# CIT6114 Database Fundamentals

# Assignment 2

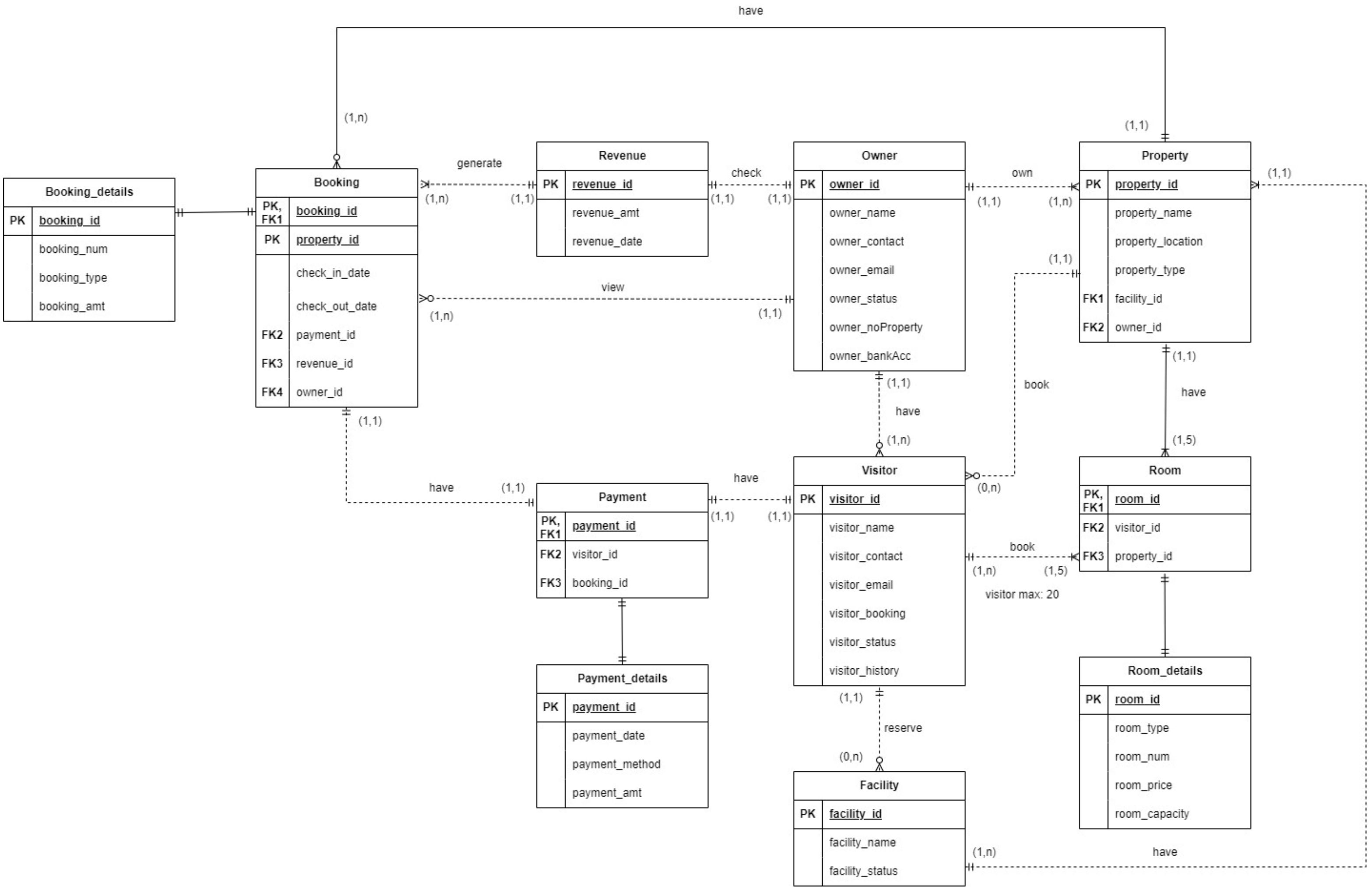
Title: Malaysia Homestay Booking Management System

Prepared by:

| | Student ID | Name | Email |
|---|---|---|---|
| Leader | 1211111053 | CHIA KAI JUN | 1211111053@student.mmu.edu.my |
| Member | 1211110222 | WEE JIA SHEEN | 1211110222@student.mmu.edu.my |
| Member | 1211111775 | LEE YI XUAN | 1211111775@student.mmu.edu.my |
| Member | 1211108075 | HIEW WEI CHENG | 1211108075@student.mmu.edu.my |

# 1.0 Corrected Entity Relationship Diagram

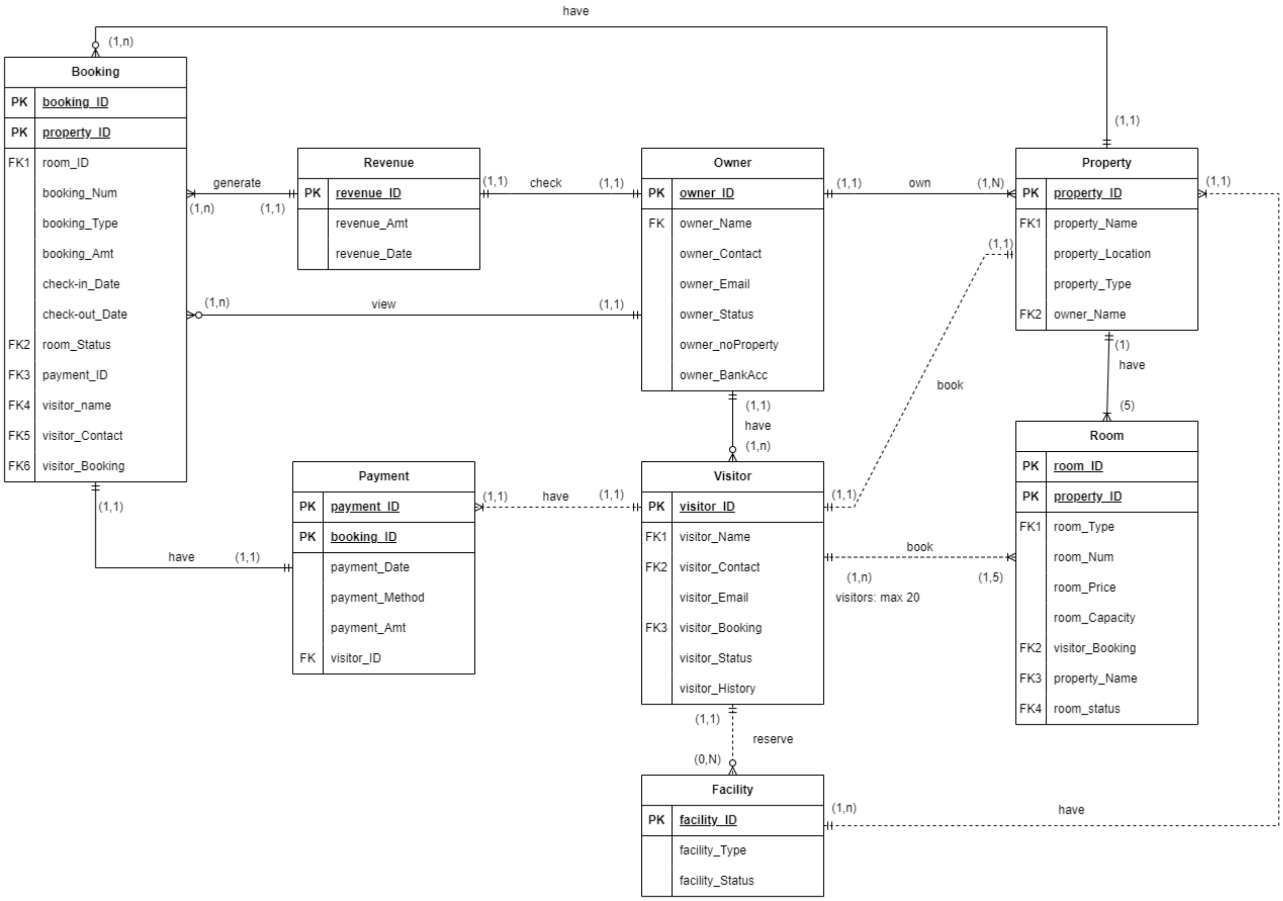
ERD Link: https://drive.google.com/file/d/1Ytl-Eb59FrALl75ACFIk9iTjfqtBIIUV/view?usp=sharing



## Correction that has been made

- Change the relationship between booking and revenue to weak.
- Change the relationship between revenue and owner to weak.
- Change the relationship between owner and property to weak.
- Change the relationship between booking and owner to weak.
- Fixed incorrect foreign key in Visitor table.
- Normalized booking, payment and room table

## Previous ERD



## 2.0 Data Dictionary

| **Table Name** | **Attribute Name** | **Contents** | **Type** | **Required** | **PK/FK** | **FK Referenced Table** |
|---|---|---|---|---|---|---|
| Booking | booking_id | Booking ID | VARCHAR (10) | Y | PK/FK | |
| | property_id | PropertyID | VARCHAR (10) | Y | PK/FK | Property |
| | check_in_date | Check-in Date | DATE | | | |
| | check_out_date | Check-out Date | DATE | | | |
| | payment_id | Payment ID | VARCHAR (10) | | | |
| | owner_id | Owner ID | VARCHAR (10) | | | |
| | revenue_id | Revenue ID | VARCHAR (10) | | | |
| Booking_ Details | booking_id | Booking ID | VARCHAR (10) | Y | PK | Booking |
| | booking_num | Booking Number | INT | Y | | |
| | booking type | Booking Type | VARCHAR (50) | Y | | |
| | booking-amt | Booking Amount | DECIMAL( 8,2) | Y | | |
| Owner | owner_id | Owner ID | VARCHAR (10) | Y | PK | |
| | owner_name | Owner Name | VARCHAR (50) | Y | | |
| | owner_contact | Owner Contact Number | BIGINT | | | |
| | owner_email | Owner Email | VARCHAR (40) | Y | | |
| | owner_status | Owner Status | VARCHAR (16) | Y | | |
| | owner_noProperty | Number of Property Owned | INT | | | |
| | owner_bankAcc | Owner Bank Account Number | INT | Y | | |
| Visitor | visitor_id | Visitor ID | VARCHAR (10) | Y | PK | |
| | visitor_name | Visitor Name | VARCHAR (50) | Y | | |
| | visitor_contact | Visitor Contact Number | BIGINT | Y | | |

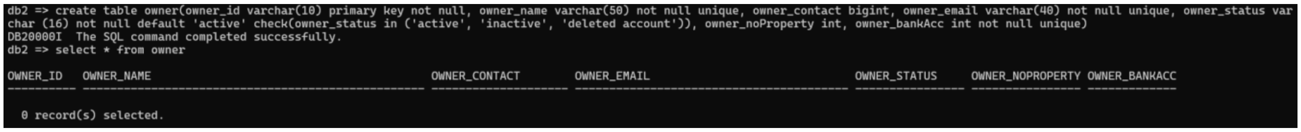
| | | | | | | |
|---|---|---|---|---|---|---|
| | visitor_email | Visitor Email | VARCHAR (40) | Y | | |
| | visitor_booking | Visitor Booking | VARCHAR (10) | Y | | |
| | visitor_status | Visitor Status | VARCHAR (16) | Y | | |
| | visitor_history | Visitor Booking History | VARCHAR (25) | | | |
| Property | property_id | Property ID | VARCHAR (10) | Y | PK | |
| | property_name | Property Name | VARCHAR (50) | Y | | |
| | property_location | Property Location | VARCHAR (95) | Y | | |
| | property_type | Property Type | VARCHAR (30) | | | |
| | facility_id | Facility ID | VARCHAR (10) | Y | FK | Facility |
| | owner_id | Owner ID | VARCHAR (10) | Y | FK | Owner |
| Revenue | revenue_id | Revenue ID | VARCHAR (10) | Y | PK | |
| | revenue_amt | Revenue Amount | DECIMAL(8,2) | | | |
| | revenue_date | Revenue Date | DATE | | | |
| Facility | facility_id | Facility ID | VARCHAR (10) | Y | PK | |
| | facility_name | Facility Name | VARCHAR (40) | Y | | |
| | facility_status | Facility Status | VARCHAR (20) | Y | | |
| Room | room_id | Room ID | VARCHAR (10) | Y | PK | |
| | property_id | Property ID | VARCHAR (10) | Y | PK/FK | Property |
| | visitor_id | Visitor ID | VARCHAR (10) | Y | FK | Visitor |
| Room_Details | room_id | Room ID | VARCHAR (10) | Y | PK/FK | Room |
| | room_type | Room Type | VARCHAR (30) | | | |
| | room_num | Room Number | INT | | | |
| | room_price | Room Price | DECIMAL(8,2) | Y | | |
| | room_capacity | Room Capacity | INT | Y | | |
| Payment | payment_id | Payment ID | VARCHAR (10) | Y | PK/FK | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | visitor_id | Visitor ID | VARCHAR (10) | Y | FK | Visitor |
| | booking_id | Booking ID | VARCHAR (10) | Y | FK | Booking |
| Payment_Details | payment_id | Payment ID | VARCHAR (10) | Y | PK | |
| | payment_date | Payment Date | DATE | Y | | |
| | payment_method | Payment Method | VARCHAR (30) | Y | | |
| | peyment_amt | Payment Amount | DECIMAL(8,2) | Y | | |

