CP 363 Assignment 4
Tourism Agency Booking System DBMS

Group 37

February 07, 2025

Hibah Hibah

Donil Patel

SQL:

```sql
USE TourismAgencyDBMS;


-- Insert into Customer Table
INSERT INTO Customer (customer_id, first_name, last_name, email, phone, address)
VALUES
(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');

-- Insert into Tour_Package Table
INSERT INTO Tour_Package (package_id, package_name, destination, price_per_person, start_date, end_date)
VALUES
(1, 'Beach Adventure', 'Hawaii', 1200.00, '2025-06-01', '2025-06-07'),
(2, 'Mountain Hiking', 'Banff', 900.00, '2025-07-10', '2025-07-15'),
(3, 'City Tour', 'New York', 750.00, '2025-08-05', '2025-08-08'),
(4, 'Jungle Safari', 'Kenya', 1500.00, '2025-09-15', '2025-09-22'),
(5, 'Historical Journey', 'Rome', 1300.00, '2025-10-10', '2025-10-17');

-- Insert into Booking Table
INSERT INTO Booking (booking_id, booking_date, customer_id, package_id, number_of_people, total_cost)
VALUES
(1, '2025-05-01', 1, 1, 2, 2400.00),
(2, '2025-06-15', 2, 2, 3, 2700.00),
(3, '2025-07-20', 3, 3, 1, 750.00),
(4, '2025-08-10', 4, 4, 4, 6000.00),
(5, '2025-09-05', 5, 5, 2, 2600.00);
```

```sql
-- Insert into Payment Table
INSERT INTO Payment (payment_id, booking_id, payment_date, payment_amount, payment_mode)
VALUES
(1, 1, '2025-05-02', 2400.00, 'Credit Card'),
(2, 2, '2025-06-16', 2700.00, 'Online'),
(3, 3, '2025-07-21', 750.00, 'Cash'),
(4, 4, '2025-08-11', 6000.00, 'Cash'),
(5, 5, '2025-09-06', 2600.00, 'Online');

-- Insert into Guide Table
INSERT INTO Guide (guide_id, guide_name, contact_number, language, availability_status)
VALUES
(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');

-- Select queries to verify the data
SELECT * FROM Customer;
SELECT * FROM Tour_Package;
SELECT * FROM Booking;
SELECT * FROM Payment;
SELECT * FROM Guide;
```

Tables:

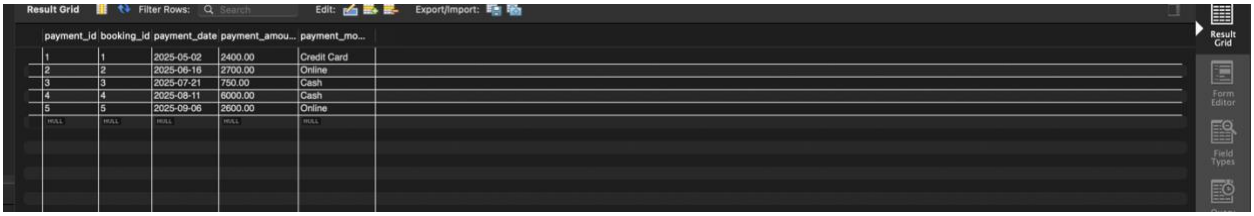
customer_id	first_name	last_name	email	phone	address	preferred_destinati...
1	Donil	Patel	pateldonil@gmail.com	2263547774	123 Street, Toronto	NULL
2	Hibah	Hibah	hibah.hibah@email.com	39874632	456 Road, Toronto	NULL
3	Shayna	Mehta	shayna.mehta@email.com	6479871234	789 Avenue, Toronto	NULL
4	Serena	Gomez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

Result Grid | Form Editor | Field Types | Query Stats

Result Grid Filter Rows: Search Edit: Export/Import:

guide_id	guide_name	contact_num...	language	availability_stat...
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
NULL	NULL	NULL	NULL	NULL

Result Grid | Form Editor | Field Types | Query Stats



Result Grid | Filter Rows: Search | Edit: | Export/Import:

payment_id	booking_id	payment_date	payment_amou...	payment_mo...
1	1	2025-05-02	2400.00	Credit Card
2	2	2025-06-16	2700.00	Online
3	3	2025-07-21	750.00	Cash
4	4	2025-08-11	6000.00	Cash
5	5	2025-09-06	2600.00	Online
NULL	NULL	NULL	NULL	NULL

