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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a marks of zero will be awarded.

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Introduction

Introduction of the Hospital:

Nepal Mediciti Hospital

MORE THAN A HOSPITAL. WE ARE SOCIETY

Nepal Medical Hospital combines the finest medical intellect and advanced technology and equipment to provide integrated treatment. A world class quaternary care facility with multi-disciplinary framework. Nepal Medical Hospital is a platform for practicing safe and evidence-based medicine driven by internationally recognized guidelines and protocols, Nepal Medical Hospital is: -

- Affordable
- Progressive medicine care
- Accessibility

Quick cue: -

1. Location: Bhaisepati Lalitpur, Nepal
2. Chairman: Upendra Mahato
3. Contact: +977-1-4217766, +977-9810136491
4. Email: info@nepalmedical.com
5. Package: - Basic health check-up
   - Heart health check- up
   - General health check-up
   - Others

Current Business Activities and Operations

Some of the business activities and operating that are running by this hospital are as folloes:

1. Nepal Mediciti hospital stores the data of patients, staffs who works in this hospital, appointments taken by the patients, treatments that are required to be conducted and details, address and contact of patients and staffs.
2. Patient enters to the hospital and takes an appointment of specific specification.
3. The patients are classified into two types: regular patient and new patient.
4. Each appointment has a specific specification choose by the patient themselves. The appointment specification that are available in Nepal Mediciti Hospitals are: appointment with a General Practitioner or appointment with a Neurologist or appointment with a Surgeon or appointment with a Radiologist or appointment with a Cardiologist or appointment with an Orthopedist or appointment with a Dentist.
5. The hospital then chooses the staffs according to the specification mentioned by the patient and fixes the appointment of that patient with the staffs of hospital.
6. There are 5 types of doctors in Nepal Mediciti Hospital. They are: certified doctors and uncertified doctors, certified nurses, uncertified nurses, workers.
7. Treatments that are performed in this hospital under:
    - General practitioner is: electrocardiograms, blood tests, X-Rays, X-Rays, CT scan
    - Neurologist is: Lumbar Puncture, Tension Test, Electromyography, Sleep Study, Electroencephalogram
    - Surgeon is: Appendectomy, Breast biopsy, Low back pain surgery, Prostatectomy
    - Radiologist is: Simulation, positron emission tomography, nuclear medicine, x-rays, ultrasound
    - Cardiologist is: catheterizations, angioplasty, Cardiovascular magnetic resonance, Biventricular pacing
    - Orthopaedist is: Amputation, Fracture care, Arthroplasty, Ligament reconstructions
    - Dentist is: Braces, Crowns and Caps, Extractions, Gum Surgery, filling
8. The doctor checks all the diseases and problems of the patients and determines which treatments are to be performed in a single appointment of the patients.
9. Finally, the treatments mentioned by the doctor are conducted on the given date.

10. Appointments are conducted in different wards.
11. There are 3 type of ward in this hospital. They are: emergency ward, general ward and VIP ward.
12. Wards are selected by the hospital according to the appointment type choose by the patient.
13. There are three types of appointment type in Nepal Mediciti Hospital. They are: emergency appointment, VIP appointment and general appointment.

Current Business Rules

Some of the business rules in Nepal Mediciti Hospital are as follows:

1. Patient rules:
   a) Every patient needs to provide their personal details about their address (country, province, city, street, street number, phone number, fax number (possible empty)).
   b) Every patient's contact details are recorded which includes: cell number (possible empty) and email address
   c) Patients may have multiple addresses and contacts so the patient should inform which address details are permanent and which address are temporary to the hospital for sending mails in that address
   d) There is a field named "type" in patient table where the type of patient (regular patient or new patient) is recorded. This field should never be empty.
   e) Same patients are allowed to take multiple appointments in the hospitals since they may be suffering from different diseases and problems.
   f) If the patient is a regular patient then they get free appointment charge with the doctor.

2. Appointment rules:
   a) A single appointment may have multiple treatment according to the requirement.
   b) Single appointment consists multiples staffs of multiple types but it can contain only one doctor (certified or uncertified) in a single appointment.
   c) There is a field named "type" in appointments table where the type of appoint is to be written. i.e. emergency appointment or general appointment or VIP appointment.

d) Emergency appointment cost Rs 150 as appointment charge

e) General appointment cost Rs 100 as appointment charge

f) VIP appointment cost Rs 250 as appointment charge.

g) If the patient fails to attend the appointment on the given date then the patient should apply for a new appointment and the appointment charge will not be cash backed.

h) Emergency appointment is conducted in emergency ward, VIP appointment is conducted in VIP ward and general appointment is conducted in general ward.

i) Patient gets no cash back on cancelation of the treatment.