# 3.0 Creation of Tables

### Owner table

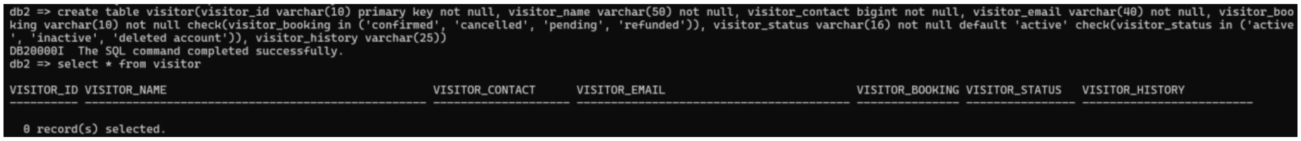
create table owner(owner_id varchar(10) primary key not null, owner_name varchar(50) not null unique, owner_contact bigint, owner_email varchar(40) not null unique, owner_status varchar (16) not null default 'active' check(owner_status in ('active', 'inactive', 'deleted account')), owner_noProperty int, owner_bankAcc int not null unique)



```
db2 => create table owner(owner_id varchar(10) primary key not null, owner_name varchar(50) not null unique, owner_contact bigint, owner_email varchar(40) not null unique, owner_status var
char (16) not null default 'active' check(owner_status in ('active', 'inactive', 'deleted account')), owner_noProperty int, owner_bankAcc int not null unique)
DB20000I  The SQL command completed successfully.
db2 => select * from owner

OWNER_ID   OWNER_NAME                                         OWNER_CONTACT        OWNER_EMAIL                              OWNER_STATUS     OWNER_NOPROPERTY OWNER_BANKACC
---------- -------------------------------------------------- -------------------- ---------------------------------------- ---------------- ---------------- -------------

  0 record(s) selected.
```

### Visitor table

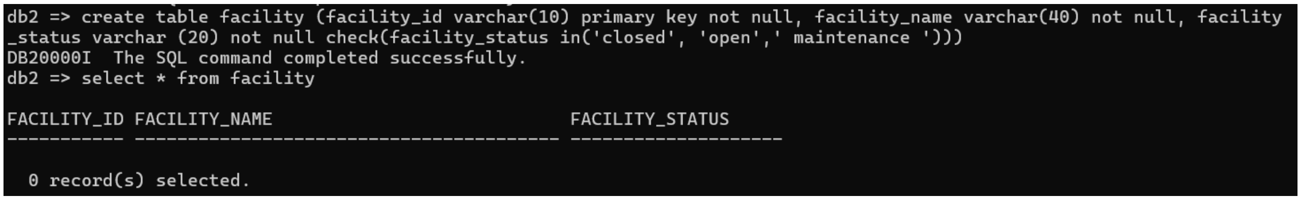
create table visitor(visitor_id varchar(10) primary key not null, visitor_name varchar(50) not null, visitor_contact bigint not null, visitor_email varchar(40) not null, visitor_booking varchar(10) not null check(visitor_booking in ('confirmed', 'cancelled', 'pending', 'refunded')), visitor_status varchar(16) not null default 'active' check(visitor_status in ('active', 'inactive', 'deleted account')), visitor_history varchar(25))



```
db2 => create table visitor(visitor_id varchar(10) primary key not null, visitor_name varchar(50) not null, visitor_contact bigint not null, visitor_email varchar(40) not null, visitor_boo
king varchar(10) not null check(visitor_booking in ('confirmed', 'cancelled', 'pending', 'refunded')), visitor_status varchar(16) not null default 'active' check(visitor_status in ('active
', 'inactive', 'deleted account')), visitor_history varchar(25))
DB20000I  The SQL command completed successfully.
db2 => select * from visitor

VISITOR_ID VISITOR_NAME                                       VISITOR_CONTACT      VISITOR_EMAIL                            VISITOR_BOOKING VISITOR_STATUS   VISITOR_HISTORY
---------- -------------------------------------------------- -------------------- ---------------------------------------- --------------- ---------------- -------------------------

  0 record(s) selected.
```

### Facility table

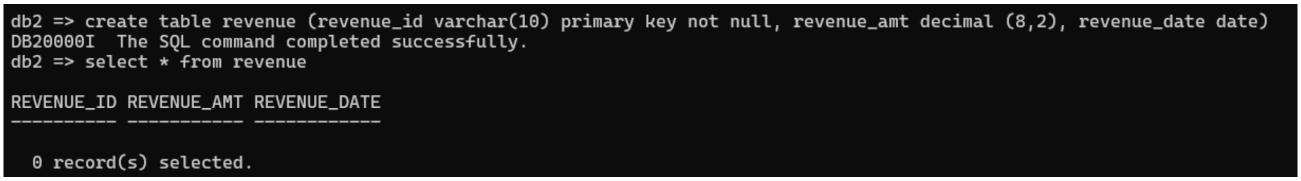
create table facility (facility_id varchar(10) primary key not null, facility_name varchar(40) not null, facility_status varchar (20) not null check(facility_status in ('closed', 'open', 'maintenance')))



```
db2 => create table facility (facility_id varchar(10) primary key not null, facility_name varchar(40) not null, facility
_status varchar (20) not null check(facility_status in('closed', 'open',' maintenance ')))
DB20000I  The SQL command completed successfully.
db2 => select * from facility

FACILITY_ID FACILITY_NAME                            FACILITY_STATUS
----------- ---------------------------------------- --------------------

  0 record(s) selected.
```

### Revenue table

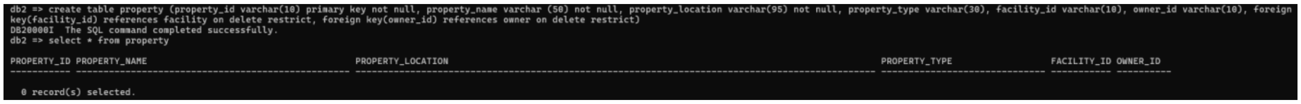
create table revenue (revenue_id varchar(10) primary key not null, revenue_amt decimal (8,2), revenue_date date)



```
db2 => create table revenue (revenue_id varchar(10) primary key not null, revenue_amt decimal (8,2), revenue_date date)
DB20000I  The SQL command completed successfully.
db2 => select * from revenue

REVENUE_ID REVENUE_AMT REVENUE_DATE
---------- ----------- ------------

  0 record(s) selected.
```

**Property table**

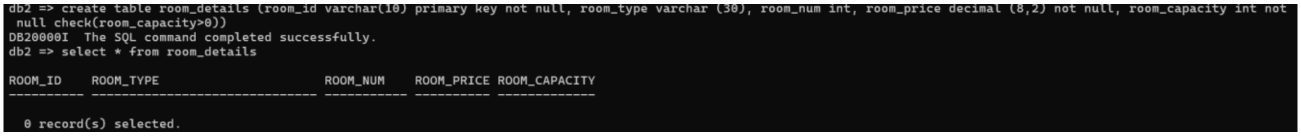
create table property (property_id varchar(10) primary key not null, property_name varchar (50) not null, property_location varchar(95) not null, property_type varchar(30), facility_id varchar(10), owner_id varchar(10), foreign key(facility_id) references facility on delete restrict, foreign key(owner_id) references owner on delete restrict)



```
db2 => create table property (property_id varchar(10) primary key not null, property_name varchar (50) not null, property_location varchar(95) not null, property_type varchar(30), facility_id varchar(10), owner_id varchar(10), foreign
key(facility_id) references facility on delete restrict, foreign key(owner_id) references owner on delete restrict)
DB20000I  The SQL command completed successfully.
db2 => select * from property

PROPERTY_ID PROPERTY_NAME                                      PROPERTY_LOCATION                                                                               PROPERTY_TYPE                  FACILITY_ID OWNER_ID
----------- -------------------------------------------------- ----------------------------------------------------------------------------------------------- ------------------------------ ----------- ----------

  0 record(s) selected.
```

**Room_details table**

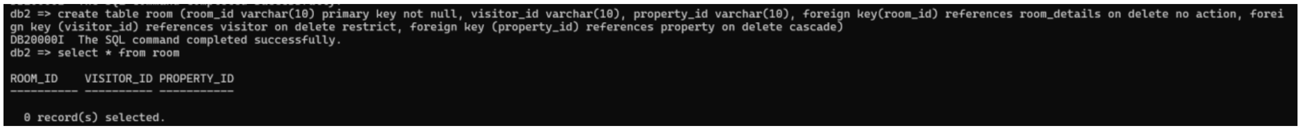
create table room_details (room_id varchar(10) primary key not null, room_type varchar (30), room_num int, room_price decimal (8,2) not null, room_capacity int not null check(room_capacity>0))



```
db2 => create table room_details (room_id varchar(10) primary key not null, room_type varchar (30), room_num int, room_price decimal (8,2) not null, room_capacity int not
 null check(room_capacity>0))
DB20000I  The SQL command completed successfully.
db2 => select * from room_details

ROOM_ID    ROOM_TYPE                      ROOM_NUM    ROOM_PRICE ROOM_CAPACITY
---------- ------------------------------ ----------- ---------- -------------

  0 record(s) selected.
```

**Room table**

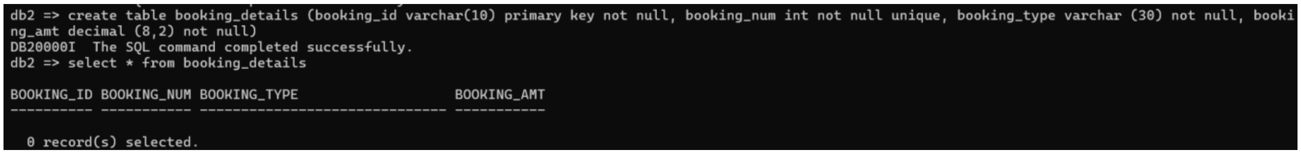
create table room (room_id varchar(10) not null, visitor_id varchar(10) not null, property_id varchar(10) not null, primary key(room_id), foreign key(room_id) references room_details on delete restrict, foreign key (visitor_id) references visitor on delete restrict, foreign key (property_id) references property on delete cascade)



```
db2 => create table room (room_id varchar(10) primary key not null, visitor_id varchar(10), property_id varchar(10), foreign key(room_id) references room_details on delete no action, forei
gn key (visitor_id) references visitor on delete restrict, foreign key (property_id) references property on delete cascade)
DB20000I  The SQL command completed successfully.
db2 => select * from room

ROOM_ID    VISITOR_ID PROPERTY_ID
---------- ---------- -----------

  0 record(s) selected.
```

**Booking_details table**

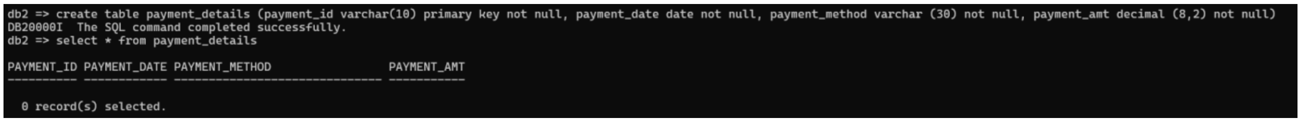
create table booking_details (booking_id varchar(10) primary key not null, booking_num int not null unique, booking_type varchar (30) not null, booking_amt decimal (8,2) not null)



```
db2 => create table booking_details (booking_id varchar(10) primary key not null, booking_num int not null unique, booking_type varchar (30) not null, booki
ng_amt decimal (8,2) not null)
DB20000I  The SQL command completed successfully.
db2 => select * from booking_details

BOOKING_ID BOOKING_NUM BOOKING_TYPE                   BOOKING_AMT
---------- ----------- ------------------------------ -----------

  0 record(s) selected.
```

**Payment_details table**

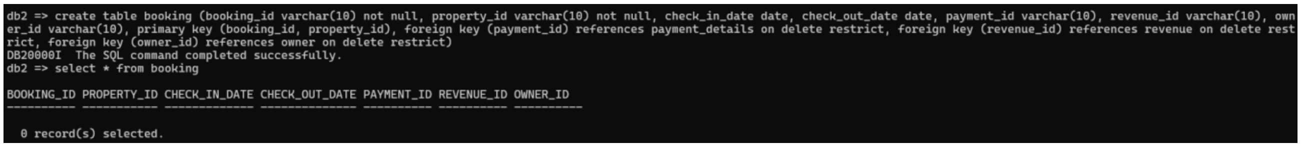
create table payment_details (payment_id varchar(10) primary key not null, payment_date date not null, payment_method varchar (30) not null, payment_amt decimal (8,2) not null)



```
db2 => create table payment_details (payment_id varchar(10) primary key not null, payment_date date not null, payment_method varchar (30) not null, payment_amt decimal (8,2) not null)
DB20000I  The SQL command completed successfully.
db2 => select * from payment_details

PAYMENT_ID PAYMENT_DATE PAYMENT_METHOD                 PAYMENT_AMT
---------- ------------ ------------------------------ -----------

  0 record(s) selected.
```

