CP 363 Assignment 6

Tourism Agency Booking System DBMS

Group 37

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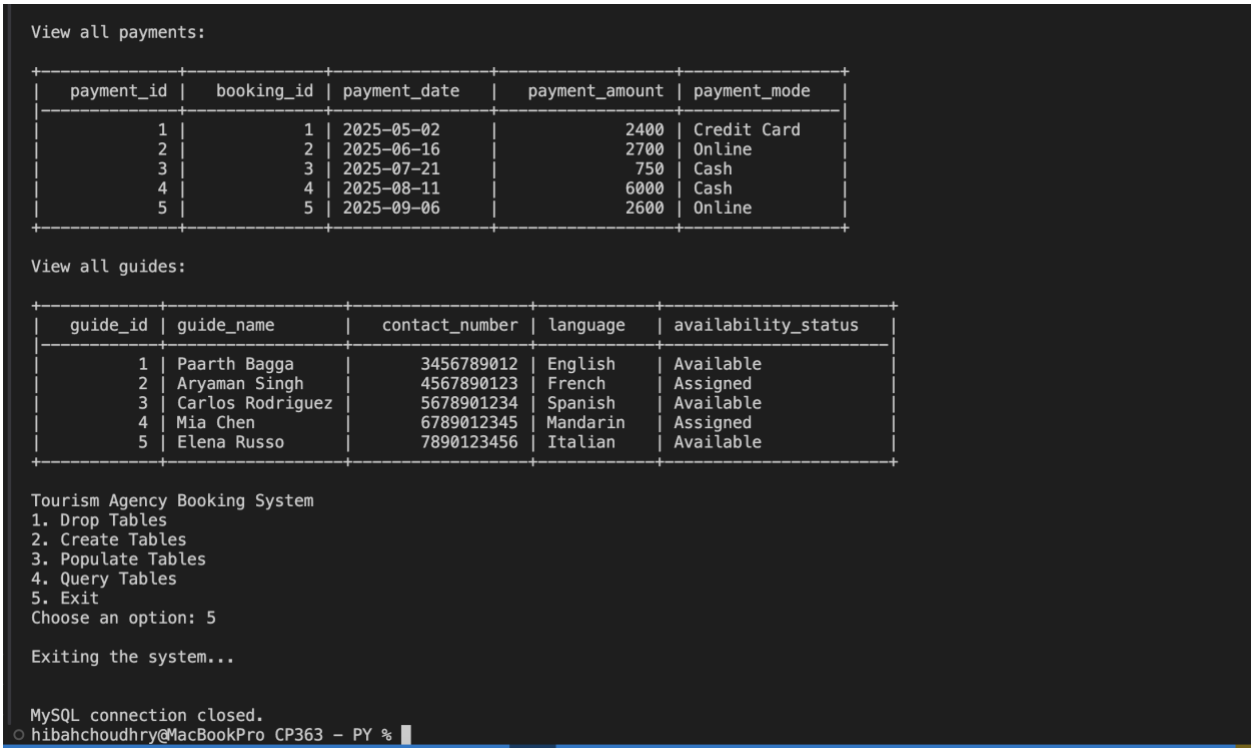
UI Design in Python:

```
hibahchoudhry@MacBookPro CP363 - PY % /usr/local/bin/python3 "/Users/hibahchoudhry/Documents/CP363 - PY/tourism_agency.py"

Tourism Agency Booking System
1. Drop Tables
2. Create Tables
3. Populate Tables
4. Query Tables
5. Exit
Choose an option: 1
All tables have been dropped successfully.

Tourism Agency Booking System
1. Drop Tables
2. Create Tables
3. Populate Tables
4. Query Tables
5. Exit
Choose an option: 2
Tables were created successfully.

Tourism Agency Booking System
1. Drop Tables
2. Create Tables
3. Populate Tables
4. Query Tables
5. Exit
Choose an option: 3
Populating the database...
Sample data inserted successfully.

Tourism Agency Booking System
1. Drop Tables
2. Create Tables
3. Populate Tables
4. Query Tables
5. Exit
Choose an option: 4
```

```
View all customers:

+-------------+------------+-----------+-----------------------+------------+--------------------------+
| customer_id | first_name | last_name | email                 |      phone | address                  |
|-------------+------------+-----------+-----------------------+------------+--------------------------|
|           1 | Donil      | Patel     | pateldonil@gmail.com  | 2263547774 | 123 Street, Toronto      |
|           2 | Hibah      | Hibah     | hibah.hibah@email.com |   39874632 | 456 Road, Toronto        |
|           3 | Shayna     | Mehta     | shayna.mehta@email.com | 6479871234 | 789 Avenue, Toronto      |
|           4 | Serena     | Gomez     | serena.gomez@email.com | 9056543210 | 555 Highway, Mississauga |
|           5 | Arjun      | Kapoor    | arjun.kapoor@email.com | 5198765432 | 999 Lane, Waterloo       |
+-------------+------------+-----------+-----------------------+------------+--------------------------+

View all tour packages:

+------------+-------------------+---------------+--------------------+------------+------------+
| package_id | package_name      | destination   | price_per_person | start_date | end_date   |
|------------+-------------------+---------------+--------------------+------------+------------|
|          1 | Beach Adventure   | Hawaii        |               1200 | 2025-06-01 | 2025-06-07 |
|          2 | Mountain Hiking   | Banff         |                900 | 2025-07-10 | 2025-07-15 |
|          3 | City Tour         | New York      |                750 | 2025-08-05 | 2025-08-08 |
|          4 | Jungle Safari     | Kenya         |               1500 | 2025-09-15 | 2025-09-22 |
|          5 | Historical Journey | Rome          |               1300 | 2025-10-10 | 2025-10-17 |
+------------+-------------------+---------------+--------------------+------------+------------+

View all bookings:

+------------+--------------+-------------+------------+------------------+------------+
| booking_id | booking_date | customer_id | package_id | number_of_people | total_cost |
|------------+--------------+-------------+------------+------------------+------------|
|          1 | 2025-05-01   |           1 |          1 |                2 |       2400 |
|          2 | 2025-06-15   |           2 |          2 |                3 |       2700 |
|          3 | 2025-07-20   |           3 |          3 |                1 |        750 |
|          4 | 2025-08-10   |           4 |          4 |                4 |       6000 |
|          5 | 2025-09-05   |           5 |          5 |                2 |       2600 |
+------------+--------------+-------------+------------+------------------+------------+
```



```
View all payments:

+--------------+--------------+--------------+-----------------+----------------+
|   payment_id |   booking_id | payment_date |   payment_amount | payment_mode   |
|--------------+--------------+--------------+-----------------+----------------|
|            1 |            1 | 2025-05-02   |            2400 | Credit Card    |
|            2 |            2 | 2025-06-16   |            2700 | Online         |
|            3 |            3 | 2025-07-21   |             750 | Cash           |
|            4 |            4 | 2025-08-11   |            6000 | Cash           |
|            5 |            5 | 2025-09-06   |            2600 | Online         |
+--------------+--------------+--------------+-----------------+----------------+

View all guides:

+------------+-----------------+-----------------+------------+-----------------------+
|   guide_id | guide_name      |   contact_number | language   | availability_status   |
|------------+-----------------+-----------------+------------+-----------------------|
|          1 | Paarth Bagga    |      3456789012 | English    | Available             |
|          2 | Aryaman Singh   |      4567890123 | French     | Assigned              |
|          3 | Carlos Rodriguez |      5678901234 | Spanish    | Available             |
|          4 | Mia Chen        |      6789012345 | Mandarin   | Assigned              |
|          5 | Elena Russo     |      7890123456 | Italian    | Available             |
+------------+-----------------+-----------------+------------+-----------------------+

Tourism Agency Booking System
1. Drop Tables
2. Create Tables
3. Populate Tables
4. Query Tables
5. Exit
Choose an option: 5

Exiting the system...


MySQL connection closed.
hibahchoudhry@MacBookPro CP363 - PY %
```

