VEHICLE MANAGEMENT SYSTEM

BY ~ ASHUTOSH DIBYALOCHAN SAHOO

DATABASE CONTAINS

01)ABOUTS USERS AND NUMBER OF USERS

02)ABOUTS VEHICLES AND NUMBER OF VEHICLES

03)ABOUT PARKING LOTS

04)INFORMATION OF PARKING LOGS

05)INFORMATION OF PARKING RATES

06)ER DIAGRAM

07)INNER JOIN

08)OUTER JOIN(FULL JOIN)

USERS

```sql
CREATE TABLE Users (
    user_id INT PRIMARY KEY,
    username VARCHAR(50) NOT NULL,
    password VARCHAR(50) NOT NULL
);

INSERT INTO Users (user_id, username, password) VALUES
(1, 'admin', 'adminpass'),
(2, 'user1', 'userpass1'),
(3, 'user2', 'userpass2');

SELECT * FROM Users;
```

user_id	username	password
1	admin	adminpass
2	user1	userpass1
3	user2	userpass2

VEHICLES

```sql
CREATE TABLE Vehicles (
    vehicle_id INT PRIMARY KEY,
    plate_number VARCHAR(20) NOT NULL,
    vehicle_type VARCHAR(30) NOT NULL
);

INSERT INTO Vehicles (vehicle_id, plate_number, vehicle_type) VALUES
(101, 'ABC123', 'Car'),
(102, 'XYZ789', 'Motorcycle'),
(103, 'DEF456', 'Truck');

SELECT * FROM Vehicles;
```

vehicle_id	plate_number	vehicle_type
101	ABC123	Car
102	XYZ789	Motorcycle
103	DEF456	Truck

PARKING LOTS

```sql
CREATE TABLE ParkingLots (
    lot_id INT PRIMARY KEY,
    lot_name VARCHAR(50) NOT NULL,
    capacity INT NOT NULL
);

INSERT INTO ParkingLots (lot_id, lot_name, capacity) VALUES
(1, 'Lot A', 50),
(2, 'Lot B', 30),
(3, 'Lot C', 40);

SELECT * FROM ParkingLots;
```

lot_id	lot_name	capacity
1	Lot A	50
2	Lot B	30
3	Lot C	40

PARKING LOGS

```sql
CREATE TABLE ParkingLogs (
    log_id INT PRIMARY KEY,
    vehicle_id INT,
    lot_id INT,
    entry_time TIMESTAMP NOT NULL,
    exit_time TIMESTAMP,
    FOREIGN KEY (vehicle_id) REFERENCES Vehicles(vehicle_id),
    FOREIGN KEY (lot_id) REFERENCES ParkingLots(lot_id)
);

INSERT INTO ParkingLogs (log_id, vehicle_id, lot_id, entry_time, exit_time) VALUES
(201, 101, 1, '2024-01-09 10:00:00', '2024-01-09 15:30:00'),
(202, 102, 2, '2024-01-09 12:45:00', NULL),
(203, 103, 3, '2024-01-09 08:30:00', '2024-01-09 17:15:00');

SELECT * FROM ParkingLogs;
```

log_id	vehicle_id	lot_id	entry_time	exit_time
201	101	1	2024-01-09 10:00:00	2024-01-09 15:30:00
202	102	2	2024-01-09 12:45:00	NULL
203	103	3	2024-01-09 08:30:00	2024-01-09 17:15:00