**Booking table**

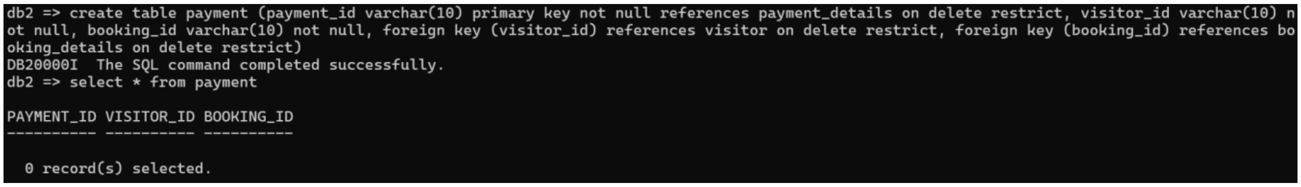
create table booking (booking_id varchar(10) not null, property_id varchar(10) not null, check_in_date date, check_out_date date, payment_id varchar(10), revenue_id varchar(10), owner_id varchar(10), primary key (booking_id, property_id), foreign key (payment_id) references payment_details on delete restrict, foreign key (revenue_id) references revenue on delete restrict, foreign key (owner_id) references owner on delete restrict)



```
db2 => create table booking (booking_id varchar(10) not null, property_id varchar(10) not null, check_in_date date, check_out_date date, payment_id varchar(10), revenue_id varchar(10), own
er_id varchar(10), primary key (booking_id, property_id), foreign key (payment_id) references payment_details on delete restrict, foreign key (revenue_id) references revenue on delete rest
rict, foreign key (owner_id) references owner on delete restrict)
DB20000I  The SQL command completed successfully.
db2 => select * from booking

BOOKING_ID PROPERTY_ID CHECK_IN_DATE CHECK_OUT_DATE PAYMENT_ID REVENUE_ID OWNER_ID
---------- ----------- ------------- -------------- ---------- ---------- ----------

  0 record(s) selected.
```

**Payment table**

create table payment (payment_id varchar(10) primary key not null references payment_details on delete restrict, visitor_id varchar(10) not null, booking_id varchar(10) not null, foreign key (visitor_id) references visitor on delete restrict, foreign key (booking_id) references booking_details on delete restrict)

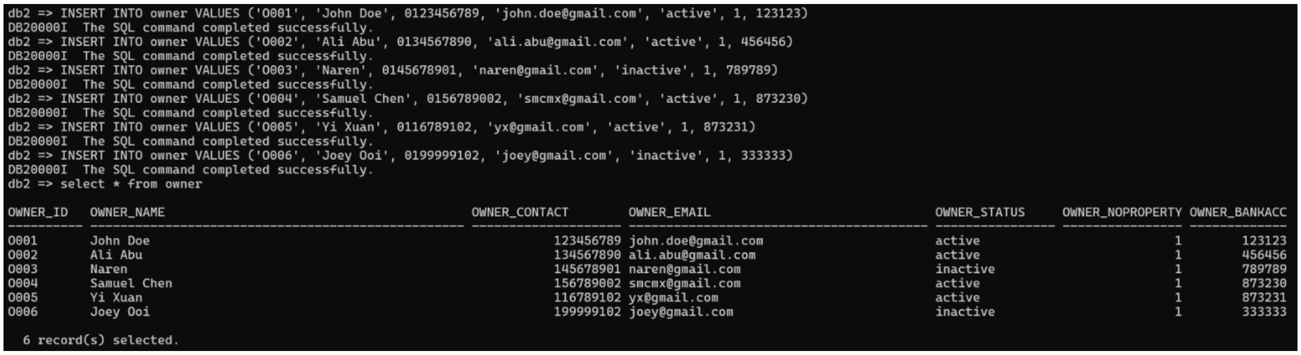


```
db2 => create table payment (payment_id varchar(10) primary key not null references payment_details on delete restrict, visitor_id varchar(10) n
ot null, booking_id varchar(10) not null, foreign key (visitor_id) references visitor on delete restrict, foreign key (booking_id) references bo
oking_details on delete restrict)
DB20000I  The SQL command completed successfully.
db2 => select * from payment

PAYMENT_ID VISITOR_ID BOOKING_ID
---------- ---------- ----------

  0 record(s) selected.
```

# 4.0 Data Insertion

### Owner table

INSERT INTO owner VALUES ('O001', 'John Doe', 0123456789, 'john.doe@gmail.com', 'active', 1, 123123)
INSERT INTO owner VALUES ('O002', 'Ali Abu', 0134567890, 'ali.abu@gmail.com', 'active', 1, 456456)
INSERT INTO owner VALUES ('O003', 'Naren', 0145678901, 'naren@gmail.com', 'inactive', 1, 789789)
INSERT INTO owner VALUES ('O004', 'Samuel Chen', 0156789002, 'smcmx@gmail.com', 'active', 1, 873230)
INSERT INTO owner VALUES ('O005', 'Yi Xuan', 0116789102, 'yx@gmail.com', 'active', 1, 873231)
INSERT INTO owner VALUES ('O006', 'Joey Ooi', 0199999102, 'joey@gmail.com', 'inactive', 1, 333333)



```
db2 => INSERT INTO owner VALUES ('O001', 'John Doe', 0123456789, 'john.doe@gmail.com', 'active', 1, 123123)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO owner VALUES ('O002', 'Ali Abu', 0134567890, 'ali.abu@gmail.com', 'active', 1, 456456)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO owner VALUES ('O003', 'Naren', 0145678901, 'naren@gmail.com', 'inactive', 1, 789789)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO owner VALUES ('O004', 'Samuel Chen', 0156789002, 'smcmx@gmail.com', 'active', 1, 873230)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO owner VALUES ('O005', 'Yi Xuan', 0116789102, 'yx@gmail.com', 'active', 1, 873231)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO owner VALUES ('O006', 'Joey Ooi', 0199999102, 'joey@gmail.com', 'inactive', 1, 333333)
DB20000I  The SQL command completed successfully.
db2 => select * from owner

OWNER_ID   OWNER_NAME                                         OWNER_CONTACT        OWNER_EMAIL                              OWNER_STATUS     OWNER_NOPROPERTY OWNER_BANKACC
---------- -------------------------------------------------- -------------------- ---------------------------------------- ---------------- ---------------- -------------
O001       John Doe                                                      123456789 john.doe@gmail.com                       active                          1        123123
O002       Ali Abu                                                       134567890 ali.abu@gmail.com                        active                          1        456456
O003       Naren                                                         145678901 naren@gmail.com                          inactive                        1        789789
O004       Samuel Chen                                                   156789002 smcmx@gmail.com                          active                          1        873230
O005       Yi Xuan                                                       116789102 yx@gmail.com                             active                          1        873231
O006       Joey Ooi                                                      199999102 joey@gmail.com                           inactive                        1        333333

  6 record(s) selected.
```

### Visitor table

INSERT INTO visitor VALUES ('V001', 'Danish', 0135791111, 'danish@gmail.com', 'confirmed', 'active', 'none')

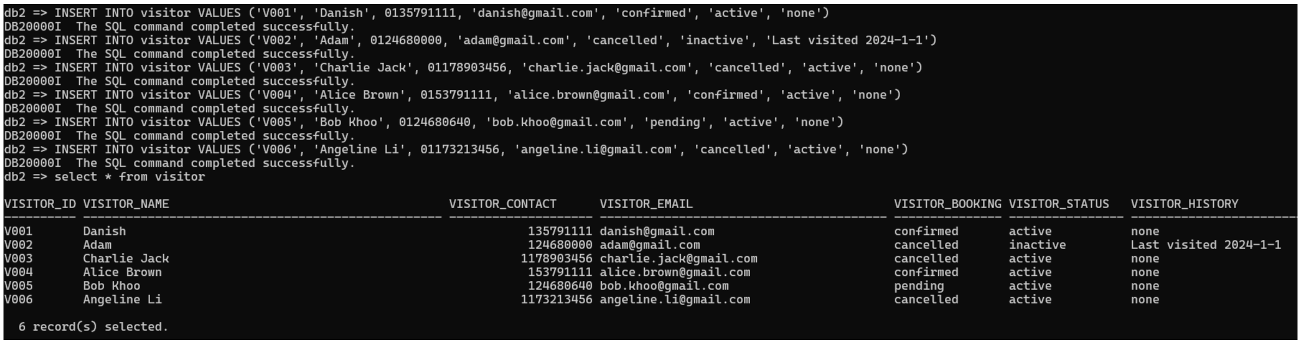
INSERT INTO visitor VALUES ('V002', 'Adam', 0124680000, 'adam@gmail.com', 'cancelled', 'inactive', 'Last visited 2024-1-1')

INSERT INTO visitor VALUES ('V003', 'Charlie Jack', 01178903456, 'charlie.jack@gmail.com', 'cancelled', 'active', 'none')

INSERT INTO visitor VALUES ('V004', 'Alice Brown', 0153791111, 'alice.brown@gmail.com', 'confirmed', 'active', 'none')

INSERT INTO visitor VALUES ('V005', 'Bob Khoo', 0124680640, 'bob.khoo@gmail.com', 'pending', 'active', 'none')

INSERT INTO visitor VALUES ('V006', 'Angeline Li', 01173213456, 'angeline.li@gmail.com', 'cancelled', 'active', 'none')



```
db2 => INSERT INTO visitor VALUES ('V001', 'Danish', 0135791111, 'danish@gmail.com', 'confirmed', 'active', 'none')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO visitor VALUES ('V002', 'Adam', 0124680000, 'adam@gmail.com', 'cancelled', 'inactive', 'Last visited 2024-1-1')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO visitor VALUES ('V003', 'Charlie Jack', 01178903456, 'charlie.jack@gmail.com', 'cancelled', 'active', 'none')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO visitor VALUES ('V004', 'Alice Brown', 0153791111, 'alice.brown@gmail.com', 'confirmed', 'active', 'none')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO visitor VALUES ('V005', 'Bob Khoo', 0124680640, 'bob.khoo@gmail.com', 'pending', 'active', 'none')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO visitor VALUES ('V006', 'Angeline Li', 01173213456, 'angeline.li@gmail.com', 'cancelled', 'active', 'none')
DB20000I  The SQL command completed successfully.
db2 => select * from visitor

VISITOR_ID VISITOR_NAME                                       VISITOR_CONTACT      VISITOR_EMAIL                            VISITOR_BOOKING VISITOR_STATUS  VISITOR_HISTORY
---------- -------------------------------------------------- -------------------- ---------------------------------------- --------------- --------------- -------------------------
V001       Danish                                                        135791111 danish@gmail.com                         confirmed       active          none
V002       Adam                                                          124680000 adam@gmail.com                           cancelled       inactive        Last visited 2024-1-1
V003       Charlie Jack                                                 1178903456 charlie.jack@gmail.com                   cancelled       active          none
V004       Alice Brown                                                   153791111 alice.brown@gmail.com                    confirmed       active          none
V005       Bob Khoo                                                      124680640 bob.khoo@gmail.com                       pending         active          none
V006       Angeline Li                                                  1173213456 angeline.li@gmail.com                    cancelled       active          none

  6 record(s) selected.
```

### Facility table

INSERT INTO facility VALUES ('F001', 'Swimming Pool', 'open')

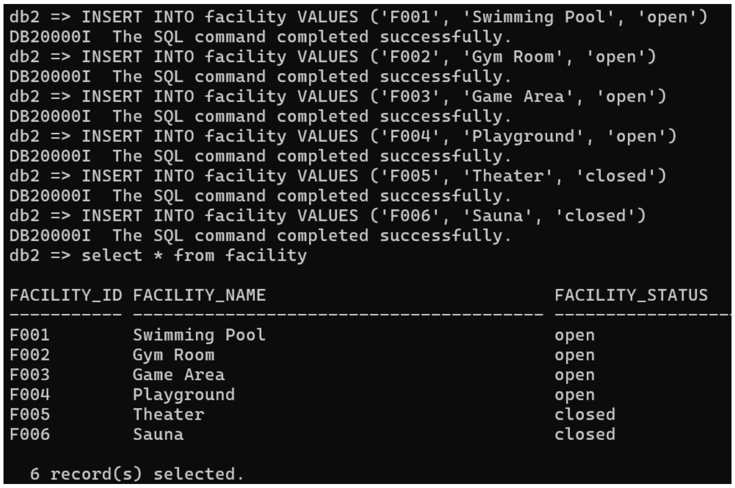
INSERT INTO facility VALUES ('F002', 'Gym Room', 'open')

INSERT INTO facility VALUES ('F003', 'Game Area', 'open')

INSERT INTO facility VALUES ('F004', 'Playground', 'open')

INSERT INTO facility VALUES ('F005', 'Theater', 'closed')