Options:

1. Drop Tables
    - This drops all the tables
2. Create Tables
    - This creates the tables
3. Populate Tables
    - This populates the tables
4. Query Tables
    - This queries the tables
5. Exit
    - This exits the system

Functional Dependencies:

Customer customer_id customer_id → (first_name, last_name, email, phone, address)

phone → (customer_id, first_name, last_name, email, address) Each customer has a unique customer_id that stores their details. The phone number is also unique and can be used to retrieve customer information.

Tour_Package package_id package_id → (package_name, destination, price_per_person, start_date, end_date) Each tour package has a unique package_id that determines its details.

Booking booking_id booking_id → (booking_date, customer_id, package_id, number_of_people, total_cost)

(booking_date, customer_id, package_id) → booking_id A booking_id uniquely identifies a booking. A combination of booking_date, customer_id, and package_id can also determine a unique booking.

Payment payment_id payment_id → (booking_id, payment_date, payment_amount, payment_mode)

booking_id → (payment_id, payment_date, payment_amount, payment_mode) A payment_id uniquely identifies a payment transaction. Since each booking has one associated payment, booking_id also determines a unique payment.

Guide guide_id guide_id → (guide_name, contact_number, language, availability_status)

contact_number → (guide_id, guide_name, language, availability_status) Each tour guide has a unique guide_id, and their contact_number is also unique and can retrieve guide information.

Impact On Query Performance and Normalization Decisions:

Ensuring that the database follows Third Normal Form (3NF) results in several key benefits:

- No Redundancy:
  - All attributes depend only on the Primary Key, reducing duplicate data storage.
  - Eliminates update and delete anomalies.
- Efficient Query Performance:
  - Queries run faster because each table holds only relevant data.
  - Optimized JOIN operations to retrieve related records.
- Indexing for Speed:
  - Primary and Foreign Keys allow indexing, improving search speed.
  - Efficient lookup operations enhance system performance.
- Avoiding Anomalies:
  - Insert, Update, and Delete anomalies are eliminated.
  - Maintains data integrity and consistency.
- Query Optimization:
  - Functional Dependencies support efficient joins between Customer, Booking, and Payment tables.
  - Reduces processing overhead by ensuring optimal data retrieval and storage.