3. Treatment rules:

a) All the treatments determined by the doctor in the appointment must be conducted.

b) Patient should the treatment price before conducting the treatment.

c) If the patient is unable to attend the treatment on the given date then they can do the treatment some other days within 1 month of the treatment date.

d) If the patient doesn't attend the treatment within 1 month of the treatment date then the patient needs to take another appointment for the treatment.

e) Patient gets 75% cash back on the cancelation of treatment before the treatment date.

f) Patient gets 50% cash back on the cancelation of treatment on the treatment date and up to 1 month after the treatment date.

g) Patient gets no cash back if then cancel the treatment after 1 month of the treatment date or if they don't attend the treatment before 1 month of treatment date.

4. Staff rules:

a) Every staff needs to provide their personal details about their address (country, province, city, street, street number, phone number, fax number (possible empty)).

b) Every staff's contact details are recorded which includes: cell number (possible empty) and email address.

c) Patients and staffs may have multiple addresses and contacts so the patient should inform which address details are permanent and which address are temporary to the hospital for sending mails in that address.

d) There is a field name “type” in staff table where the type of staffs (certified doctor, uncertified doctor, certified nurse, uncertified nurse, worker) is recorded. This field can’t be empty.

e) If the patient is any type of staff of the Nepal Mediciti Hospital, then their staff_id is recorded at the field “patient_id” of patient table.

f) If staff of the Nepal Mediciti Hospital i.e. certified doctor or nurses are admitted to this hospital as a patient then they get free treatment, free appointment charge and free ward services.

g) If uncertified staff or a worker of Nepal Mediciti Hospital i.e. uncertified doctor or nurses or worker are admitted to this hospital as a patient then they get free treatment and free appointment_charge. They only have to pay the bill for ward charges.

Identification of Entities and Attributes

Entities	Attributes	Data type
Patients	***patient_id***,	Varchar (55)
	f_name	Varchar (55)
	m_name	Varchar (55)
	l_name	Varchar (55)
	type	Varchar (55)
	total_bill	Int
Patient_address	***address_id***	Varchar (55)
	patient	Varchar (55)
	type	Varchar (55)
	country	Varchar (55)
	province	Varchar (55)
	city	Varchar (55)
	street	Varchar (55)
	street_num	Varchar (55)
	phone_num	Varchar (55)

	fax_num	Varchar (55)
Patient_contacts	***contact_id***	Varchar (55)
	patient	Varchar (55)
	type	Varchar (55)
	cell_num	Varchar (55)
	email_address	Varchar (55)
Appointments	***appointment_id***	Varchar (55)
	patient	Varchar (55)
	Appointment_charge	int
	Date	Date
	specification	Varchar (55)
	Type	Varchar (55)
	ward_num	Varchar (55)
	Total_appointment_bill	Int
	doctor_commission	Int
Treatments	***treatment_id***	Varchar (55)
	appointment	Varchar (55)
	description	Varchar (55)
	date	Date
	treatment_price	Int
Wards	ward_id	Varchar (55)
	type	Varchar (55)
	price	Int
Staffs	Staff_id	Varchar (55)
	f_name	Varchar (55)
	m_name	Varchar (55)
	l_name	Varchar (55)
	type	Varchar (55)
	Working_shift	Varchar (55)
Staff_address	***address_id***	Varchar (55)
	staff	Varchar (55)
	type	Varchar (55)

	country	Varchar (55)
	province	Varchar (55)
	city	Varchar (55)
	street	Varchar (55)
	street_num	Varchar (55)
	phone_num	Varchar (55)
	fax_num	Varchar (55)
Staff_contacts	***contact_id***	Varchar (55)
	staff	Varchar (55)
	type	Varchar (55)
	cell_num	Varchar (55)
	email_address	Varchar (55)