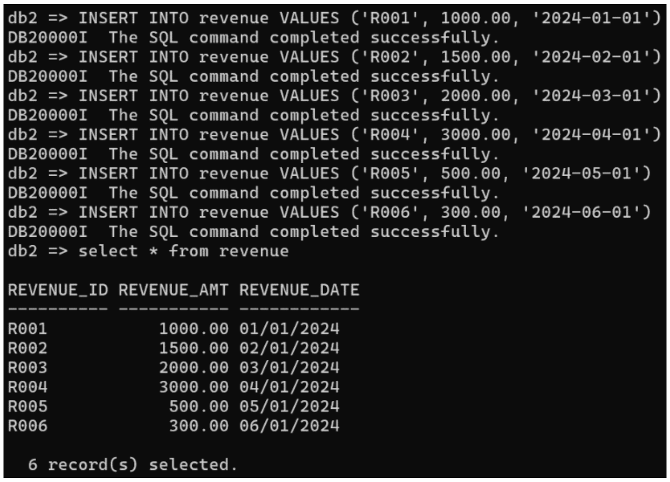
INSERT INTO facility VALUES ('F006', 'Sauna', 'closed')



```
db2 => INSERT INTO facility VALUES ('F001', 'Swimming Pool', 'open')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO facility VALUES ('F002', 'Gym Room', 'open')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO facility VALUES ('F003', 'Game Area', 'open')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO facility VALUES ('F004', 'Playground', 'open')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO facility VALUES ('F005', 'Theater', 'closed')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO facility VALUES ('F006', 'Sauna', 'closed')
DB20000I  The SQL command completed successfully.
db2 => select * from facility

FACILITY_ID FACILITY_NAME                            FACILITY_STATUS
----------- ---------------------------------------- ------------------
F001        Swimming Pool                            open
F002        Gym Room                                 open
F003        Game Area                                open
F004        Playground                               open
F005        Theater                                  closed
F006        Sauna                                    closed

  6 record(s) selected.
```

**Revenue table**

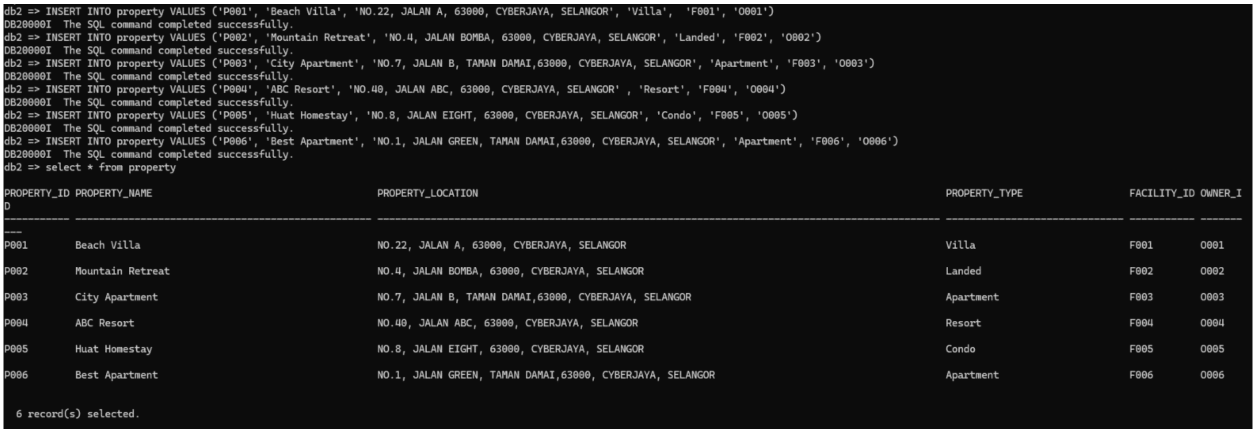
INSERT INTO revenue VALUES ('R001', 1000.00, '2024-01-01')
INSERT INTO revenue VALUES ('R002', 1500.00, '2024-02-01')
INSERT INTO revenue VALUES ('R003', 2000.00, '2024-03-01')
INSERT INTO revenue VALUES ('R004', 3000.00, '2024-04-01')
INSERT INTO revenue VALUES ('R005', 500.00, '2024-05-01')
INSERT INTO revenue VALUES ('R006', 300.00, '2024-06-01')



```
db2 => INSERT INTO revenue VALUES ('R001', 1000.00, '2024-01-01')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO revenue VALUES ('R002', 1500.00, '2024-02-01')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO revenue VALUES ('R003', 2000.00, '2024-03-01')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO revenue VALUES ('R004', 3000.00, '2024-04-01')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO revenue VALUES ('R005', 500.00, '2024-05-01')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO revenue VALUES ('R006', 300.00, '2024-06-01')
DB20000I  The SQL command completed successfully.
db2 => select * from revenue

REVENUE_ID REVENUE_AMT REVENUE_DATE
---------- ----------- ------------
R001           1000.00 01/01/2024
R002           1500.00 02/01/2024
R003           2000.00 03/01/2024
R004           3000.00 04/01/2024
R005            500.00 05/01/2024
R006            300.00 06/01/2024

  6 record(s) selected.
```

**Property table**

INSERT INTO property VALUES ('P001', 'Beach Villa', 'NO.22, JALAN A, 63000, CYBERJAYA, SELANGOR', 'Villa', 'F001', 'O001')
INSERT INTO property VALUES ('P002', 'Mountain Retreat', 'NO.4, JALAN BOMBA, 63000, CYBERJAYA, SELANGOR', 'Landed', 'F002', 'O002')
INSERT INTO property VALUES ('P003', 'City Apartment', 'NO.7, JALAN B, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR', 'Apartment', 'F003', 'O003')
INSERT INTO property VALUES ('P004', 'ABC Resort', 'NO.40, JALAN ABC, 63000, CYBERJAYA, SELANGOR' , 'Resort', 'F004', 'O004')
INSERT INTO property VALUES ('P005', 'Huat Homestay', 'NO.8, JALAN EIGHT, 63000, CYBERJAYA, SELANGOR', 'Condo', 'F005', 'O005')
INSERT INTO property VALUES ('P006', 'Best Apartment', 'NO.1, JALAN GREEN, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR', 'Apartment', 'F006', 'O006')



```
db2 => INSERT INTO property VALUES ('P001', 'Beach Villa', 'NO.22, JALAN A, 63000, CYBERJAYA, SELANGOR', 'Villa',  'F001', 'O001')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO property VALUES ('P002', 'Mountain Retreat', 'NO.4, JALAN BOMBA, 63000, CYBERJAYA, SELANGOR', 'Landed', 'F002', 'O002')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO property VALUES ('P003', 'City Apartment', 'NO.7, JALAN B, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR', 'Apartment', 'F003', 'O003')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO property VALUES ('P004', 'ABC Resort', 'NO.40, JALAN ABC, 63000, CYBERJAYA, SELANGOR' , 'Resort', 'F004', 'O004')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO property VALUES ('P005', 'Huat Homestay', 'NO.8, JALAN EIGHT, 63000, CYBERJAYA, SELANGOR', 'Condo', 'F005', 'O005')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO property VALUES ('P006', 'Best Apartment', 'NO.1, JALAN GREEN, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR', 'Apartment', 'F006', 'O006')
DB20000I  The SQL command completed successfully.
db2 => select * from property

PROPERTY_ID PROPERTY_NAME                                      PROPERTY_LOCATION                                                                               PROPERTY_TYPE                  FACILITY_ID OWNER_I
D
----------- -------------------------------------------------- ----------------------------------------------------------------------------------------------- ------------------------------ ----------- -------
---
P001        Beach Villa                                        NO.22, JALAN A, 63000, CYBERJAYA, SELANGOR                                                      Villa                          F001        O001

P002        Mountain Retreat                                   NO.4, JALAN BOMBA, 63000, CYBERJAYA, SELANGOR                                                   Landed                         F002        O002

P003        City Apartment                                     NO.7, JALAN B, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR                                           Apartment                      F003        O003

P004        ABC Resort                                         NO.40, JALAN ABC, 63000, CYBERJAYA, SELANGOR                                                    Resort                         F004        O004

P005        Huat Homestay                                      NO.8, JALAN EIGHT, 63000, CYBERJAYA, SELANGOR                                                   Condo                          F005        O005

P006        Best Apartment                                     NO.1, JALAN GREEN, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR                                       Apartment                      F006        O006

  6 record(s) selected.
```

**Room_details table**

INSERT INTO room_details VALUES ('RD001', 'Single', 601, 100.00, 1)

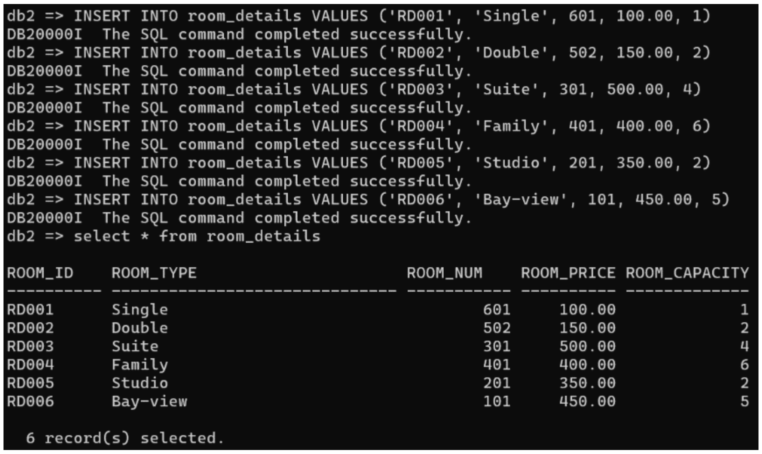
INSERT INTO room_details VALUES ('RD002', 'Double', 502, 150.00, 2)

INSERT INTO room_details VALUES ('RD003', 'Suite', 301, 500.00, 4)

INSERT INTO room_details VALUES ('RD004', 'Family', 401, 400.00, 6)

INSERT INTO room_details VALUES ('RD005', 'Studio', 201, 350.00, 2)

INSERT INTO room_details VALUES ('RD006', 'Bay-view', 101, 450.00, 5)



```
db2 => INSERT INTO room_details VALUES ('RD001', 'Single', 601, 100.00, 1)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room_details VALUES ('RD002', 'Double', 502, 150.00, 2)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room_details VALUES ('RD003', 'Suite', 301, 500.00, 4)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room_details VALUES ('RD004', 'Family', 401, 400.00, 6)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room_details VALUES ('RD005', 'Studio', 201, 350.00, 2)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room_details VALUES ('RD006', 'Bay-view', 101, 450.00, 5)
DB20000I  The SQL command completed successfully.
db2 => select * from room_details

ROOM_ID    ROOM_TYPE                      ROOM_NUM    ROOM_PRICE ROOM_CAPACITY
---------- ------------------------------ ----------- ---------- -------------
RD001      Single                                 601     100.00             1
RD002      Double                                 502     150.00             2
RD003      Suite                                  301     500.00             4
RD004      Family                                 401     400.00             6
RD005      Studio                                 201     350.00             2
RD006      Bay-view                               101     450.00             5

  6 record(s) selected.
```

**Room table**

INSERT INTO room VALUES ('RD001', 'V001', 'P001')

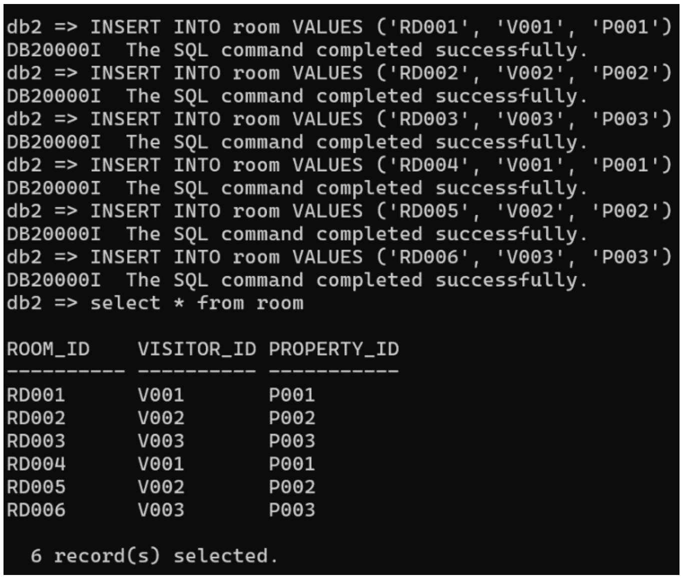
INSERT INTO room VALUES ('RD002', 'V002', 'P002')

INSERT INTO room VALUES ('RD003', 'V003', 'P003')

INSERT INTO room VALUES ('RD004', 'V004', 'P004')

INSERT INTO room VALUES ('RD005', 'V005', 'P005')

INSERT INTO room VALUES ('RD006', 'V006', 'P006')



```
db2 => INSERT INTO room VALUES ('RD001', 'V001', 'P001')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room VALUES ('RD002', 'V002', 'P002')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room VALUES ('RD003', 'V003', 'P003')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room VALUES ('RD004', 'V001', 'P001')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room VALUES ('RD005', 'V002', 'P002')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO room VALUES ('RD006', 'V003', 'P003')
DB20000I  The SQL command completed successfully.
db2 => select * from room

ROOM_ID    VISITOR_ID PROPERTY_ID
---------- ---------- -----------
RD001      V001       P001
RD002      V002       P002
RD003      V003       P003
RD004      V001       P001
RD005      V002       P002
RD006      V003       P003

  6 record(s) selected.
```

**Booking_details table**

INSERT INTO booking_details VALUES ('B001', 1, 'single', 100.00)