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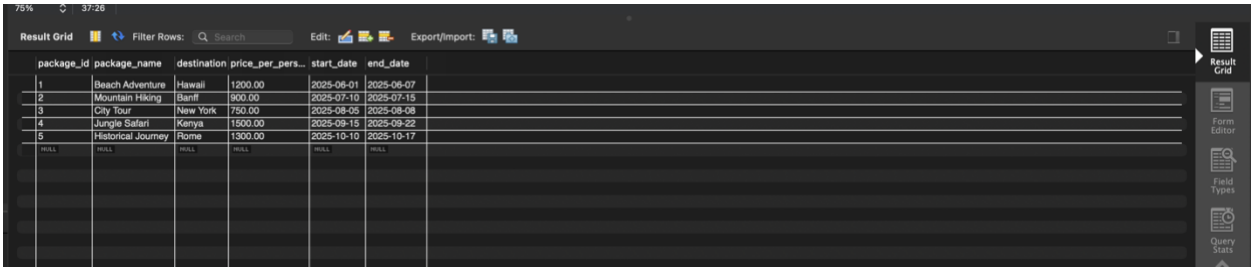
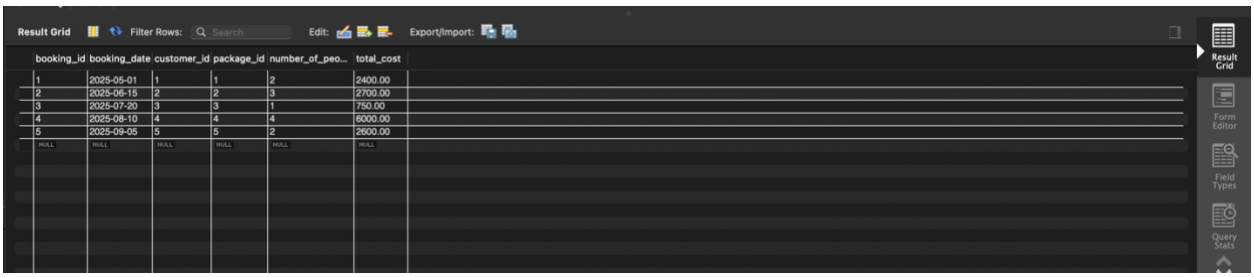


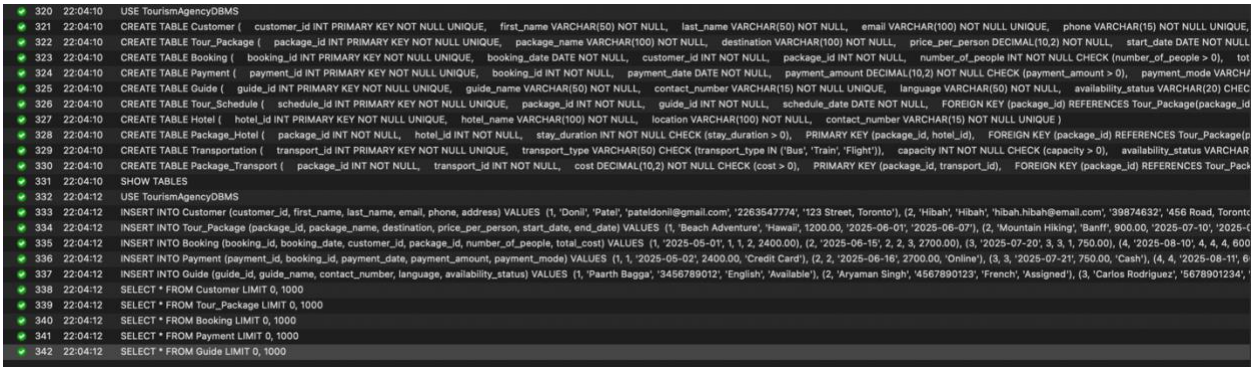
Result Grid | Filter Rows: Search | Edit: | Export/Import:

package_id	package_name	destination	price_per_pers...	start_date	end_date
1	Beach Adventure	Hawaii	1200.00	2025-06-01	2025-06-07
2	Mountain Hiking	Banff	900.00	2025-07-10	2025-07-15
3	City Tour	New York	750.00	2025-08-05	2025-08-08
4	Jungle Safari	Kenya	1500.00	2025-09-15	2025-09-22
5	Historical Journey	Rome	1300.00	2025-10-10	2025-10-17
NULL	NULL	NULL	NULL	NULL	NULL