Initial E-R Diagram

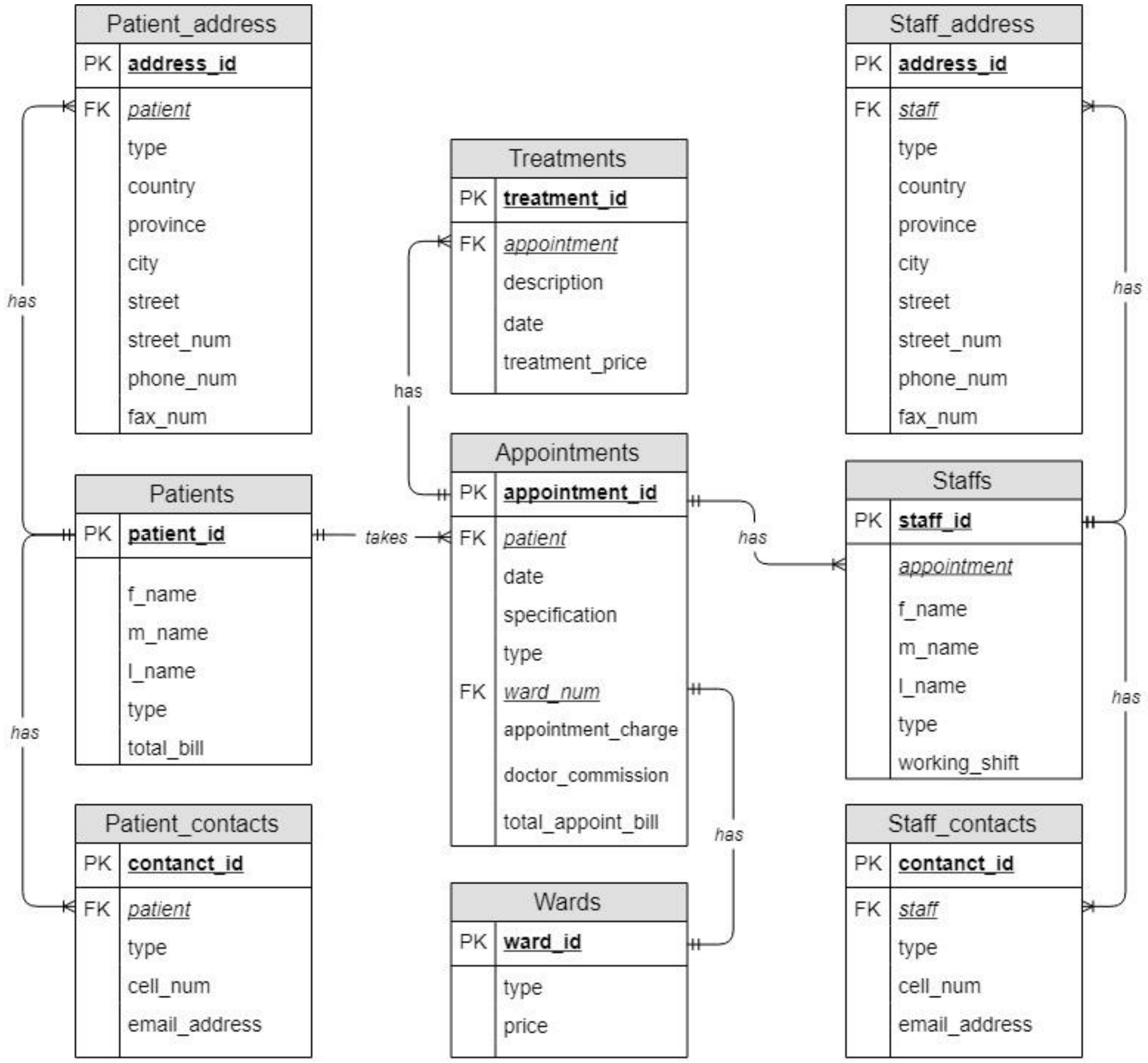


Figure 1: initial E-R Diagram

Normalisation

Process description for preparing UNF:

Un-normalized form is a preparatory state of the normalisation process. It allows us to create a frame that represent all the pieces of organisational data. It is just a big jumble of data. But this preparatory stage is the most important for normalisation.

Here only 1 table is created and is named as "Patients". All the field are written inside the small brackets. Additionally, all the repeating groups are separated inside curly braces. A unique identifier in this relation is choose as patient_id and it is underlined.