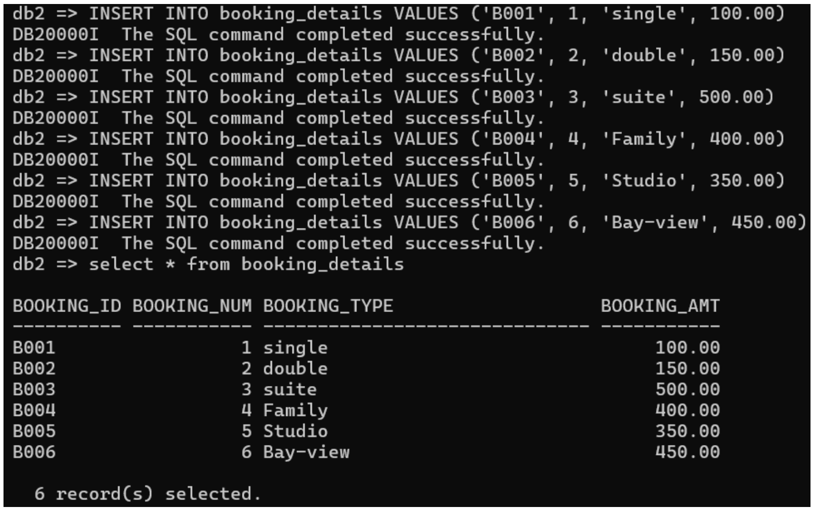
INSERT INTO booking_details VALUES ('B002', 2, 'double', 150.00)

INSERT INTO booking_details VALUES ('B003', 3, 'suite', 500.00)

INSERT INTO booking_details VALUES ('B004', 4, 'Family', 400.00)

INSERT INTO booking_details VALUES ('B005', 5, 'Studio', 350.00)

INSERT INTO booking_details VALUES ('B006', 6, 'Bay-view', 450.00)



```
db2 => INSERT INTO booking_details VALUES ('B001', 1, 'single', 100.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking_details VALUES ('B002', 2, 'double', 150.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking_details VALUES ('B003', 3, 'suite', 500.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking_details VALUES ('B004', 4, 'Family', 400.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking_details VALUES ('B005', 5, 'Studio', 350.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking_details VALUES ('B006', 6, 'Bay-view', 450.00)
DB20000I  The SQL command completed successfully.
db2 => select * from booking_details

BOOKING_ID BOOKING_NUM BOOKING_TYPE                   BOOKING_AMT
---------- ----------- ------------------------------ -----------
B001                 1 single                              100.00
B002                 2 double                              150.00
B003                 3 suite                               500.00
B004                 4 Family                              400.00
B005                 5 Studio                              350.00
B006                 6 Bay-view                            450.00

  6 record(s) selected.
```

**Payment_details table**

INSERT INTO payment_details VALUES ('PAY001', '2024-01-02', 'credit_card', 100.00)

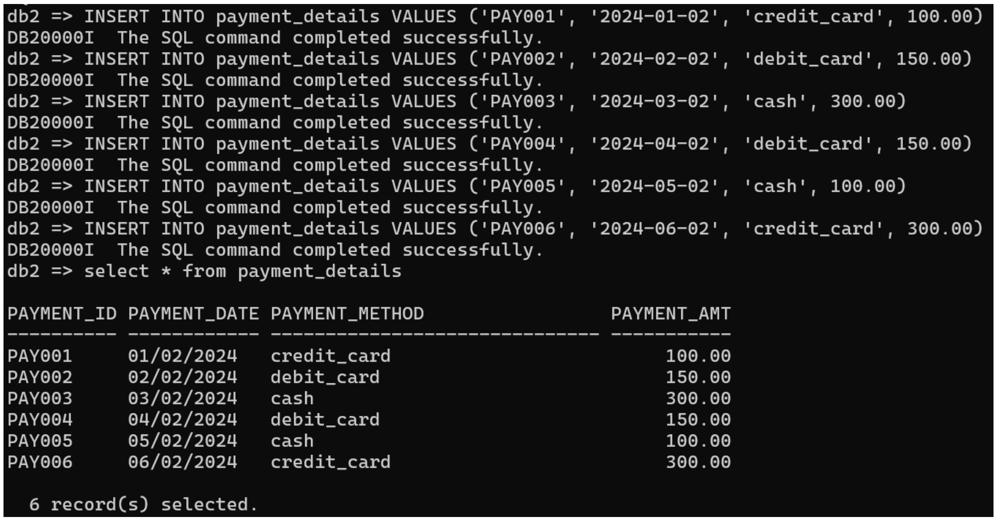
INSERT INTO payment_details VALUES ('PAY002', '2024-02-02', 'debit_card', 150.00)

INSERT INTO payment_details VALUES ('PAY003', '2024-03-02', 'cash', 300.00)

INSERT INTO payment_details VALUES ('PAY004', '2024-04-02', 'debit_card', 150.00)

INSERT INTO payment_details VALUES ('PAY005', '2024-05-02', 'cash', 100.00)

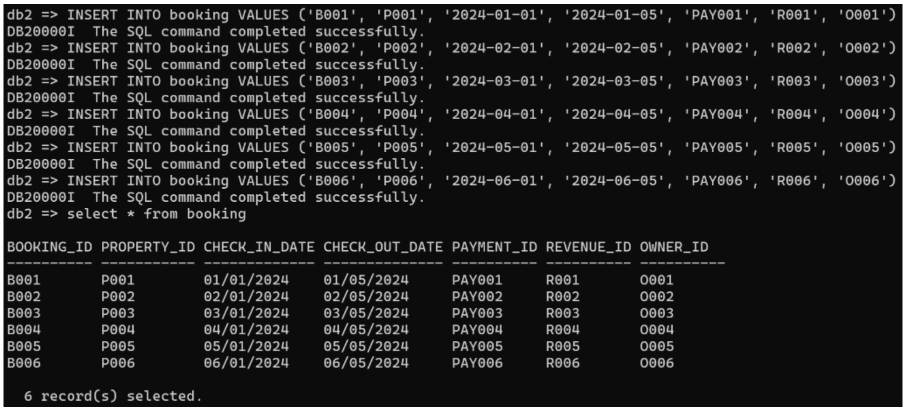
INSERT INTO payment_details VALUES ('PAY006', '2024-06-02', 'credit_card', 300.00)



```
db2 => INSERT INTO payment_details VALUES ('PAY001', '2024-01-02', 'credit_card', 100.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment_details VALUES ('PAY002', '2024-02-02', 'debit_card', 150.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment_details VALUES ('PAY003', '2024-03-02', 'cash', 300.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment_details VALUES ('PAY004', '2024-04-02', 'debit_card', 150.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment_details VALUES ('PAY005', '2024-05-02', 'cash', 100.00)
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment_details VALUES ('PAY006', '2024-06-02', 'credit_card', 300.00)
DB20000I  The SQL command completed successfully.
db2 => select * from payment_details

PAYMENT_ID PAYMENT_DATE PAYMENT_METHOD                 PAYMENT_AMT
---------- ------------ ------------------------------ -----------
PAY001     01/02/2024   credit_card                         100.00
PAY002     02/02/2024   debit_card                          150.00
PAY003     03/02/2024   cash                                300.00
PAY004     04/02/2024   debit_card                          150.00
PAY005     05/02/2024   cash                                100.00
PAY006     06/02/2024   credit_card                         300.00

  6 record(s) selected.
```

### Booking table

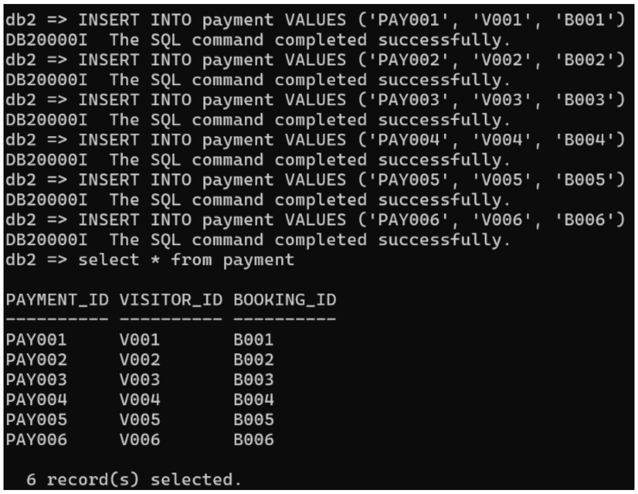
INSERT INTO booking VALUES ('B001', 'P001', '2024-01-01', '2024-01-05', 'PAY001', 'R001', 'O001')
INSERT INTO booking VALUES ('B002', 'P002', '2024-02-01', '2024-02-05', 'PAY002', 'R002', 'O002')
INSERT INTO booking VALUES ('B003', 'P003', '2024-03-01', '2024-03-05', 'PAY003', 'R003', 'O003')
INSERT INTO booking VALUES ('B004', 'P004', '2024-04-01', '2024-04-05', 'PAY004', 'R004', 'O004')
INSERT INTO booking VALUES ('B005', 'P005', '2024-05-01', '2024-05-05', 'PAY005', 'R005', 'O005')
INSERT INTO booking VALUES ('B006', 'P006', '2024-06-01', '2024-06-05', 'PAY006', 'R006', 'O006')



```
db2 => INSERT INTO booking VALUES ('B001', 'P001', '2024-01-01', '2024-01-05', 'PAY001', 'R001', 'O001')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking VALUES ('B002', 'P002', '2024-02-01', '2024-02-05', 'PAY002', 'R002', 'O002')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking VALUES ('B003', 'P003', '2024-03-01', '2024-03-05', 'PAY003', 'R003', 'O003')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking VALUES ('B004', 'P004', '2024-04-01', '2024-04-05', 'PAY004', 'R004', 'O004')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking VALUES ('B005', 'P005', '2024-05-01', '2024-05-05', 'PAY005', 'R005', 'O005')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO booking VALUES ('B006', 'P006', '2024-06-01', '2024-06-05', 'PAY006', 'R006', 'O006')
DB20000I  The SQL command completed successfully.
db2 => select * from booking

BOOKING_ID PROPERTY_ID CHECK_IN_DATE CHECK_OUT_DATE PAYMENT_ID REVENUE_ID OWNER_ID
---------- ----------- ------------- -------------- ---------- ---------- ----------
B001       P001        01/01/2024    01/05/2024     PAY001     R001       O001
B002       P002        02/01/2024    02/05/2024     PAY002     R002       O002
B003       P003        03/01/2024    03/05/2024     PAY003     R003       O003
B004       P004        04/01/2024    04/05/2024     PAY004     R004       O004
B005       P005        05/01/2024    05/05/2024     PAY005     R005       O005
B006       P006        06/01/2024    06/05/2024     PAY006     R006       O006

  6 record(s) selected.
```

### Payment table

INSERT INTO payment VALUES ('PAY001', 'V001', 'B001')
INSERT INTO payment VALUES ('PAY002', 'V002', 'B002')
INSERT INTO payment VALUES ('PAY003', 'V003', 'B003')
INSERT INTO payment VALUES ('PAY004', 'V004', 'B004')
INSERT INTO payment VALUES ('PAY005', 'V005', 'B005')
INSERT INTO payment VALUES ('PAY006', 'V006', 'B006')



```
db2 => INSERT INTO payment VALUES ('PAY001', 'V001', 'B001')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment VALUES ('PAY002', 'V002', 'B002')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment VALUES ('PAY003', 'V003', 'B003')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment VALUES ('PAY004', 'V004', 'B004')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment VALUES ('PAY005', 'V005', 'B005')
DB20000I  The SQL command completed successfully.
db2 => INSERT INTO payment VALUES ('PAY006', 'V006', 'B006')
DB20000I  The SQL command completed successfully.
db2 => select * from payment

PAYMENT_ID VISITOR_ID BOOKING_ID
---------- ---------- ----------
PAY001     V001       B001
PAY002     V002       B002
PAY003     V003       B003
PAY004     V004       B004
PAY005     V005       B005
PAY006     V006       B006

  6 record(s) selected.
```

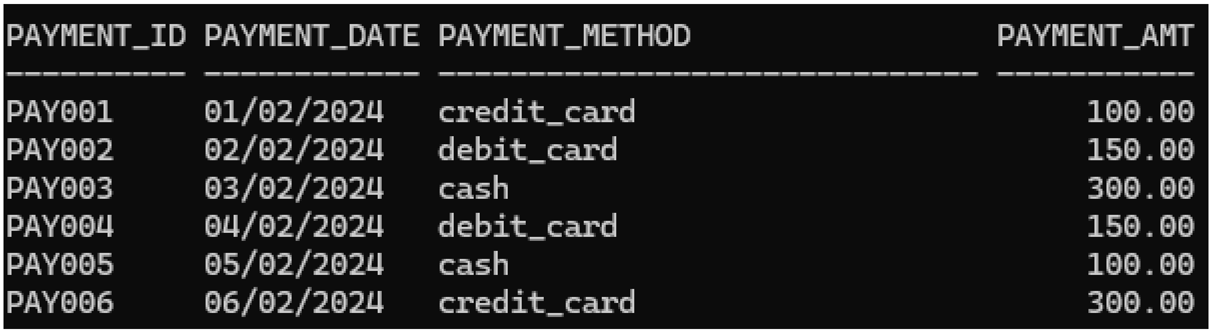
# 5.0 Data Manipulation

**i. Two queries with aggregate functions**

First function purpose: To find the total payment amount for each payment method.