Result Grid | Filter Rows: Search | Edit: | Export/Import:

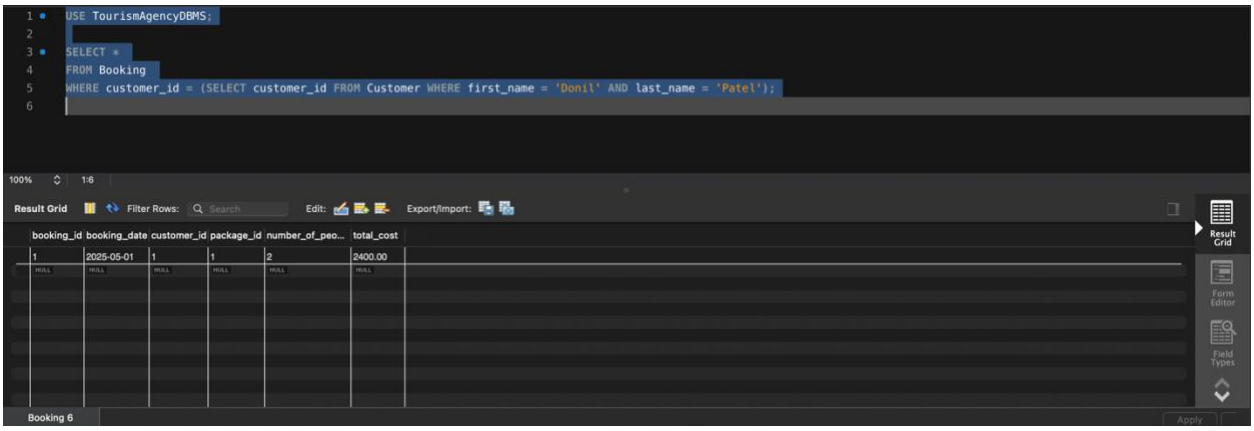
booking_id	booking_date	customer_id	package_id	number_of_peo...	total_cost
1	2025-05-01	1	1	2	2400.00
2	2025-06-15	2	2	3	2700.00
3	2025-07-20	3	3	1	750.00
4	2025-08-10	4	4	4	6000.00
5	2025-09-05	5	5	2	2600.00
NULL	NULL	NULL	NULL	NULL	NULL



```
320  22:04:10  USE TourismAgencyDBMS
321  22:04:10  CREATE TABLE Customer (  customer_id INT PRIMARY KEY NOT NULL UNIQUE,  first_name VARCHAR(50) NOT NULL,  last_name VARCHAR(50) NOT NULL,  email VARCHAR(100) NOT NULL UNIQUE,  phone VARCHAR(15) NOT NULL UNIQUE,
322  22:04:10  CREATE TABLE Tour_Package (  package_id INT PRIMARY KEY NOT NULL UNIQUE,  package_name VARCHAR(100) NOT NULL,  destination VARCHAR(100) NOT NULL,  price_per_person DECIMAL(10,2) NOT NULL,  start_date DATE NOT NULL
323  22:04:10  CREATE TABLE Booking (  booking_id INT PRIMARY KEY NOT NULL UNIQUE,  booking_date DATE NOT NULL,  customer_id INT NOT NULL,  package_id INT NOT NULL,  number_of_people INT NOT NULL CHECK (number_of_people > 0),  tot
324  22:04:10  CREATE TABLE Payment (  payment_id INT PRIMARY KEY NOT NULL UNIQUE,  booking_id INT NOT NULL,  payment_date DATE NOT NULL,  payment_amount DECIMAL(10,2) NOT NULL CHECK (payment_amount > 0),  payment_mode VARCHA
325  22:04:10  CREATE TABLE Guide (  guide_id INT PRIMARY KEY NOT NULL UNIQUE,  guide_name VARCHAR(50) NOT NULL,  contact_number VARCHAR(15) NOT NULL UNIQUE,  language VARCHAR(50) NOT NULL,  availability_status VARCHAR(20) CHEC
326  22:04:10  CREATE TABLE Tour_Schedule (  schedule_id INT PRIMARY KEY NOT NULL UNIQUE,  package_id INT NOT NULL,  guide_id INT NOT NULL,  schedule_date DATE NOT NULL,  FOREIGN KEY (package_id) REFERENCES Tour_Package(package_id
327  22:04:10  CREATE TABLE Hotel (  hotel_id INT PRIMARY KEY NOT NULL UNIQUE,  hotel_name VARCHAR(100) NOT NULL,  location VARCHAR(100) NOT NULL,  contact_number VARCHAR(15) NOT NULL UNIQUE )
328  22:04:10  CREATE TABLE Package_Hotel (  package_id INT NOT NULL,  hotel_id INT NOT NULL,  stay_duration INT NOT NULL CHECK (stay_duration > 0),  PRIMARY KEY (package_id, hotel_id),  FOREIGN KEY (package_id) REFERENCES Tour_Package(p