Un-normalized form (UNF):

Patients (***patient_id***, f_name, m_name, l_name, type, {address_id, type, country, province, city, street, street_num, phone_num, fax_num}, {contact_id, type, cell_num, email_address}, {appointment_id, type, specification, date, appointment_charge, ward_num, ward_price, {staff_id, f_name, m_name, l_name, type, working_shift, {address_id, type, country, province, city, street, street_num, phone_num, fax_num}, {contact_id, type, cell_num, email_address}}, {treatment_id, treatment_date, description, treatment_price}, total_appointment_bill, doctor_commission}, total_bill)

Process description UNF to 1NF:

All the repeating groups are separated and written in different tables assigning a unique name to each table. Here, a total of 8 tables are created: Patients, Patient_address, Patient_contacts, Appointments, Staffs, Staff_address, Staff_contacts, Treatments. The unique identifier of the non-repeating group (patient_id) is copied to all the formed tables. A primary key is uniquely identified in each of the table. The primary key of parent table is also copied to child table. Now the tables have composite key.

1NF:

1. **Patients:** ***patient_id,*** f_name, m_name, l_name, type, total_bill
2. **Patient_address:** ***patient_id, address_id,*** type, country, province, city, street, street_num, phone_num, fax_num
3. **Patient_contacts:** ***patient_id, contact_id,*** type, cell_num, email_address
4. **Appointments:** ***patient_id, appointment_id,*** date, specification, type, appointment_charge ward_num, ward_type, ward_price, total_appointment_bill, doctor_commission
5. **Staffs:** ***patient_id, appointment_id, staff_id,*** f_name, m_name, l_name, type, working_shift
6. **Staff_address:** ***patient_id, appointment_id, staff_id, address_id,*** type, country, province, city, street, street_num, phone_num, fax_num
7. **Staff_contacts:** ***patient_id, appointment_id, staff_id, contact_id,*** type, cell_num, email_address
8. **Treatments:** ***patient_id, appointment_id, treatment_id,*** treatment_date, description, treatment_price

Process description 1nf to 2nf:

Attributes that are wholly dependent on only part of the composite identifier are removed to separate table. All the partial dependency is removed. The partial dependency is identified and removed from follows ways:

For Patient_address table

Patient_id, address_id → type

Address_id → country, province, city, street, street_num, phone_num, fax_num

Patient_id → X

For Patient_contacts table:

phone_num, fax_num

Patient_id, contact_id → type

Contact_id → cell_num, email_address

Patient_id → X

For Appointments table:

Patient_id, appointment_id → date, type, specification

Appointment_id → appointment_charge, ward_num, ward_type, ward_price, total_appointment_bill, doctor_commission

Patient_id → X

For staffs table:

Patient_id, appointment_id, staff_id → X

Patient_id, appointment_id → X
patient_id, staff_id → X

Patient_id → X

Appointment_id, staff_id → working_shift

Appointment_id → X

Staff_id → f_name, m_name, l_name, type

For Staff_address table:

patient_id, appointment_id, staff_id, address_id → X

patient_id, appointment_id, staff_id → X

patient_id, appointment_id → X

patient_id, staff_id → X

patient_id → X

patient_id, address_id → X

patient_id, appointment_id, address_id → X
patient_id, staff_id, address_id → X

appointment_id, staff_id, address_id → X

appointment_id, address_id → X

appointment_id, staff_id → X

appointment_id → X

staff_id → X

staff_id, address_id → type

address_id → country, province, city, street, street_num, phone_num, fax_num

For Staff_contacts table:

patient_id, appointment_id, staff_id, contact_id → X

patient_id, appointment_id, staff_id → X

patient_id, appointment_id → X

patient_id, staff_id → X

patient_id → X

patient_id, contact_id → X

patient_id, appointment_id, contact_id → X
patient_id, staff_id, contact_id → X

appointment_id, staff_id, contact_id → X

appointment_id, contact_id → X

appointment_id, staff_id → X

appointment_id → X

staff_id → X

staff_id, contact_id → type

contact_id → cell_num, email_address

For treatments table:

patient_id, appointment_id, treatment_id → X

patient_id, appointment_id → X

patient_id, treatment_id → X

patient_id → X

appointment_id, treatment_id → treatment_date appointment_id → X

treatment_id → description, treatment_price

Each determinant primary key is made into a new table. All the attributes that depend of given determinant are placed in the table with that determinant as non-key attributes. Each table is named uniquely. Total of 15 tables are created in 2NF.