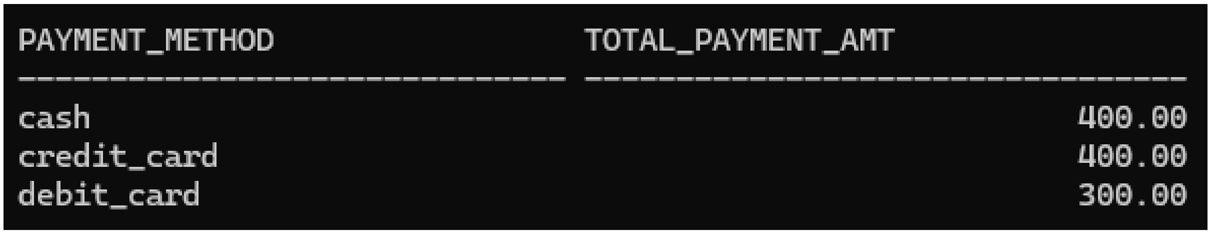
SELECT payment_method, SUM(payment_amt) AS total_payment_amt FROM payment_details GROUP BY payment_method

Before:



```
PAYMENT_ID PAYMENT_DATE PAYMENT_METHOD                 PAYMENT_AMT
---------- ------------ ------------------------------ -----------
PAY001     01/02/2024   credit_card                         100.00
PAY002     02/02/2024   debit_card                          150.00
PAY003     03/02/2024   cash                                300.00
PAY004     04/02/2024   debit_card                          150.00
PAY005     05/02/2024   cash                                100.00
PAY006     06/02/2024   credit_card                         300.00
```

Result:

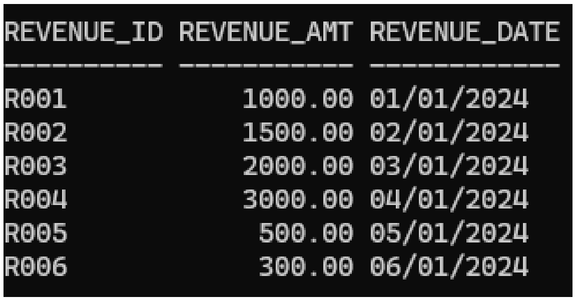


```
PAYMENT_METHOD                 TOTAL_PAYMENT_AMT
------------------------------ ---------------------------------
cash                                                       400.00
credit_card                                                400.00
debit_card                                                 300.00
```

Second function purpose: To find the total revenue generated.

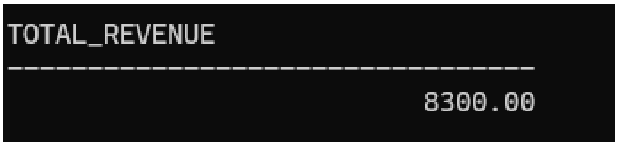
SELECT SUM (revenue_amt) AS total_revenue from revenue

Before:



```
REVENUE_ID REVENUE_AMT REVENUE_DATE
---------- ----------- ------------
R001           1000.00 01/01/2024
R002           1500.00 02/01/2024
R003           2000.00 03/01/2024
R004           3000.00 04/01/2024
R005            500.00 05/01/2024
R006            300.00 06/01/2024
```

Result:



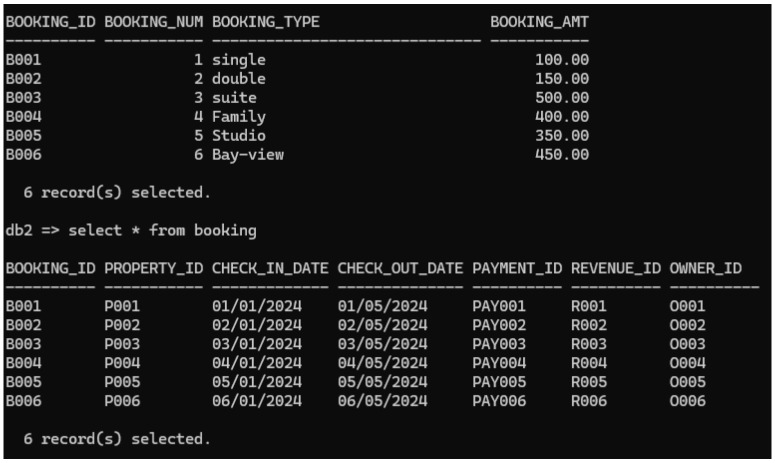
```
TOTAL_REVENUE
---------------------------------
                          8300.00
```

### ii. View

Purpose: This view is used to check the check in date, check out date and booking_type for each booking.

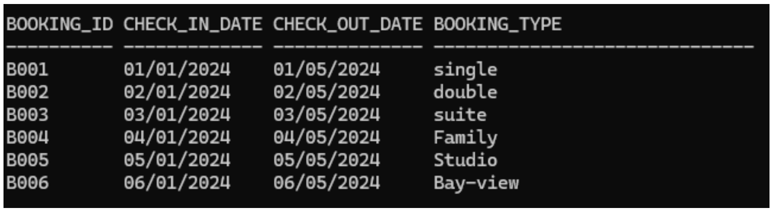
CREATE VIEW details AS SELECT b.booking_id, b.check_in_date, b.check_out_date, bd.booking_type from booking b JOIN booking_details bd ON b.booking_id = bd.booking_id

Before:



```
BOOKING_ID BOOKING_NUM BOOKING_TYPE                   BOOKING_AMT
---------- ----------- ------------------------------ -----------
B001                 1 single                              100.00
B002                 2 double                              150.00
B003                 3 suite                               500.00
B004                 4 Family                              400.00
B005                 5 Studio                              350.00
B006                 6 Bay-view                            450.00

  6 record(s) selected.

db2 => select * from booking

BOOKING_ID PROPERTY_ID CHECK_IN_DATE CHECK_OUT_DATE PAYMENT_ID REVENUE_ID OWNER_ID
---------- ----------- ------------- -------------- ---------- ---------- ----------
B001       P001        01/01/2024    01/05/2024     PAY001     R001       O001
B002       P002        02/01/2024    02/05/2024     PAY002     R002       O002
B003       P003        03/01/2024    03/05/2024     PAY003     R003       O003
B004       P004        04/01/2024    04/05/2024     PAY004     R004       O004
B005       P005        05/01/2024    05/05/2024     PAY005     R005       O005
B006       P006        06/01/2024    06/05/2024     PAY006     R006       O006

  6 record(s) selected.
```

Result:



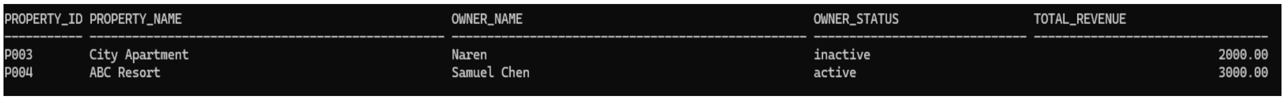
```
BOOKING_ID CHECK_IN_DATE CHECK_OUT_DATE BOOKING_TYPE
---------- ------------- -------------- ------------------------------
B001       01/01/2024    01/05/2024     single
B002       02/01/2024    02/05/2024     double
B003       03/01/2024    03/05/2024     suite
B004       04/01/2024    04/05/2024     Family
B005       05/01/2024    05/05/2024     Studio
B006       06/01/2024    06/05/2024     Bay-view
```

### iii. One subquery/ nested query

Purpose: To show the owner and his property which have total revenue more than 2000

SELECT p.property_id, p.property_name, o.owner_name, o.owner_status, (SELECT SUM(re.revenue_amt) from revenue re JOIN booking b on re.revenue_id = b.revenue_id WHERE b.property_id = p.property_id) as total_revenue FROM property p join owner o on p.owner_id = o.owner_id WHERE p.property_id IN (SELECT b.property_id FROM booking b JOIN revenue re ON b.revenue_id = re.revenue_id GROUP BY b.property_id HAVING SUM (re.revenue_amt) >= 2000) ORDER BY total_revenue

Result:



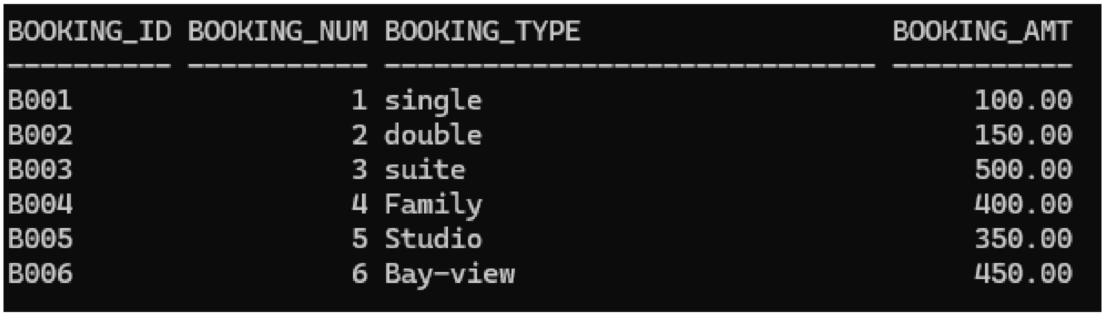
```
PROPERTY_ID PROPERTY_NAME                                      OWNER_NAME                                         OWNER_STATUS                   TOTAL_REVENUE
----------- -------------------------------------------------- -------------------------------------------------- ------------------------------ ---------------------------------
P003        City Apartment                                     Naren                                              inactive                                 2000.00
P004        ABC Resort                                         Samuel Chen                                        active                                   3000.00
```

**iv. One query with a group by and having clauses**

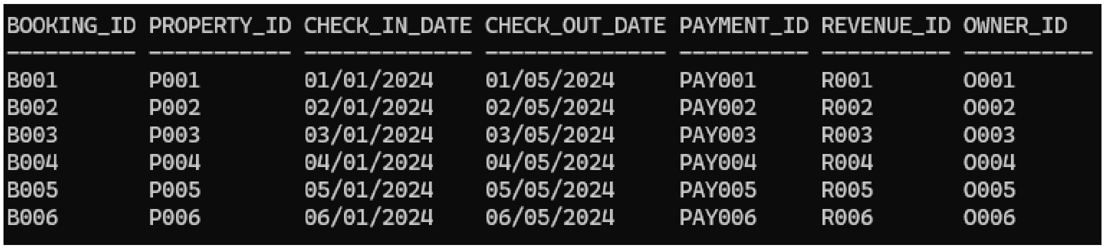
Purpose: Select all booking amount that exceeds 200 for each owner.

SELECT b.owner_id, SUM(bd.booking_amt) AS total_booking_amt FROM booking b JOIN booking_details bd ON b.booking_id = bd.booking_id GROUP BY b.owner_id HAVING SUM(bd.booking_amt) > 200

Before:

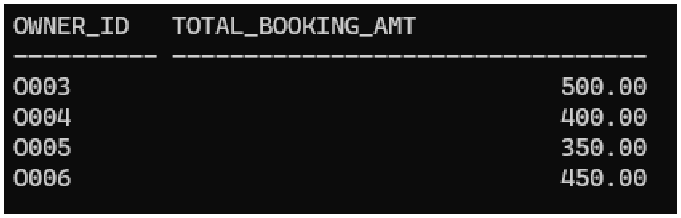


```
BOOKING_ID BOOKING_NUM BOOKING_TYPE                   BOOKING_AMT
---------- ----------- ------------------------------ -----------
B001                 1 single                              100.00
B002                 2 double                              150.00
B003                 3 suite                               500.00
B004                 4 Family                              400.00
B005                 5 Studio                              350.00
B006                 6 Bay-view                            450.00
```



```
BOOKING_ID PROPERTY_ID CHECK_IN_DATE CHECK_OUT_DATE PAYMENT_ID REVENUE_ID OWNER_ID
---------- ----------- ------------- -------------- ---------- ---------- ----------
B001       P001        01/01/2024    01/05/2024     PAY001     R001       O001
B002       P002        02/01/2024    02/05/2024     PAY002     R002       O002
B003       P003        03/01/2024    03/05/2024     PAY003     R003       O003
B004       P004        04/01/2024    04/05/2024     PAY004     R004       O004
B005       P005        05/01/2024    05/05/2024     PAY005     R005       O005
B006       P006        06/01/2024    06/05/2024     PAY006     R006       O006
```

Result:



```
OWNER_ID   TOTAL_BOOKING_AMT
---------- ---------------------------------
O003                                  500.00
O004                                  400.00
O005                                  350.00
O006                                  450.00
```

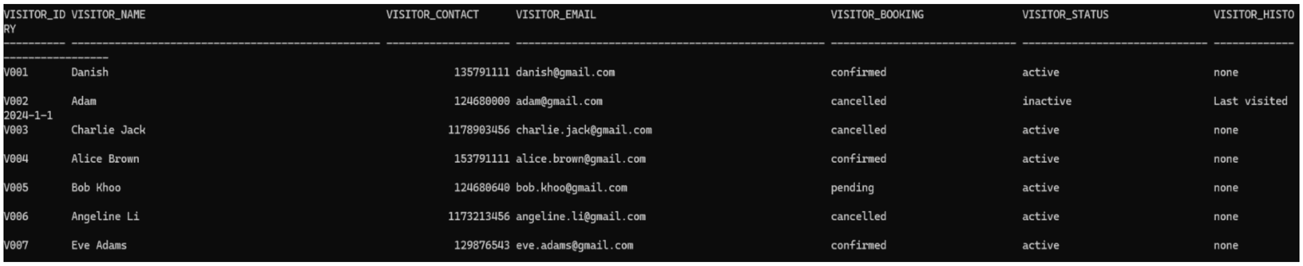
### v. Triggers

Trigger 1

Purpose: To update the visitor_history in the visitor table with the latest check out date whenever a check out date is updated in the booking table

