07:50:00	Salt Lake City	Boise	660.70
27	03:45:00	Omaha	Des Moines	210.60
28	04:55:00	Tampa	Jacksonville	360.50
29	02:35:00	Hartford	Providence	110.90
30	08:00:00	Anchorage	Fairbanks	860.40
31	03:05:00	Reno	Sacramento	220.30
32	07:10:00	Tulsa	Little Rock	380.20
33	05:05:00	Colorado Springs	Albuquerque	560.70
34	02:25:00	Albany	Syracuse	150.90
35	06:20:00	San Francisco	Reno	350.60
36	04:30:00	El Paso	Tucson	430.50
37	03:25:00	Knoxville	Lexington	240.80
38	07:40:00	Wichita	Kansas City	320.70
39	06:50:00	Birmingham	Montgomery	155.40
40	04:45:00	Augusta	Savannah	250.30
41	05:35:00	Charleston	Columbia	210.20
42	02:15:00	Manchester	Boston	90.70
43	06:10:00	Boise	Spokane	590.80
44	03:55:00	Lubbock	Amarillo	200.50
45	07:00:00	Corpus Christi	San Antonio	250.90
46	08:20:00	Honolulu	Hilo	420.60
47	04:35:00	Springfield	St. Louis	310.40
48	05:45:00	Greensboro	Raleigh	280.50
49	02:45:00	Sioux Falls	Omaha	270.30
50	06:55:00	Fargo	Minneapolis	395.20

50 rows in set (0.00 sec)

Entries of route


```
mysql> SELECT * FROM route_followed;
```

VEHICLE_ID	RT_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50

```
50 rows in set (0.00 sec)
```

Entries of route_followed

```
mysql> SELECT * FROM schedule;
```

SCHEDULE_ID	R_ID	V_ID	DEPARTURE_TIME	ARRIVAL_TIME
1	1	1	08:00:00	10:30:00
2	2	2	09:00:00	12:45:00
3	3	3	10:15:00	13:00:00
4	4	4	11:00:00	14:20:00
5	5	5	12:30:00	15:10:00
6	6	6	13:00:00	16:30:00
7	7	7	14:45:00	17:20:00
8	8	8	15:30:00	18:00:00
9	9	9	16:10:00	19:15:00
10	10	10	17:00:00	20:00:00
11	11	11	18:30:00	21:15:00
12	12	12	19:15:00	22:00:00
13	13	13	20:00:00	23:30:00
14	14	14	21:00:00	00:30:00
15	15	15	22:10:00	01:00:00
16	16	16	23:30:00	02:15:00
17	17	17	00:45:00	03:10:00
18	18	18	01:30:00	04:00:00
19	19	19	02:15:00	05:00:00
20	20	20	03:00:00	06:30:00
21	21	21	04:45:00	07:20:00
22	22	22	05:30:00	08:00:00
23	23	23	06:10:00	09:15:00
24	24	24	07:00:00	10:00:00
25	25	25	08:30:00	11:15:00
26	1	26	09:10:00	12:00:00
27	2	27	10:00:00	13:30:00
28	3	28	11:15:00	14:45:00
29	4	29	12:45:00	16:20:00
30	5	30	14:00:00	17:30:00
31	6	31	15:30:00	18:50:00
32	7	32	16:10:00	19:15:00
33	8	33	17:45:00	21:00:00
34	9	34	18:30:00	21:45:00
35	10	35	19:00:00	22:30:00
36	11	36	20:30:00	23:50:00
37	12	37	21:10:00	00:40:00
38	13	38	22:30:00	02:00:00
39	14	39	23:45:00	03:15:00
40	15	40	00:30:00	04:00:00
41	16	41	01:15:00	05:10:00
42	17	42	02:00:00	06:00:00
43	18	43	03:20:00	07:30:00
44	19	44	04:45:00	08:15:00
45	20	45	05:30:00	09:00:00
46	21	46	06:15:00	10:20:00
47	22	47	07:00:00	11:15:00
48	23	48	08:30:00	12:45:00
49	24	49	12:00:00	14:50:00
50	25	50	14:00:00	15:20:00

```
50 rows in set (0.00 sec)
```

Entries of schedule

```
mysql> SELECT * FROM schedule_followed;
```

R_ID	S_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50

```
50 rows in set (0.00 sec)
```

Entries of schedule_followed

```
mysql> SELECT * FROM vehicle;
```

VEHICLE_ID	CURRENT_LOCATION	STATUS	LAST_UPDATE
1	New York	Active	2025-03-30 10:00:00
2	Los Angeles	Inactive	2025-03-30 10:05:00
3	Chicago	Active	2025-03-30 10:10:00
4	Houston	Maintenance	2025-03-30 10:15:00
5	Phoenix	Active	2025-03-30 10:20:00
6	Philadelphia	Inactive	2025-03-30 10:25:00
7	San Antonio	Active	2025-03-30 10:30:00
8	San Diego	Maintenance	2025-03-30 10:35:00
9	Dallas	Active	2025-03-30 10:40:00
10	San Jose	Inactive	2025-03-30 10:45:00
11	Austin	Active	2025-03-30 10:50:00
12	Jacksonville	Maintenance	2025-03-30 10:55:00
13	Fort Worth	Active	2025-03-30 11:00:00
14	Columbus	Inactive	2025-03-30 11:05:00
15	San Francisco	Active	2025-03-30 11:10:00
16	Charlotte	Maintenance	2025-03-30 11:15:00
17	Indianapolis	Active	2025-03-30 11:20:00
18	Seattle	Inactive	2025-03-30 11:25:00
19	Denver	Active	2025-03-30 11:30:00
20	Washington	Maintenance	2025-03-30 11:35:00
21	Boston	Active	2025-03-30 11:40:00
22	El Paso	Inactive	2025-03-30 11:45:00
23	Nashville	Active	2025-03-30 11:50:00
24	Detroit	Maintenance	2025-03-30 11:55:00
25	Oklahoma City	Active	2025-03-30 12:00:00
26	Portland	Inactive	2025-03-30 12:05:00
27	Las Vegas	Active	2025-03-30 12:10:00
28	Memphis	Maintenance	2025-03-30 12:15:00
29	Louisville	Active	2025-03-30 12:20:00
30	Baltimore	Inactive	2025-03-30 12:25:00
31	Milwaukee	Active	2025-03-30 12:30:00
32	Albuquerque	Maintenance	2025-03-30 12:35:00
33	Tucson	Active	2025-03-30 12:40:00
34	Fresno	Inactive	2025-03-30 12:45:00
35	Sacramento	Active	2025-03-30 12:50:00
36	Mesa	Maintenance	2025-03-30 12:55:00
37	Kansas City	Active	2025-03-30 13:00:00
38	Atlanta	Inactive	2025-03-30 13:05:00
39	Long Beach	Active	2025-03-30 13:10:00
40	Omaha	Maintenance	2025-03-30 13:15:00
41	Raleigh	Active	2025-03-30 13:20:00
42	Miami	Inactive	2025-03-30 13:25:00
43	Oakland	Active	2025-03-30 13:30:00
44	Minneapolis	Maintenance	2025-03-30 13:35:00
45	Tulsa	Active	2025-03-30 13:40:00
46	Cleveland	Inactive	2025-03-30 13:45:00
47	Wichita	Active	2025-03-30 13:50:00
48	New Orleans	Maintenance	2025-03-30 13:55:00
49	Arlington	Active	2025-03-30 14:00:00
50	Bakersfield	Inactive	2025-03-30 14:05:00

```
50 rows in set (0.00 sec)
```

Entries of vehicle