Transform Yourself

AIRLINE TRAFFIC MANAGEMENT SYSTEM

LOVE ✶ KNOWLEDGE ✶ SERVICE

KONGU ENGINEERING COLLEGE
PERUNDURAI.

Estd : 1984

PROJECT MEMBER

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PROBLEM STATEMENT

- The **Airline Traffic Management System** aims to streamline the operations of managing flights, bookings, and passengers in an airline.
- The system should handle these operations through a user-friendly interface, with data stored in a relational database (MySQL) to ensure data integrity and consistency
- The system should also manage common issues such as seat availability and ensure proper updates in the database when bookings are made or canceled.

OBJECTIVES

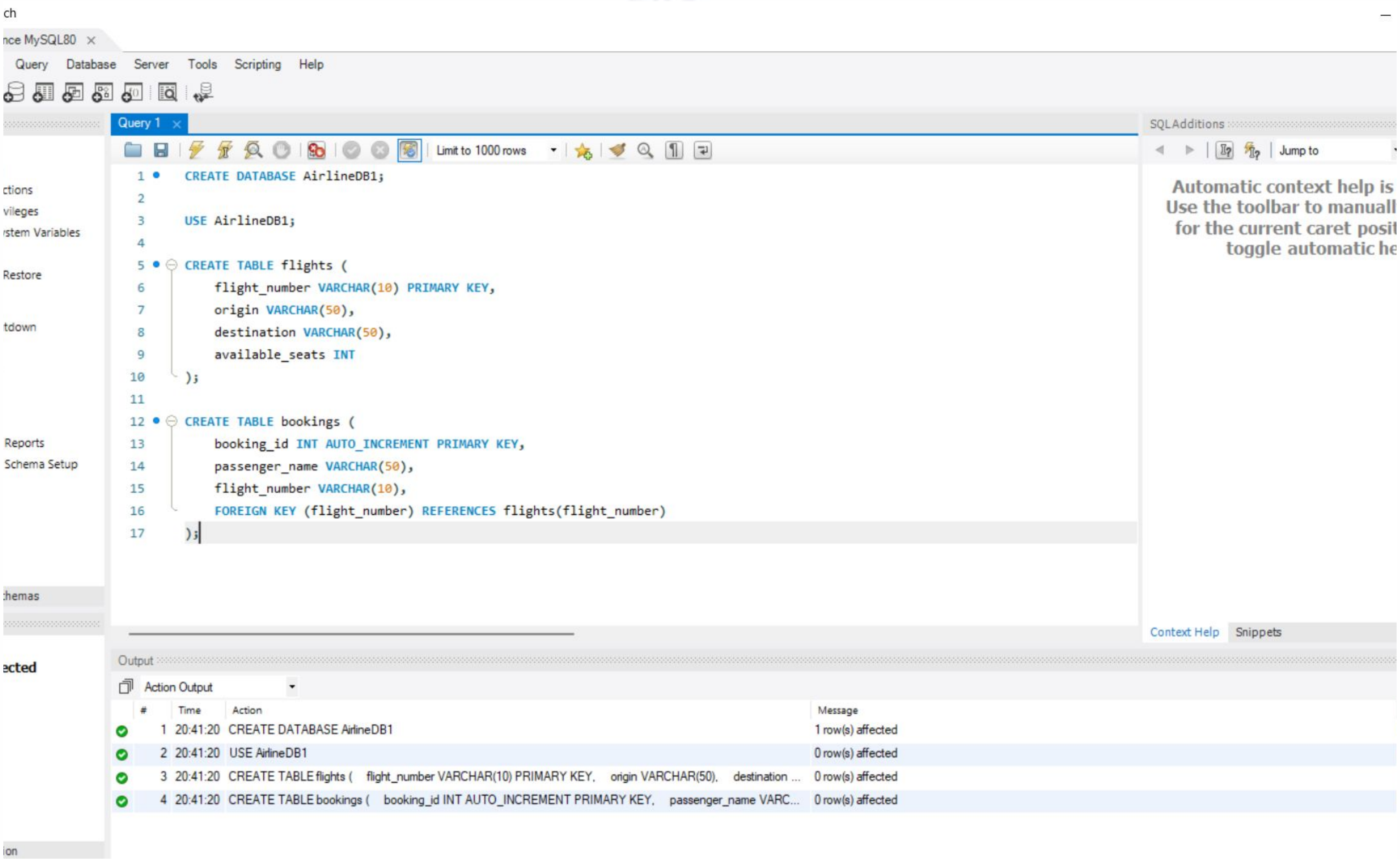
- **Manage Flights**: Add and update flight details like flight number, origin, and available seats.
- **Simplify Bookings**: Allow passengers to book tickets with real-time seat updates.
- **View Bookings**: Display all bookings with passenger and flight details.
- **Centralized Data**: Store all data in a MySQL database for easy access and consistency.
- **User-Friendly**: Provide an intuitive interface for smooth interaction.
- **Boost Efficiency**: Automate processes to improve airline operations.