PARKING RATES

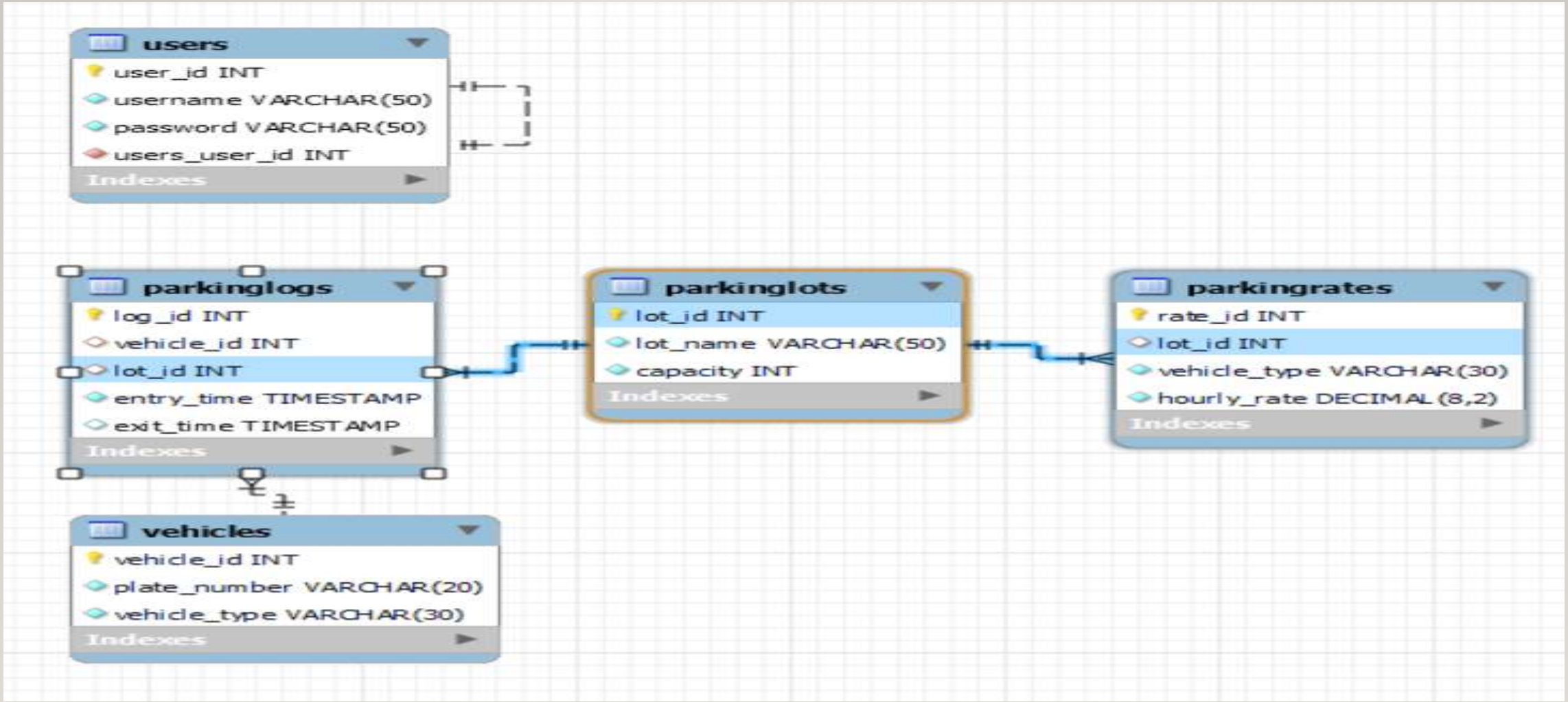
```sql
CREATE TABLE ParkingRates (
    rate_id INT PRIMARY KEY,
    lot_id INT,
    vehicle_type VARCHAR(30) NOT NULL,
    hourly_rate DECIMAL(8, 2) NOT NULL,
    FOREIGN KEY (lot_id) REFERENCES ParkingLots(lot_id)
);

INSERT INTO ParkingRates (rate_id, lot_id, vehicle_type, hourly_rate) VALUES
(301, 1, 'Car', 5.00),
(302, 2, 'Motorcycle', 2.50),
(303, 3, 'Truck', 8.00);

SELECT * FROM ParkingRates;
```

rate_id	lot_id	vehicle_type	hourly_rate
301	1	Car	5.00
302	2	Motorcycle	2.50
303	3	Truck	8.00

ER DIAGRAM


users
user_id INT
username VARCHAR(50)
password VARCHAR(50)
users_user_id INT
Indexes
parkinglogs
log_id INT
vehicle_id INT
lot_id INT
entry_time TIMESTAMP
exit_time TIMESTAMP
Indexes
parkinglots
lot_id INT
lot_name VARCHAR(50)
capacity INT
Indexes
parkingrates
rate_id INT
lot_id INT
vehicle_type VARCHAR(30)
hourly_rate DECIMAL(8,2)
Indexes
vehicles
vehicle_id INT
plate_number VARCHAR(20)
vehicle_type VARCHAR(30)
Indexes

INNER JOIN(BETWEEN PARKINGLOGS AND PARKINGLOTS)

```
SELECT * FROM ParkingLots
INNER JOIN ParkingLogs
ON ParkingLots.lot_id=ParkingLogs.lot_id;
```

lot_id	lot_name	capacity	log_id	vehicle_id	lot_id	entry_time	exit_time
1	Lot A	50	201	101	1	2024-01-09 10:00:00	2024-01-09 15:30:00
2	Lot B	30	202	102	2	2024-01-09 12:45:00	NULL
3	Lot C	40	203	103	3	2024-01-09 08:30:00	2024-01-09 17:15:00

OUTER JOIN(FULL JOIN) (BETWEEN USERS AND PARKINGLOGS)

```
SELECT * FROM ParkingLogs
LEFT JOIN Users
ON ParkingLogs.lot_id= Users.user_id
UNION
SELECT * FROM ParkingLogs
RIGHT JOIN Users
ON ParkingLogs.lot_id= Users.user_id;
```

log_id	vehicle_id	lot_id	entry_time	exit_time	user_id	username	password
201	101	1	2024-01-09 10:00:00	2024-01-09 15:30:00	1	admin	adminpass
202	102	2	2024-01-09 12:45:00	NULL	2	user1	userpass1
203	103	3	2024-01-09 08:30:00	2024-01-09 17:15:00	3	user2	userpass2

THANK YOU