329  22:04:10  CREATE TABLE Transportation (  transport_id INT PRIMARY KEY NOT NULL UNIQUE,  transport_type VARCHAR(50) CHECK (transport_type IN ('Bus', 'Train', 'Flight')),  capacity INT NOT NULL CHECK (capacity > 0),  availability_status VARCHAR
330  22:04:10  CREATE TABLE Package_Transport (  package_id INT NOT NULL,  transport_id INT NOT NULL,  cost DECIMAL(10,2) NOT NULL CHECK (cost > 0),  PRIMARY KEY (package_id, transport_id),  FOREIGN KEY (package_id) REFERENCES Tour_Pack
331  22:04:10  SHOW TABLES
332  22:04:12  USE TourismAgencyDBMS
333  22:04:12  INSERT INTO Customer (customer_id, first_name, last_name, email, phone, address) VALUES  (1, 'Donil', 'Patel', 'pateldonil@gmail.com', '2263547774', '123 Street, Toronto'), (2, 'Hibah', 'Hibah', 'hibah.hibah@email.com', '39874632', '456 Road, Toronto
334  22:04:12  INSERT INTO Tour_Package (package_id, package_name, destination, price_per_person, start_date, end_date) VALUES  (1, 'Beach Adventure', 'Hawaii', 1200.00, '2025-06-01', '2025-06-07'), (2, 'Mountain Hiking', 'Banff', 900.00, '2025-07-10', '2025-0
335  22:04:12  INSERT INTO Booking (booking_id, booking_date, customer_id, package_id, number_of_people, total_cost) VALUES  (1, '2025-05-01', 1, 1, 2, 2400.00), (2, '2025-06-15', 2, 2, 3, 2700.00), (3, '2025-07-20', 3, 3, 1, 750.00), (4, '2025-08-10', 4, 4, 4, 600
336  22:04:12  INSERT INTO Payment (payment_id, booking_id, payment_date, payment_amount, payment_mode) VALUES  (1, 1, '2025-05-02', 2400.00, 'Credit Card'), (2, 2, '2025-06-16', 2700.00, 'Online'), (3, 3, '2025-07-21', 750.00, 'Cash'), (4, 4, '2025-08-11', 6
337  22:04:12  INSERT INTO Guide (guide_id, guide_name, contact_number, language, availability_status) VALUES  (1, 'Paarth Bagga', '3456789012', 'English', 'Available'), (2, 'Aryaman Singh', '4567890123', 'French', 'Assigned'), (3, 'Carlos Rodriguez', '5678901234',
338  22:04:12  SELECT * FROM Customer LIMIT 0, 1000
339  22:04:12  SELECT * FROM Tour_Package LIMIT 0, 1000
340  22:04:12  SELECT * FROM Booking LIMIT 0, 1000
341  22:04:12  SELECT * FROM Payment LIMIT 0, 1000
342  22:04:12  SELECT * FROM Guide LIMIT 0, 1000
```