LANGUAGE CONCEPT USED

- Java Programming
- SQL (Structured Query Language)
- JDBC (Java Database Connectivity)
- Exception Handling
- Scanner Class
- Prepared Statements
- Loops and Conditional Statements

DATABASE DESIGN

CREATING TABLE FOR DATABASE Airline Traffic Management System



```sql
CREATE DATABASE AirlineDB1;

USE AirlineDB1;

CREATE TABLE flights (
    flight_number VARCHAR(10) PRIMARY KEY,
    origin VARCHAR(50),
    destination VARCHAR(50),
    available_seats INT
);

CREATE TABLE bookings (
    booking_id INT AUTO_INCREMENT PRIMARY KEY,
    passenger_name VARCHAR(50),
    flight_number VARCHAR(10),
    FOREIGN KEY (flight_number) REFERENCES flights(flight_number)
);
```

#	Time	Action	Message
1	20:41:20	CREATE DATABASE AirlineDB1	1 row(s) affected
2	20:41:20	USE AirlineDB1	0 row(s) affected
3	20:41:20	CREATE TABLE flights (flight_number VARCHAR(10) PRIMARY KEY, origin VARCHAR(50), destination ...	0 row(s) affected
4	20:41:20	CREATE TABLE bookings (booking_id INT AUTO_INCREMENT PRIMARY KEY, passenger_name VARC...	0 row(s) affected

DATABASE DESIGN

COLUMNS IN THE TABLE:

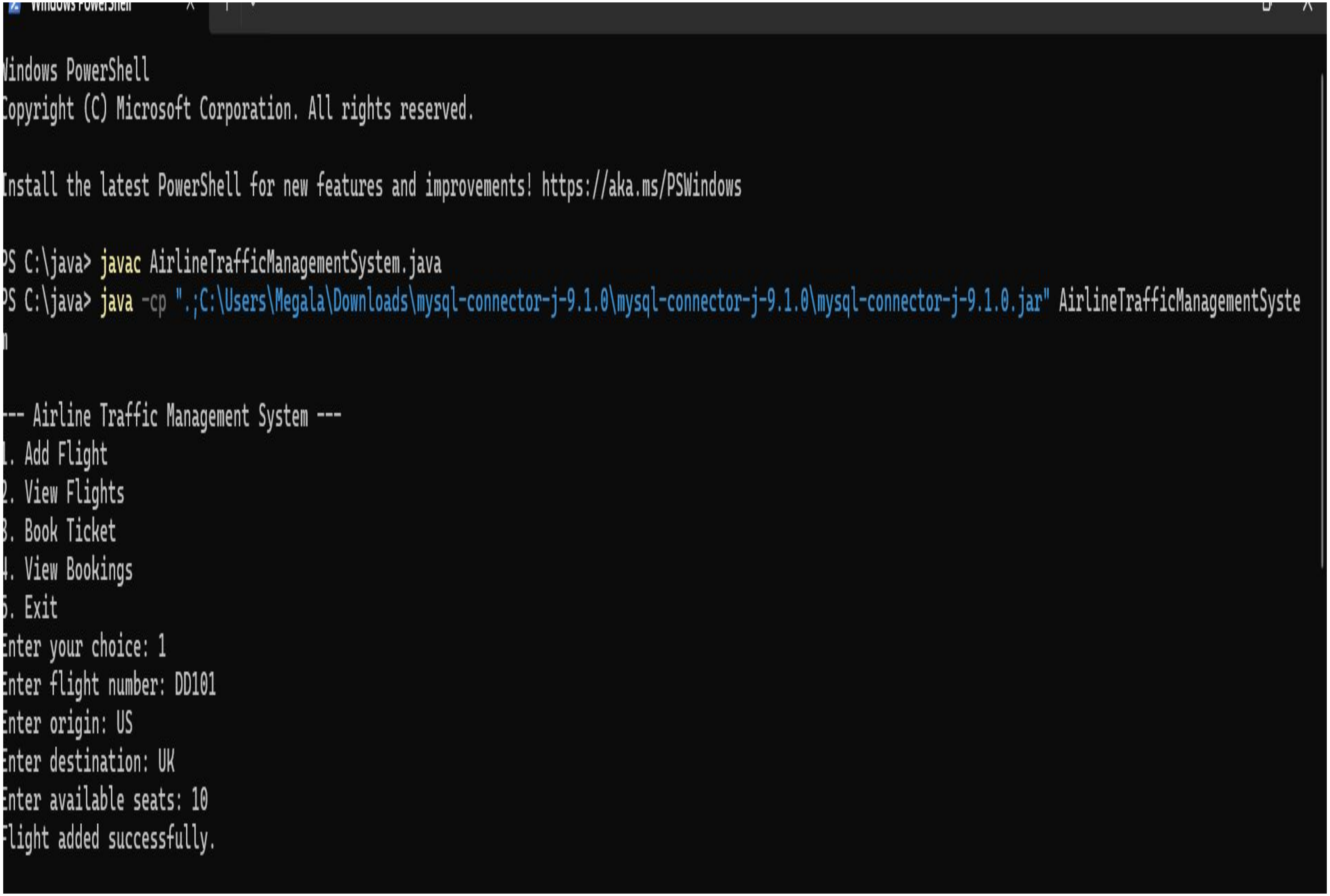
- **Flights Table:**

  1.flight_number(VARCHAR(10))
  2.origin(VARCHAR(50))
  3.destination (VARCHAR(50))
  4.available_seats (INT)

- **Bookings Table:**

  1.booking_id (INT, AUTO_INCREMENT)
  2.passenger_name (VARCHAR(50)
  3.flight_number (VARCHAR(10))