2NF:

1. **Patients:** ***patient_id,*** f_name, m_name, l_name, type, total_bill
2. **Patient_address:** ***patient_id, address_id***, type
3. **Patient_address_details:** ***address_id,*** country, province, city, street, street_num, phone_num, fax_num
4. **Patient_contact:** ***patient_id, contact_id,*** type
5. **Patient_contact_details:** ***contact_id,*** cell_num, email_address
6. **Appointments:** ***patient_id, appointment_id,*** date, type, specification
7. **Appointment_details:** ***appointment_id***, appointment_charge, ward_num, ward_type, ward_price, total_appointment_bill, doctor_commission
8. **Staff:** ***appointment_id, staff_id***, working_shift
9. **Staff_details:** ***staff_id,*** f_name, m_name, l_name, type
10. **Staff_address:** ***staff_id, address_id***, type
11. **Staff_address_details:** ***address_id,*** country, province, city, street, street_num, phone_num, fax_num
12. **Staff_contacts:** ***patient_id, contact_id,*** type
13. **Staff_contact_details:** ***contact_id,*** cell_num, email_address
14. **Treatments:** ***appointment_id***, ***treatment_id***, treatment_date
15. **Treatment_details:** ***treatment_id,*** description, treatment_price

Process description 2NF to 3NF:

Attributes that are wholly dependent upon another attribute are removed to separate relation. Transitive dependencies are removed.

Here, I found only one transitive dependency. The transitive dependency was found inside Appointment_details table. Here, ward_type and ward_price is wholly dependent upon ward_num. Therefore, a new table is created name "Wards" where ward_num was selected as a primary key and ward_type and ward_price was the other field. Ward_num was stored as foreign key in Appointment_details table.

Moreover, snice Patient_address_details and Staff_address_details have all the same attributes, so, they are combined in a single table and named as "Address_details". Similarly, Patient_contact_details and Staff_contact_details has all the same attributes, so, they are combined in a single table and names as "Contact_details".

3NF:

1. **Patients:** ***patient_id,*** f_name, m_name, l_name, type, total_bill
2. **Patient_address:** ***patient_id, address_id***, type
3. **Patient_contact:** ***patient_id, contact_id,*** type
4. **Appointments:** ***patient_id, appointment_id,*** date, type, specification
5. **Appointment_details:** ***appointment_id***, appointment_charge, ***ward_num***, total_appointment_bill, doctor_commission
6. **Wards:** ***ward_num,*** ward_type, ward_price
7. **Staff:** appointment_id, staff_id, working_shift
8. **Staff_details:** staff_id, f_name, m_name, l_name, type
9. **Staff_address:** ***staff_id, address_id***, type
10. **Staff_contacts:** ***patient_id, contact_id,*** type
11. **Treatments:** ***appointment_id***, ***treatment_id***, treatment_date
12. **Treatment_details:** ***treatment_id,*** description, treatment_price
13. **Address_details*:*** ***address_id,*** country, province, city, street, street_num, phone_num, fax_num
14. **Contact_details:** ***contact_id,*** cell_num, email_address