Simple Queries:
Basic Queries:

1. Retrieve all bookings for a specific customer (Subquery)



2. Find customers who have spent more than $2000 on bookings (Subquery)

3. Find the tour packages that have bookings with more than 2 people (Correlated Subquery)

4. List the total number of bookings made per customer (Aggregate Query with GROUP BY)

```
SELECT C.first_name, C.last_name, COUNT(B.booking_id) AS total_bookings
FROM Customer C
JOIN Booking B ON C.customer_id = B.customer_id
GROUP BY C.customer_id;
```

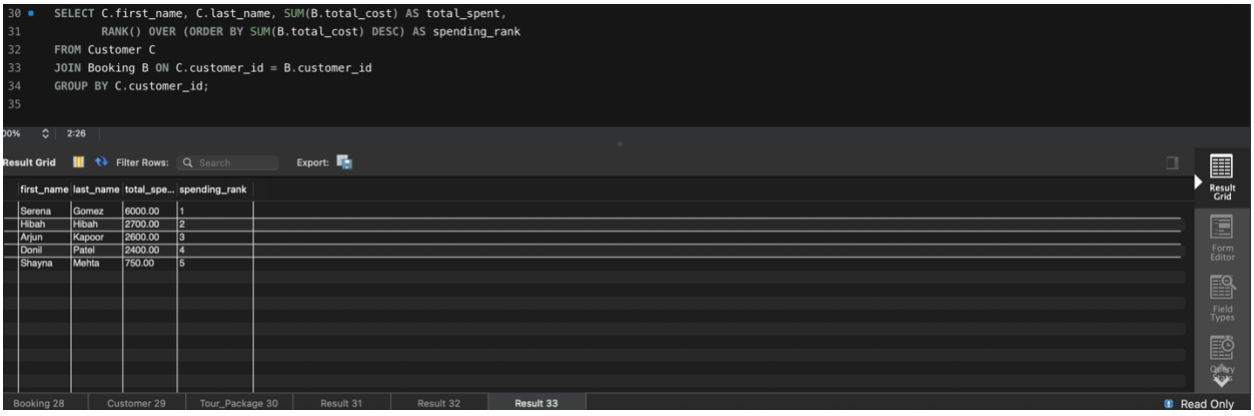
first_name	last_name	total_bookin...
Donil	Patel	1
Hibah	Hibah	1
Shayna	Mehta	1
Serena	Gomez	1
Arjun	Kapoor	1

5. 5. Find the total revenue generated from each tour package (Aggregate Query with GROUP BY)

```
SELECT TP.package_name, SUM(B.total_cost) AS total_revenue
FROM Tour_Package TP
JOIN Booking B ON TP.package_id = B.package_id
GROUP BY TP.package_name
ORDER BY total_revenue DESC;
```

package_name	total_revenue
Jungle Safari	6000.00
Mountain Hiking	2700.00
Historical Journey	2600.00
Beach Adventure	2400.00
City Tour	750.00

6. Rank customers by their total spending (Window Function (RANK))



```
SELECT C.first_name, C.last_name, SUM(B.total_cost) AS total_spent,
       RANK() OVER (ORDER BY SUM(B.total_cost) DESC) AS spending_rank
FROM Customer C
JOIN Booking B ON C.customer_id = B.customer_id
GROUP BY C.customer_id;
```

first_name	last_name	total_spe...	spending_rank
Serena	Gomez	6000.00	1
Hibah	Hibah	2700.00	2
Arjun	Kapoor	2600.00	3
Donil	Patel	2400.00	4
Shayna	Mehta	750.00	5

7. Assign a row number to each booking (Window Function (ROW_NUMBER))

```
35
36 •  SELECT booking_id, customer_id, package_id, total_cost,
37           ROW_NUMBER() OVER (ORDER BY booking_date) AS row_num
38    FROM Booking;
39
```

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Result Grid | Filter Rows: Search | Export:

booking_id	customer_id	package_id	total_cost	row_num
1	1	1	2400.00	1
2	2	2	2700.00	2
3	3	3	750.00	3
4	4	4	6000.00	4
5	5	5	2600.00	5

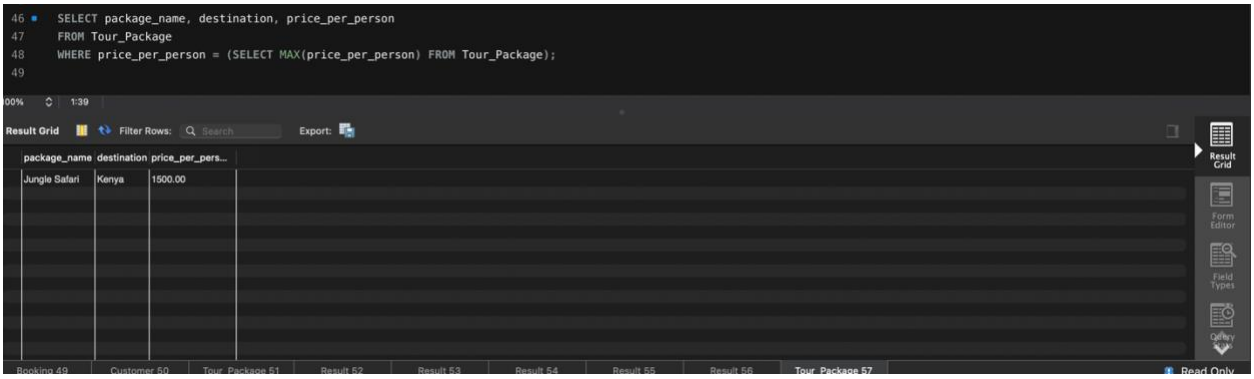
8. Divide customers into 3 spending tiers based on total spending (Window Function (NTILE))