OUTPUT



```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\java> javac AirlineTrafficManagementSystem.java
PS C:\java> java -cp ".;C:\Users\Megala\Downloads\mysql-connector-j-9.1.0\mysql-connector-j-9.1.0\mysql-connector-j-9.1.0.jar" AirlineTrafficManagementSyste
m

--- Airline Traffic Management System ---
1. Add Flight
2. View Flights
3. Book Ticket
4. View Bookings
5. Exit
Enter your choice: 1
Enter flight number: DD101
Enter origin: US
Enter destination: UK
Enter available seats: 10
Flight added successfully.
```
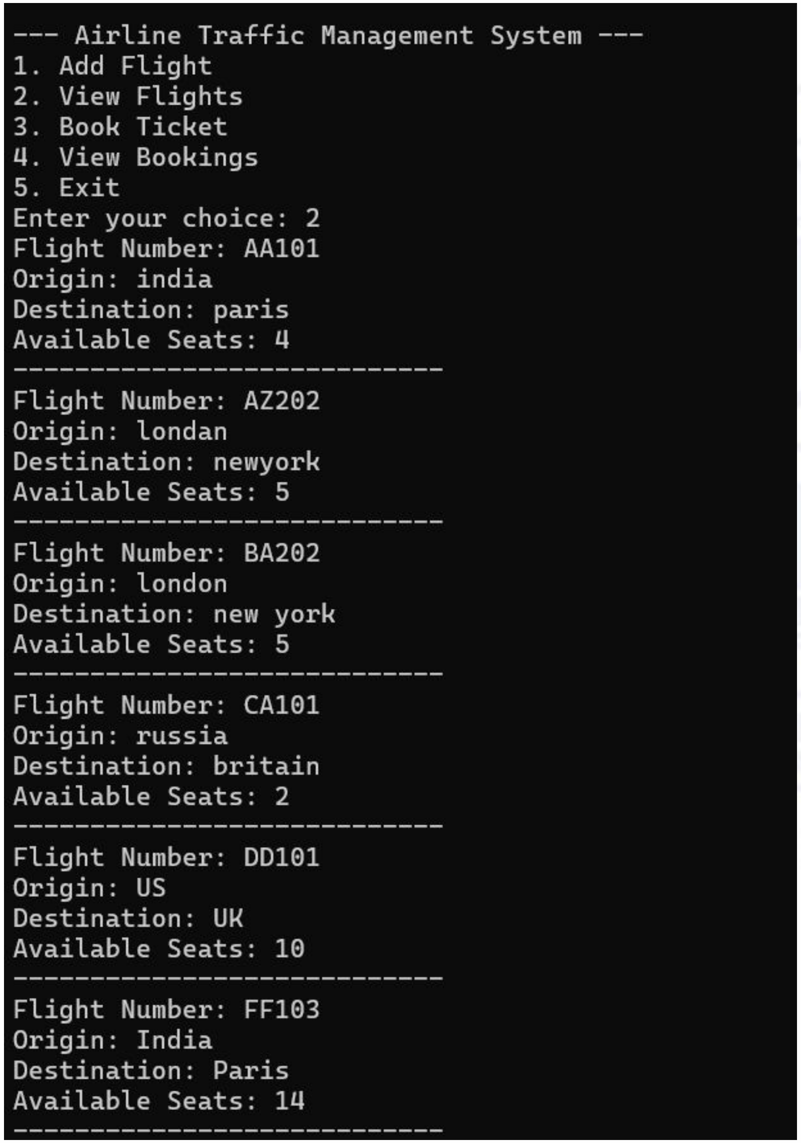
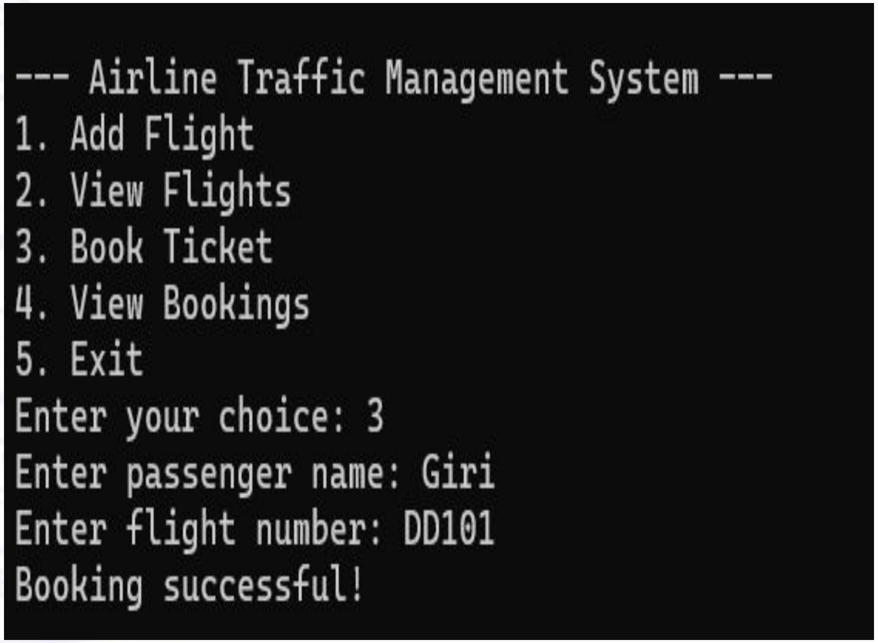