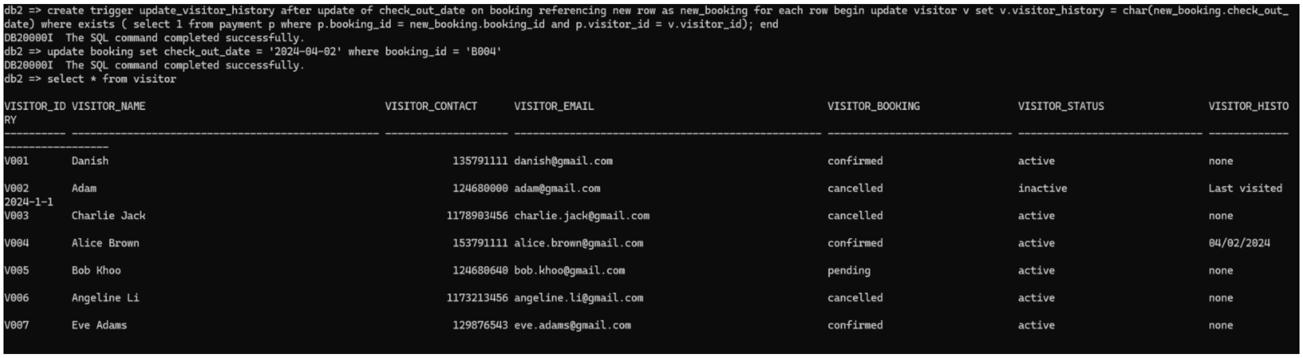
create trigger update_visitor_history after update of check_out_date on booking referencing new row as new_booking for each row mode db2sql begin update visitor v set v.visitor_history = char(new_booking.check_out_date) where exists ( select 1 from payment p where p.booking_id = new_booking.booking_id and p.visitor_id = v.visitor_id); end

Before:



```
VISITOR_ID VISITOR_NAME                                       VISITOR_CONTACT      VISITOR_EMAIL                                      VISITOR_BOOKING                VISITOR_STATUS                 VISITOR_HISTO
RY
---------- -------------------------------------------------- -------------------- -------------------------------------------------- ------------------------------ ------------------------------ -------------
-----------------
V001       Danish                                                        135791111 danish@gmail.com                                   confirmed                      active                         none

V002       Adam                                                          124680000 adam@gmail.com                                     cancelled                      inactive                       Last visited
2024-1-1
V003       Charlie Jack                                                 1178903456 charlie.jack@gmail.com                             cancelled                      active                         none

V004       Alice Brown                                                   153791111 alice.brown@gmail.com                              confirmed                      active                         none

V005       Bob Khoo                                                      124680640 bob.khoo@gmail.com                                 pending                        active                         none

V006       Angeline Li                                                  1173213456 angeline.li@gmail.com                              cancelled                      active                         none

V007       Eve Adams                                                     129876543 eve.adams@gmail.com                                confirmed                      active                         none
```

Result:



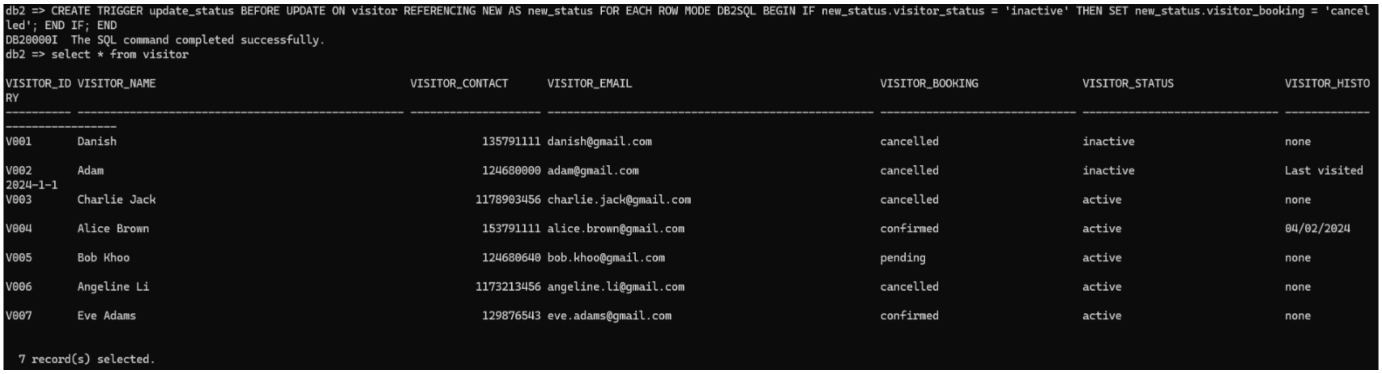
```
db2 => create trigger update_visitor_history after update of check_out_date on booking referencing new row as new_booking for each row begin update visitor v set v.visitor_history = char(new_booking.check_out_
date) where exists ( select 1 from payment p where p.booking_id = new_booking.booking_id and p.visitor_id = v.visitor_id); end
DB20000I  The SQL command completed successfully.
db2 => update booking set check_out_date = '2024-04-02' where booking_id = 'B004'
DB20000I  The SQL command completed successfully.
db2 => select * from visitor

VISITOR_ID VISITOR_NAME                                       VISITOR_CONTACT      VISITOR_EMAIL                                      VISITOR_BOOKING                VISITOR_STATUS                 VISITOR_HISTO
RY
---------- -------------------------------------------------- -------------------- -------------------------------------------------- ------------------------------ ------------------------------ -------------
-----------------
V001       Danish                                                        135791111 danish@gmail.com                                   confirmed                      active                         none

V002       Adam                                                          124680000 adam@gmail.com                                     cancelled                      inactive                       Last visited
2024-1-1
V003       Charlie Jack                                                 1178903456 charlie.jack@gmail.com                             cancelled                      active                         none

V004       Alice Brown                                                   153791111 alice.brown@gmail.com                              confirmed                      active                         04/02/2024

V005       Bob Khoo                                                      124680640 bob.khoo@gmail.com                                 pending                        active                         none

V006       Angeline Li                                                  1173213456 angeline.li@gmail.com                              cancelled                      active                         none

V007       Eve Adams                                                     129876543 eve.adams@gmail.com                                confirmed                      active                         none
```

Trigger 2

Purpose: To cancel the booking automatically when the visitor status changed to inactive.

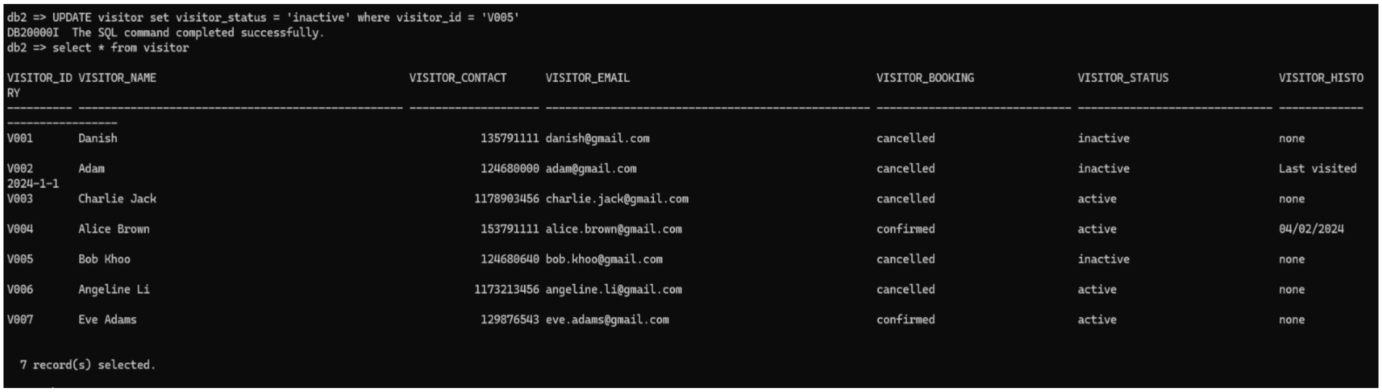
CREATE TRIGGER update_status BEFORE UPDATE ON visitor REFERENCING NEW AS new_status FOR EACH ROW MODE DB2SQL BEGIN IF new_status.visitor_status = 'inactive' THEN SET new_status.visitor_booking = 'cancel
led'; END IF; END

Before:



```
db2 => CREATE TRIGGER update_status BEFORE UPDATE ON visitor REFERENCING NEW AS new_status FOR EACH ROW MODE DB2SQL BEGIN IF new_status.visitor_status = 'inactive' THEN SET new_status.visitor_booking = 'cancel
led'; END IF; END
DB20000I  The SQL command completed successfully.
db2 => select * from visitor

VISITOR_ID VISITOR_NAME                                       VISITOR_CONTACT      VISITOR_EMAIL                                      VISITOR_BOOKING              VISITOR_STATUS               VISITOR_HISTO
RY
---------- -------------------------------------------------- -------------------- -------------------------------------------------- ---------------------------- ---------------------------- -------------
-----------------
V001       Danish                                                       135791111 danish@gmail.com                                   cancelled                    inactive                     none

V002       Adam                                                         124680000 adam@gmail.com                                     cancelled                    inactive                     Last visited
2024-1-1
V003       Charlie Jack                                                1178903456 charlie.jack@gmail.com                             cancelled                    active                       none

V004       Alice Brown                                                  153791111 alice.brown@gmail.com                              confirmed                    active                       04/02/2024

V005       Bob Khoo                                                     124680640 bob.khoo@gmail.com                                 pending                      active                       none

V006       Angeline Li                                                 1173213456 angeline.li@gmail.com                              cancelled                    active                       none

V007       Eve Adams                                                    129876543 eve.adams@gmail.com                                confirmed                    active                       none


  7 record(s) selected.
```

Result:

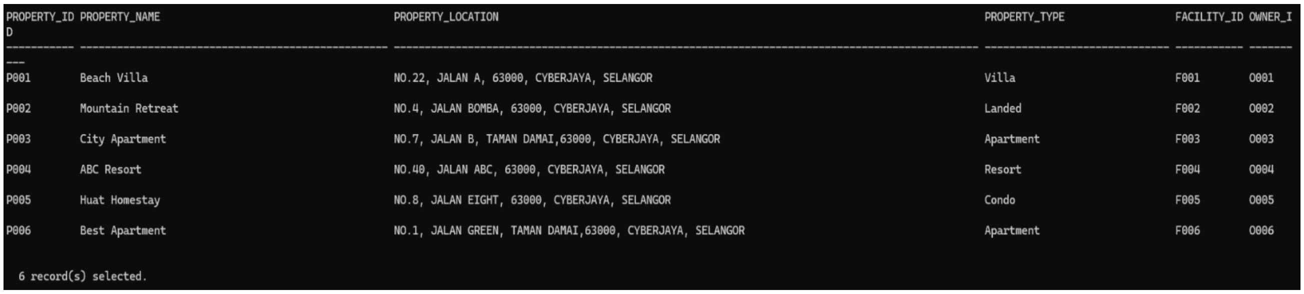


```
db2 => UPDATE visitor set visitor_status = 'inactive' where visitor_id = 'V005'
DB20000I  The SQL command completed successfully.
db2 => select * from visitor

VISITOR_ID VISITOR_NAME                                       VISITOR_CONTACT      VISITOR_EMAIL                                      VISITOR_BOOKING              VISITOR_STATUS               VISITOR_HISTO
RY
---------- -------------------------------------------------- -------------------- -------------------------------------------------- ---------------------------- ---------------------------- -------------
-----------------
V001       Danish                                                       135791111 danish@gmail.com                                   cancelled                    inactive                     none

V002       Adam                                                         124680000 adam@gmail.com                                     cancelled                    inactive                     Last visited
2024-1-1
V003       Charlie Jack                                                1178903456 charlie.jack@gmail.com                             cancelled                    active                       none

V004       Alice Brown                                                  153791111 alice.brown@gmail.com                              confirmed                    active                       04/02/2024

V005       Bob Khoo                                                     124680640 bob.khoo@gmail.com                                 cancelled                    inactive                     none

V006       Angeline Li                                                 1173213456 angeline.li@gmail.com                              cancelled                    active                       none

V007       Eve Adams                                                    129876543 eve.adams@gmail.com                                confirmed                    active                       none


  7 record(s) selected.
```