Entity Relation Diagram

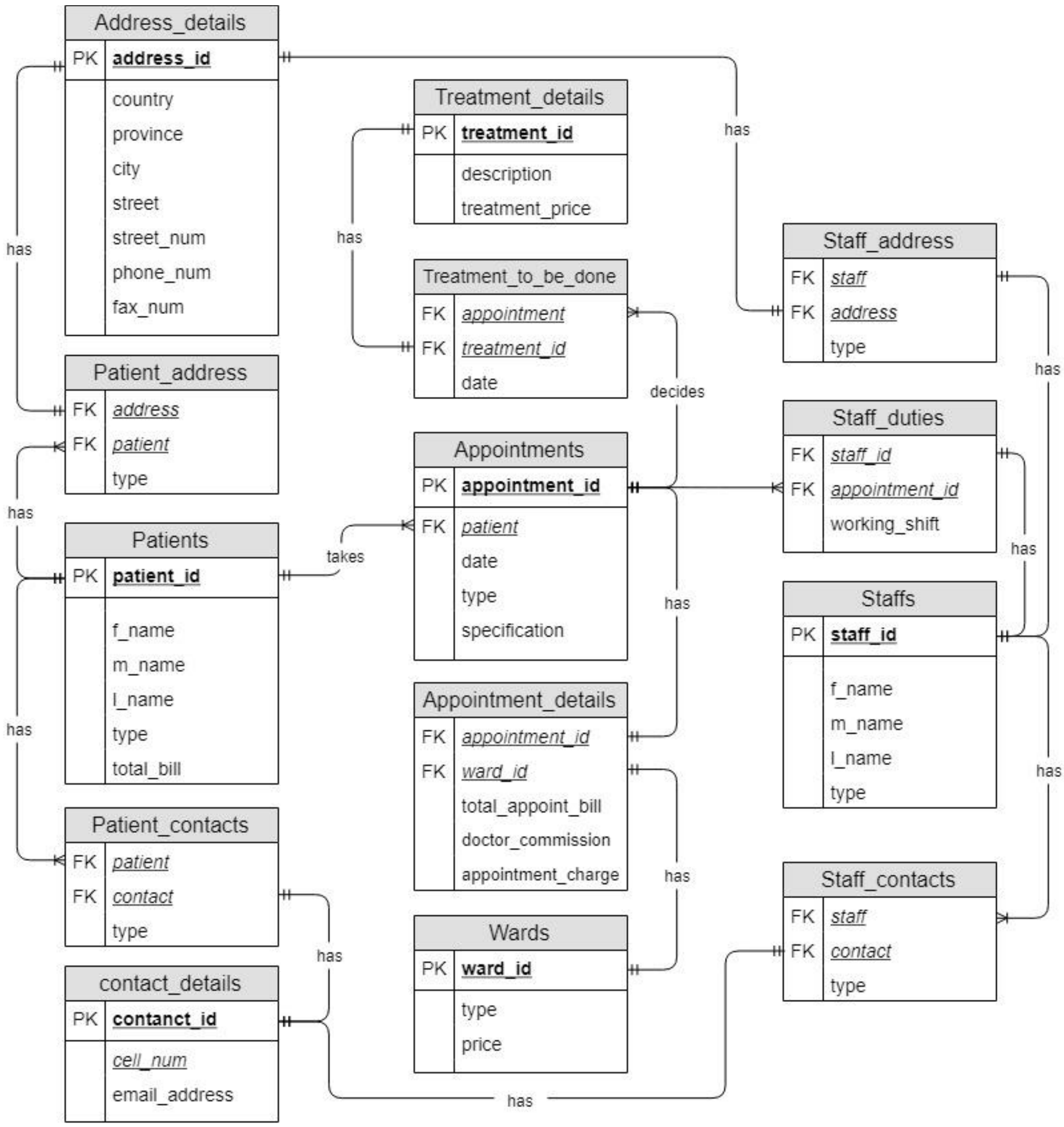


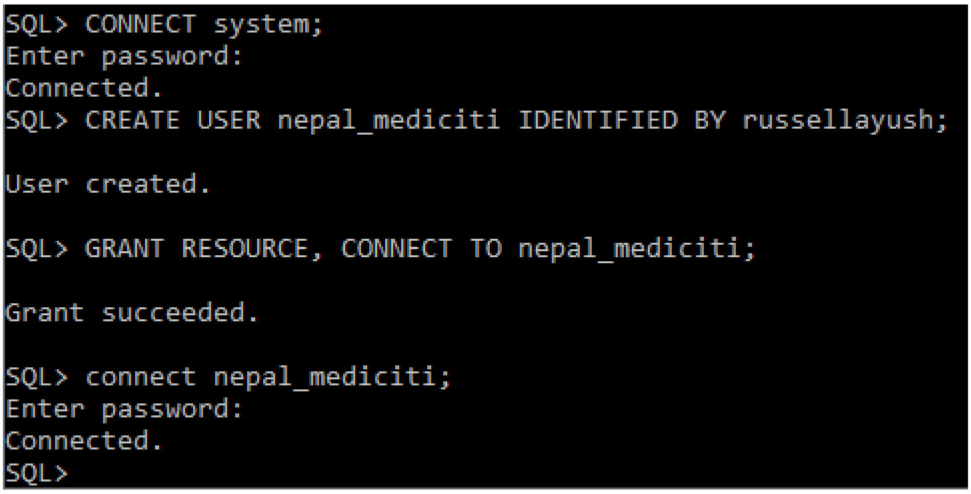
Figure 2: Final E-R Diagram

Database Implementation

Tables Generation (DDL Scripts)