OUTPUT

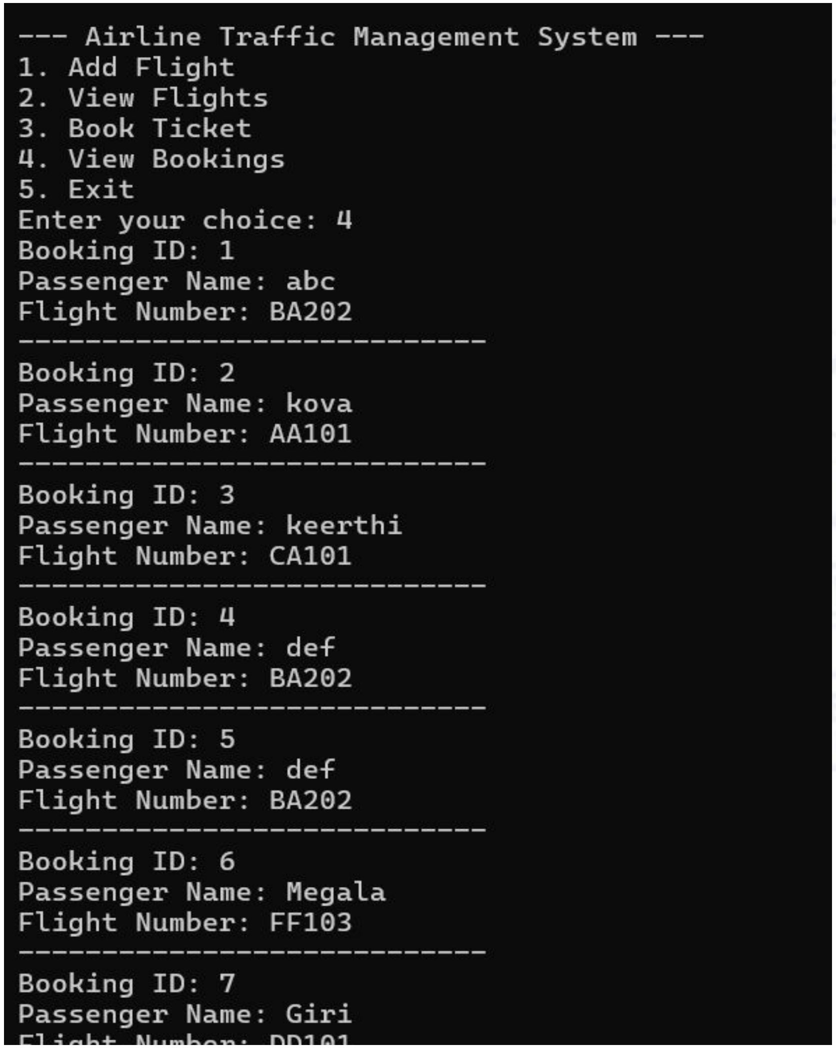


```
--- Airline Traffic Management System ---
1. Add Flight
2. View Flights
3. Book Ticket
4. View Bookings
5. Exit
Enter your choice: 2
Flight Number: AA101
Origin: india
Destination: paris
Available Seats: 4
----------------------------
Flight Number: AZ202
Origin: londan
Destination: newyork
Available Seats: 5
----------------------------
Flight Number: BA202
Origin: london
Destination: new york
Available Seats: 5
----------------------------
Flight Number: CA101
Origin: russia
Destination: britain
Available Seats: 2
----------------------------
Flight Number: DD101
Origin: US
Destination: UK
Available Seats: 10
----------------------------
Flight Number: FF103
Origin: India
Destination: Paris
Available Seats: 14
----------------------------
```