### vi. Stored procedure

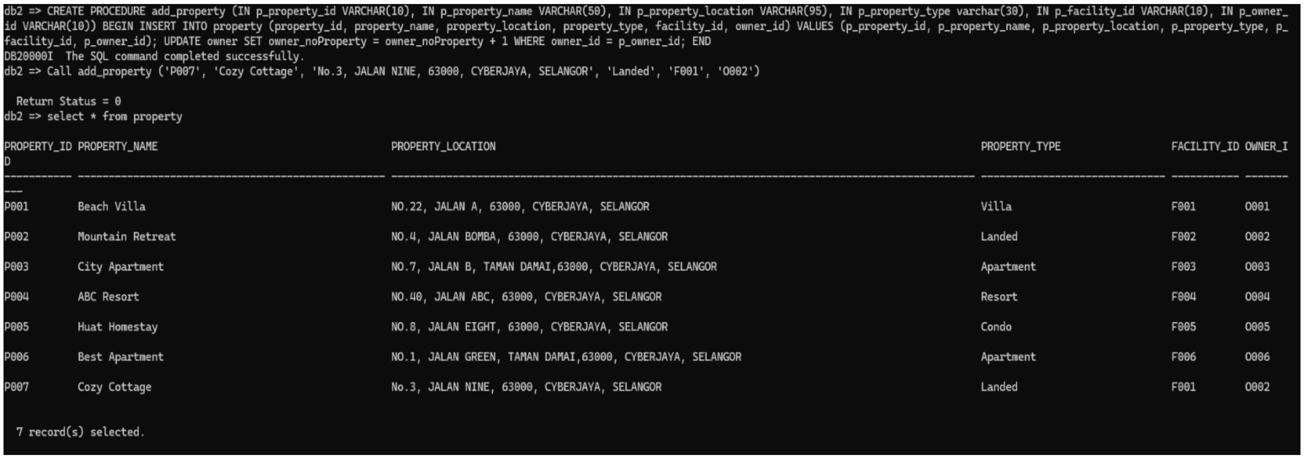
```
CREATE PROCEDURE add_property (IN p_property_id VARCHAR(10), IN p_property_name
VARCHAR(50), IN p_property_location VARCHAR(95), IN p_property_type varchar(30), IN
p_facility_id VARCHAR(10), IN p_owner_id VARCHAR(10)) BEGIN INSERT INTO property
(property_id, property_name, property_location, property_type, facility_id, owner_id) VALUES
(p_property_id, p_property_name, p_property_location, p_property_type, p_facility_id,
p_owner_id); UPDATE owner SET owner_noProperty = owner_noProperty + 1 WHERE owner_id =
p_owner_id; END
```

Before:



```
PROPERTY_ID PROPERTY_NAME                                      PROPERTY_LOCATION                                                                               PROPERTY_TYPE                  FACILITY_ID OWNER_I
D
----------- -------------------------------------------------- ----------------------------------------------------------------------------------------------- ------------------------------ ----------- -------
---
P001        Beach Villa                                        NO.22, JALAN A, 63000, CYBERJAYA, SELANGOR                                                      Villa                          F001        O001

P002        Mountain Retreat                                   NO.4, JALAN BOMBA, 63000, CYBERJAYA, SELANGOR                                                   Landed                         F002        O002

P003        City Apartment                                     NO.7, JALAN B, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR                                           Apartment                      F003        O003

P004        ABC Resort                                         NO.40, JALAN ABC, 63000, CYBERJAYA, SELANGOR                                                    Resort                         F004        O004

P005        Huat Homestay                                      NO.8, JALAN EIGHT, 63000, CYBERJAYA, SELANGOR                                                   Condo                          F005        O005

P006        Best Apartment                                     NO.1, JALAN GREEN, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR                                       Apartment                      F006        O006


  6 record(s) selected.
```

Result:



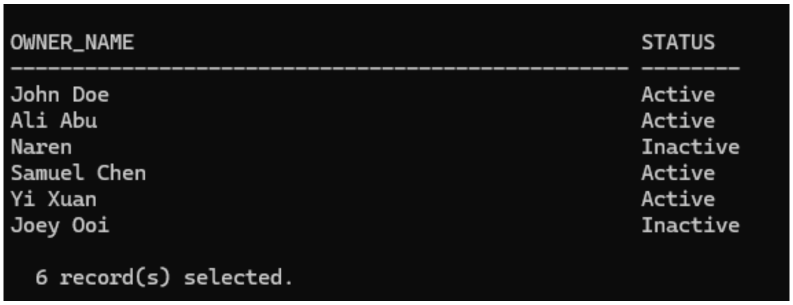
```
db2 => CREATE PROCEDURE add_property (IN p_property_id VARCHAR(10), IN p_property_name VARCHAR(50), IN p_property_location VARCHAR(95), IN p_property_type varchar(30), IN p_facility_id VARCHAR(10), IN p_owner_
id VARCHAR(10)) BEGIN INSERT INTO property (property_id, property_name, property_location, property_type, facility_id, owner_id) VALUES (p_property_id, p_property_name, p_property_location, p_property_type, p_
facility_id, p_owner_id); UPDATE owner SET owner_noProperty = owner_noProperty + 1 WHERE owner_id = p_owner_id; END
DB20000I  The SQL command completed successfully.
db2 => Call add_property ('P007', 'Cozy Cottage', 'No.3, JALAN NINE, 63000, CYBERJAYA, SELANGOR', 'Landed', 'F001', 'O002')

  Return Status = 0
db2 => select * from property

PROPERTY_ID PROPERTY_NAME                                      PROPERTY_LOCATION                                                                               PROPERTY_TYPE                  FACILITY_ID OWNER_I
D
----------- -------------------------------------------------- ----------------------------------------------------------------------------------------------- ------------------------------ ----------- -------
---
P001        Beach Villa                                        NO.22, JALAN A, 63000, CYBERJAYA, SELANGOR                                                      Villa                          F001        O001

P002        Mountain Retreat                                   NO.4, JALAN BOMBA, 63000, CYBERJAYA, SELANGOR                                                   Landed                         F002        O002

P003        City Apartment                                     NO.7, JALAN B, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR                                           Apartment                      F003        O003

P004        ABC Resort                                         NO.40, JALAN ABC, 63000, CYBERJAYA, SELANGOR                                                    Resort                         F004        O004

P005        Huat Homestay                                      NO.8, JALAN EIGHT, 63000, CYBERJAYA, SELANGOR                                                   Condo                          F005        O005

P006        Best Apartment                                     NO.1, JALAN GREEN, TAMAN DAMAI,63000, CYBERJAYA, SELANGOR                                       Apartment                      F006        O006

P007        Cozy Cottage                                       No.3, JALAN NINE, 63000, CYBERJAYA, SELANGOR                                                    Landed                         F001        O002


  7 record(s) selected.
```

**vii. Four queries not covered in lecture/ lab**

1. Display the status of the owner using CASE

   SELECT owner_name, CASE WHEN owner_status= 'active' THEN 'Active' WHEN owner_status = 'inactive' THEN 'Inactive' ELSE 'Unknown' END AS STATUS FROM owner

   Result:

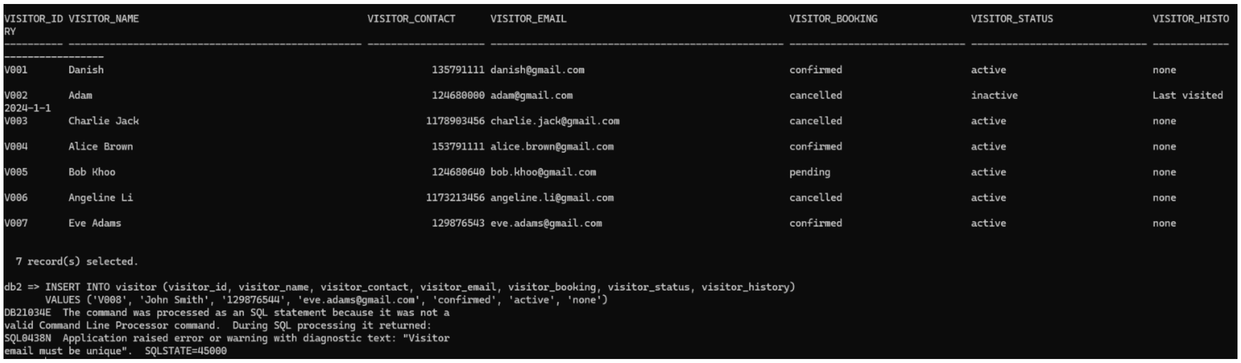


```
OWNER_NAME                                         STATUS
-------------------------------------------------- --------
John Doe                                           Active
Ali Abu                                            Active
Naren                                              Inactive
Samuel Chen                                        Active
Yi Xuan                                            Active
Joey Ooi                                           Inactive

  6 record(s) selected.
```

2. Ensure visitor email addresses are unique and display error message if found duplicates.

   CREATE TRIGGER unique_visitor_email BEFORE INSERT ON visitor REFERENCING NEW AS new_visitor FOR EACH ROW mode db2sql BEGIN  DECLARE v_count INT; SELECT COUNT(*) INTO v_count FROM visitor WHERE visitor_email = new_visitor.visitor_email; IF v_count > 0 THEN SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Visitor email must be unique';END IF;END

   Result:



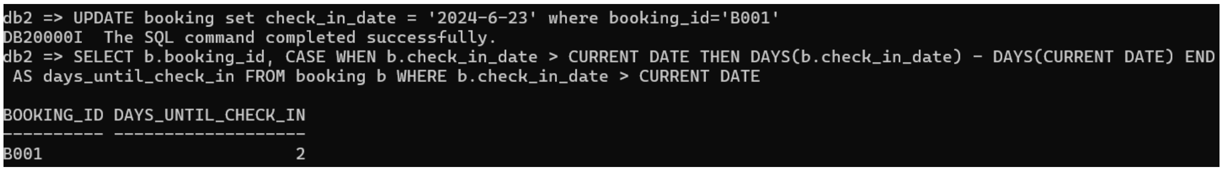
```
VISITOR_ID VISITOR_NAME                                       VISITOR_CONTACT      VISITOR_EMAIL                                      VISITOR_BOOKING              VISITOR_STATUS               VISITOR_HISTO
RY
---------- -------------------------------------------------- -------------------- -------------------------------------------------- ---------------------------- ---------------------------- -------------
----------------
V001       Danish                                                       135791111 danish@gmail.com                                   confirmed                    active                       none

V002       Adam                                                         124680000 adam@gmail.com                                     cancelled                    inactive                     Last visited
2024-1-1
V003       Charlie Jack                                                1178903456 charlie.jack@gmail.com                             cancelled                    active                       none

V004       Alice Brown                                                  153791111 alice.brown@gmail.com                              confirmed                    active                       none

V005       Bob Khoo                                                     124680640 bob.khoo@gmail.com                                 pending                      active                       none

V006       Angeline Li                                                 1173213456 angeline.li@gmail.com                              cancelled                    active                       none

V007       Eve Adams                                                    129876543 eve.adams@gmail.com                                confirmed                    active                       none


  7 record(s) selected.

db2 => INSERT INTO visitor (visitor_id, visitor_name, visitor_contact, visitor_email, visitor_booking, visitor_status, visitor_history)
      VALUES ('V008', 'John Smith', '129876544', 'eve.adams@gmail.com', 'confirmed', 'active', 'none')
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0438N  Application raised error or warning with diagnostic text: "Visitor
email must be unique".  SQLSTATE=45000
```

3. To countdown the days left before the check in date:

   SELECT b.booking_id, CASE WHEN b.check_in_date > CURRENT DATE THEN b.check_in_date - CURRENT DATE END AS days_until_check_in FROM booking b WHERE b.check_in_date > CURRENT DATE

   UPDATE booking set check_in_date = '2024-6-23' where booking_id='B001'

   Result:

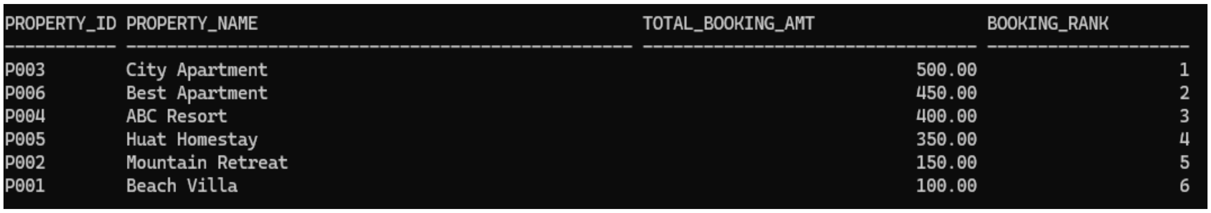


```
db2 => UPDATE booking set check_in_date = '2024-6-23' where booking_id='B001'
DB20000I  The SQL command completed successfully.
db2 => SELECT b.booking_id, CASE WHEN b.check_in_date > CURRENT DATE THEN DAYS(b.check_in_date) - DAYS(CURRENT DATE) END
 AS days_until_check_in FROM booking b WHERE b.check_in_date > CURRENT DATE

BOOKING_ID DAYS_UNTIL_CHECK_IN
---------- -------------------
B001                         2
```

4. To display top performing properties based on the booking amounts.

   SELECT property_id, property_name, total_booking_amt, RANK() OVER (ORDER BY total_booking_amt DESC) AS booking_rank FROM ( SELECT p.property_id, p.property_name, SUM(bd.booking_amt) AS total_booking_amt FROM property p JOIN booking b ON p.property_id = b.property_id JOIN booking_details bd ON b.booking_id = bd.booking_id GROUP BY p.property_id, p.property_name) AS PropertyBookingSummary

   Result:



```
PROPERTY_ID PROPERTY_NAME                                      TOTAL_BOOKING_AMT                 BOOKING_RANK
----------- -------------------------------------------------- --------------------------------- --------------------
P003        City Apartment                                                                500.00                    1
P006        Best Apartment                                                                450.00                    2
P004        ABC Resort                                                                    400.00                    3
P005        Huat Homestay                                                                 350.00                    4
P002        Mountain Retreat                                                              150.00                    5
P001        Beach Villa                                                                   100.00                    6
```