Result Grid | Filter Rows: Search | Export:

first_name	last_name	total_spe...	spending_ti...
Serena	Gomez	6000.00	1
Hibah	Hibah	2700.00	1
Arjun	Kapoor	2600.00	2
Donil	Patel	2400.00	2
Shayna	Mehta	750.00	3

Booking 41 | Customer 42 | Tour_Package 43 | Result 44 | Result 45 | Result 46 | Result 47 | Result 48 | Read Only

9. Find the most expensive tour package and its destination (Subquery)



```
46 •  SELECT package_name, destination, price_per_person
47    FROM Tour_Package
48    WHERE price_per_person = (SELECT MAX(price_per_person) FROM Tour_Package);
49
```

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Result Grid | Filter Rows: Search | Export:

package_name	destination	price_per_pers...
Jungle Safari	Kenya	1500.00

Booking 49 | Customer 50 | Tour_Package 51 | Result 52 | Result 53 | Result 54 | Result 55 | Result 56 | Tour_Package 57 | Read Only

10. Find the total amount paid by each customer along with their payment mode (Aggregate Query with GROUP BY)

```
SELECT C.first_name, C.last_name, SUM(P.payment_amount) AS total_paid, P.payment_mode
FROM Customer C
JOIN Booking B ON C.customer_id = B.customer_id
JOIN Payment P ON B.booking_id = P.booking_id
GROUP BY C.customer_id, P.payment_mode
ORDER BY total_paid DESC;
```

Result Grid | Filter Rows: | Export:

first_name	last_name	total_paid	payment_mo...
Serena	Gomez	6000.00	Cash
Hibah	Hibah	2700.00	Online
Arjun	Kapoor	2600.00	Online
Donil	Patel	2400.00	Credit Card
Shayna	Mehta	750.00	Cash

Designing Views:

1. View for Customer Spending Summary

```
CREATE VIEW CustomerSpending AS
SELECT
    C.customer_id,
    C.first_name AS "First Name",
    C.last_name AS "Last Name",
    COUNT(B.booking_id) AS "Total Bookings",
    SUM(B.total_cost) AS "Total Spent ($)"
FROM Customer C
JOIN Booking B ON C.customer_id = B.customer_id
GROUP BY C.customer_id
ORDER BY "Total Spent ($)" DESC;
```

2. View for Tour Package Popularity (Using GROUP BY & COUNT)

```
CREATE VIEW TourPackagePopularity AS
SELECT
    TP.package_id,
    TP.package_name AS "Tour Package",
    TP.destination AS "Destination",
    COUNT(B.booking_id) AS "Total Bookings",
    SUM(B.number_of_people) AS "Total Tourists"
FROM Tour_Package TP
JOIN Booking B ON TP.package_id = B.package_id
GROUP BY TP.package_id
ORDER BY "Total Tourists" DESC;
```

3. View for Payment Summary (With Calculated Field & DISTINCT)

```
CREATE VIEW PaymentSummary AS
SELECT
    P.payment_id,
    C.first_name AS "Customer First Name",
    C.last_name AS "Customer Last Name",
    B.package_id AS "Tour Package ID",
    TP.package_name AS "Tour Package",
    P.payment_amount AS "Amount Paid ($)",
    P.payment_mode AS "Payment Method",
    P.payment_date AS "Payment Date"
FROM Payment P
JOIN Booking B ON P.booking_id = B.booking_id
JOIN Customer C ON B.customer_id = C.customer_id
JOIN Tour_Package TP ON B.package_id = TP.package_id
ORDER BY P.payment_date DESC;
```