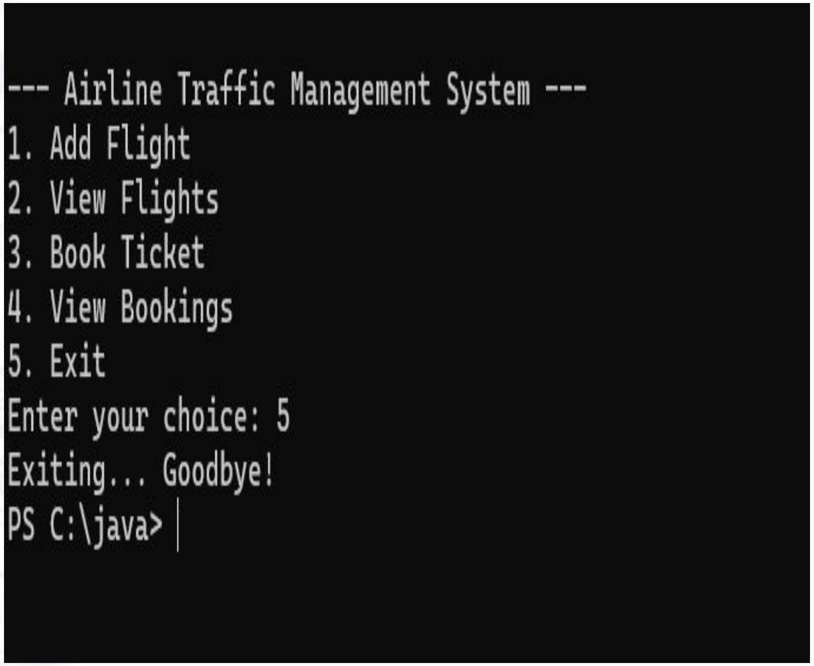


```
--- Airline Traffic Management System ---
1. Add Flight
2. View Flights
3. Book Ticket
4. View Bookings
5. Exit
Enter your choice: 3
Enter passenger name: Giri
Enter flight number: DD101
Booking successful!
```

OUTPUT



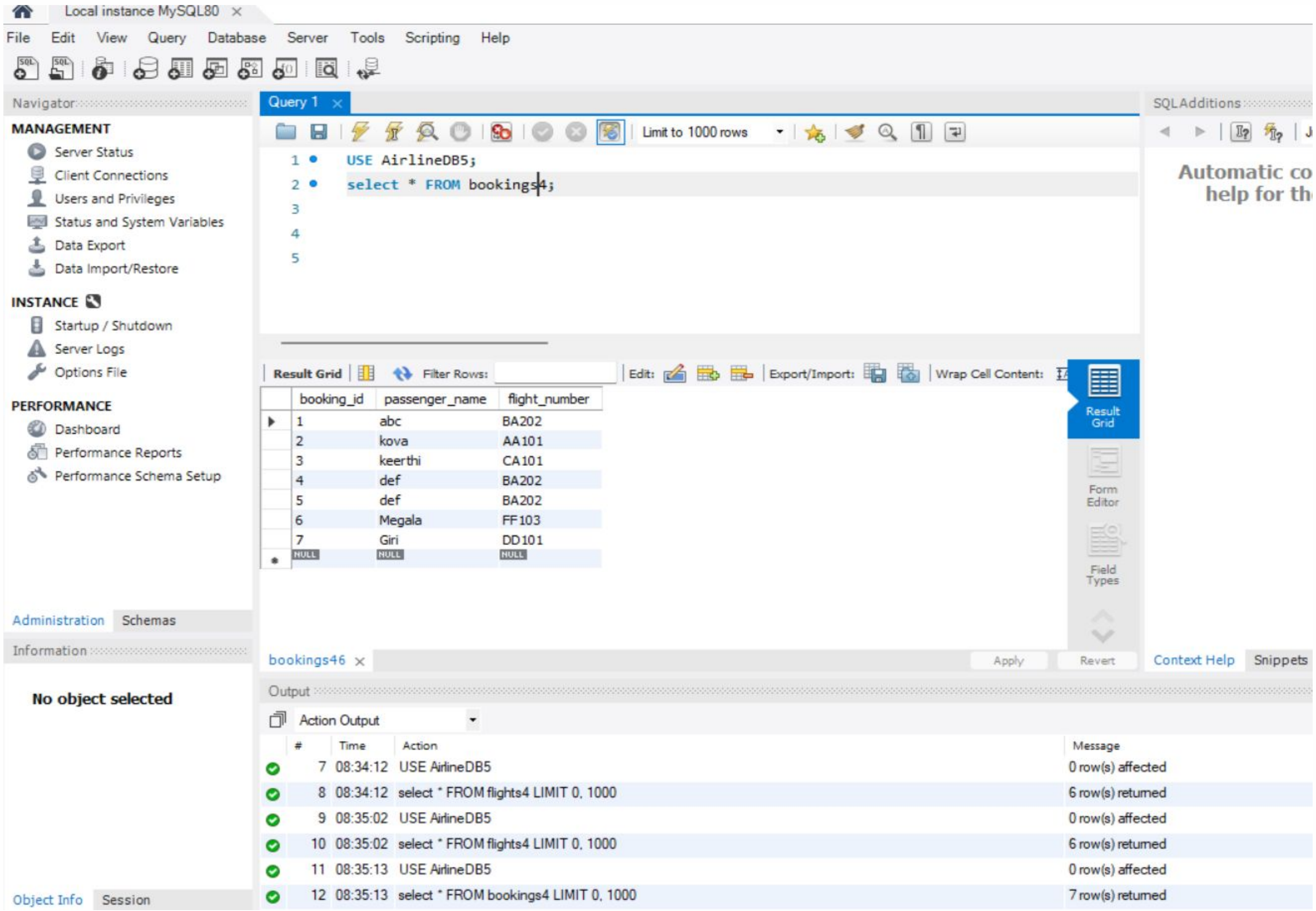
```
--- Airline Traffic Management System ---
1. Add Flight
2. View Flights
3. Book Ticket
4. View Bookings
5. Exit
Enter your choice: 4
Booking ID: 1
Passenger Name: abc
Flight Number: BA202
----------------------------
Booking ID: 2
Passenger Name: kova
Flight Number: AA101
----------------------------
Booking ID: 3
Passenger Name: keerthi
Flight Number: CA101
----------------------------
Booking ID: 4
Passenger Name: def
Flight Number: BA202
----------------------------
Booking ID: 5
Passenger Name: def
Flight Number: BA202
----------------------------
Booking ID: 6
Passenger Name: Megala
Flight Number: FF103
----------------------------
Booking ID: 7
Passenger Name: Giri
Flight Number: DD101
```



```
--- Airline Traffic Management System ---
1. Add Flight
2. View Flights
3. Book Ticket
4. View Bookings
5. Exit
Enter your choice: 5
Exiting... Goodbye!
PS C:\java>
```

OUTPUT

Table: **Bookings**



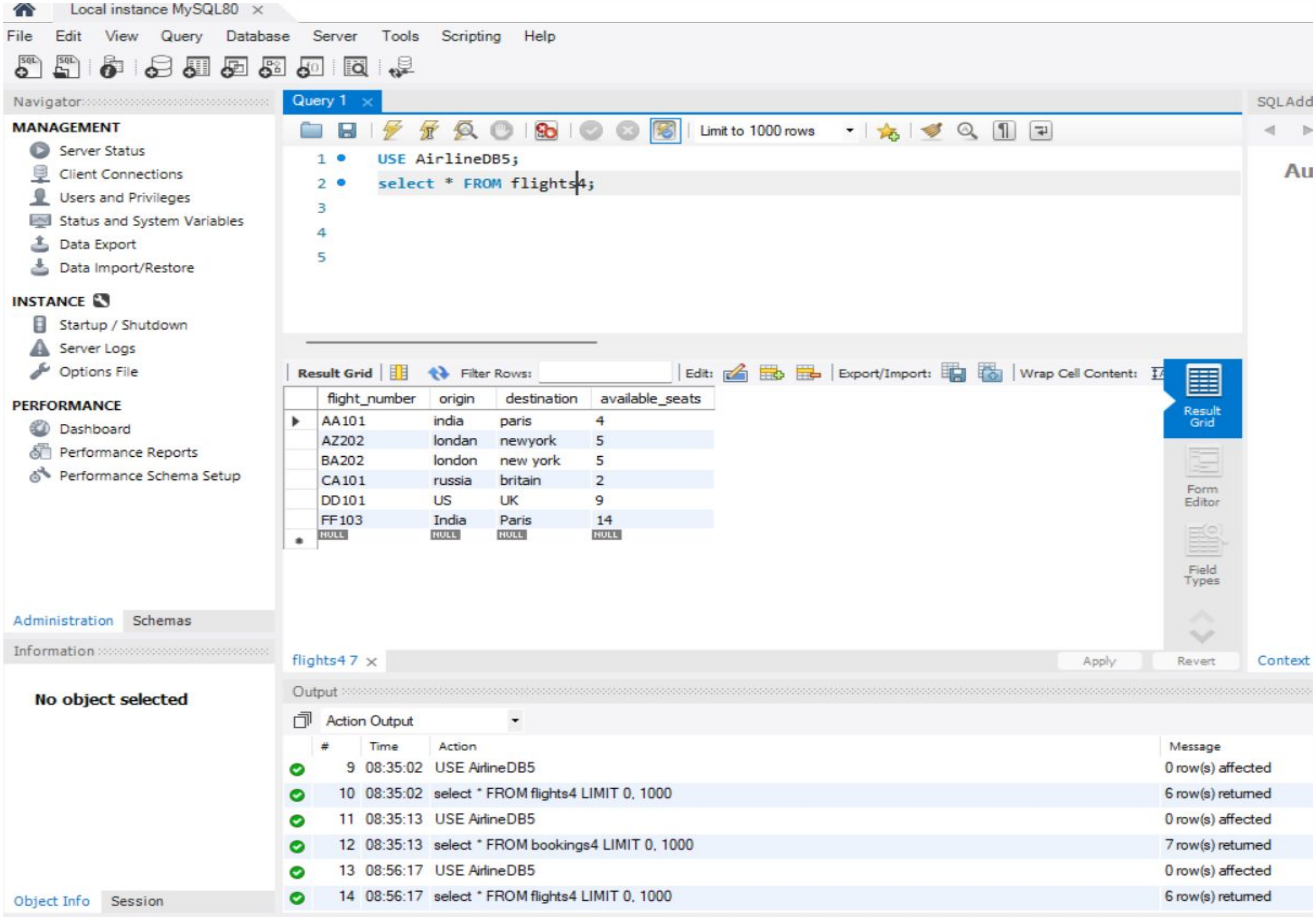
```
USE AirlineDB5;
select * FROM bookings4;
```

booking_id	passenger_name	flight_number
1	abc	BA202
2	kova	AA101
3	keerthi	CA101
4	def	BA202
5	def	BA202
6	Megala	FF103
7	Giri	DD101
NULL	NULL	NULL

```
 #   Time      Action                                  Message
 7   08:34:12  USE AirlineDB5                          0 row(s) affected
 8   08:34:12  select * FROM flights4 LIMIT 0, 1000    6 row(s) returned
 9   08:35:02  USE AirlineDB5                          0 row(s) affected
10   08:35:02  select * FROM flights4 LIMIT 0, 1000    6 row(s) returned
11   08:35:13  USE AirlineDB5                          0 row(s) affected
12   08:35:13  select * FROM bookings4 LIMIT 0, 1000   7 row(s) returned
```

OUTPUT

Table: **Flights**



```
USE AirlineDB5;
select * FROM flights4;
```

flight_number	origin	destination	available_seats
AA101	india	paris	4
AZ202	londan	newyork	5
BA202	london	new york	5
CA101	russia	britain	2
DD101	US	UK	9
FF103	India	Paris	14
NULL	NULL	NULL	NULL

```
#   Time      Action                                   Message
9   08:35:02  USE AirlineDB5                           0 row(s) affected
10  08:35:02  select * FROM flights4 LIMIT 0, 1000     6 row(s) returned
11  08:35:13  USE AirlineDB5                           0 row(s) affected
12  08:35:13  select * FROM bookings4 LIMIT 0, 1000    7 row(s) returned
13  08:56:17  USE AirlineDB5                           0 row(s) affected
14  08:56:17  select * FROM flights4 LIMIT 0, 1000     6 row(s) returned
```

CONCLUSION

- In conclusion, the **Airline Traffic Management System** efficiently handles flight and booking management by using core programming concepts like classes, encapsulation, and abstraction.
- It connects to a MySQL database to store and retrieve flight details and bookings..
- This approach makes the system scalable, maintainable, and secure for managing airline operations.

THANK YOU