1) Creating User in SQL:

   Username = nepal_mediciti
   Password = russellayush

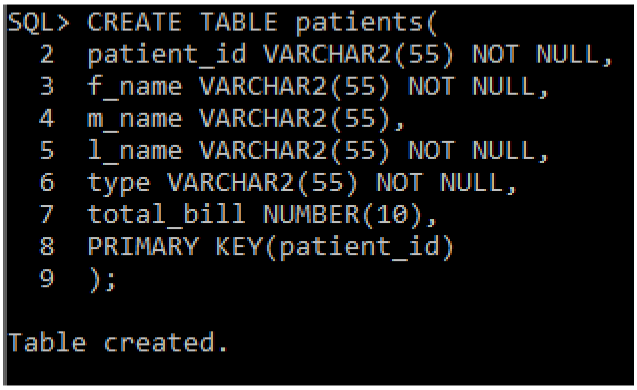


```
SQL> CONNECT system;
Enter password:
Connected.
SQL> CREATE USER nepal_mediciti IDENTIFIED BY russellayush;

User created.

SQL> GRANT RESOURCE, CONNECT TO nepal_mediciti;

Grant succeeded.

SQL> connect nepal_mediciti;
Enter password:
Connected.
SQL>
```

Figure 3: creating new user in SQL

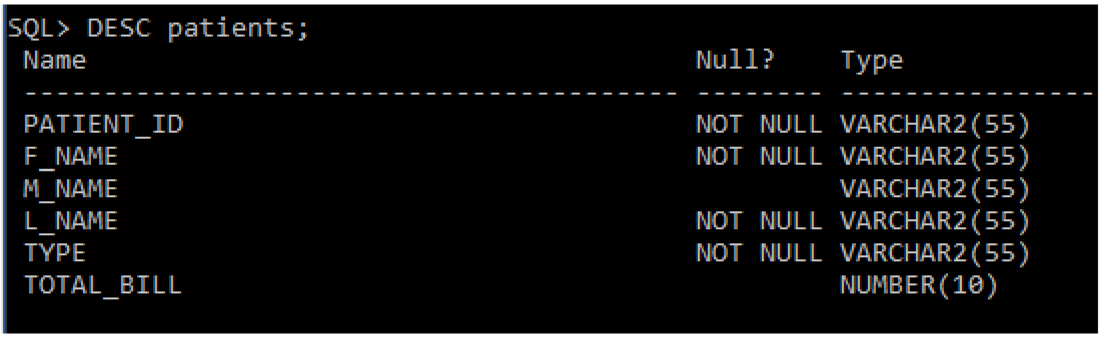
2) Creating patients table:

   It has 6 fields: patient_id, f_name, m_name (may be null), l_name, type and total_bill. It stores details of all the patient that visit here.



```
SQL> CREATE TABLE patients(
     patient_id VARCHAR2(55) NOT NULL,
     f_name VARCHAR2(55) NOT NULL,
     m_name VARCHAR2(55),
     l_name VARCHAR2(55) NOT NULL,
     type VARCHAR2(55) NOT NULL,
     total_bill NUMBER(10),
     PRIMARY KEY(patient_id)
     );

Table created.
```

Figure 4: creating patients table

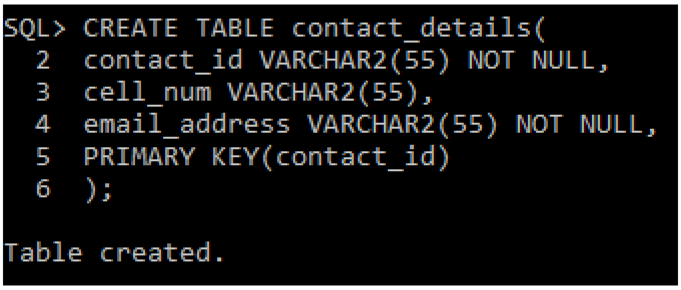


```
SQL> DESC patients;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 PATIENT_ID                                NOT NULL VARCHAR2(55)
 F_NAME                                    NOT NULL VARCHAR2(55)
 M_NAME                                             VARCHAR2(55)
 L_NAME                                    NOT NULL VARCHAR2(55)
 TYPE                                      NOT NULL VARCHAR2(55)
 TOTAL_BILL                                         NUMBER(10)
```

Figure 5: describing patients table

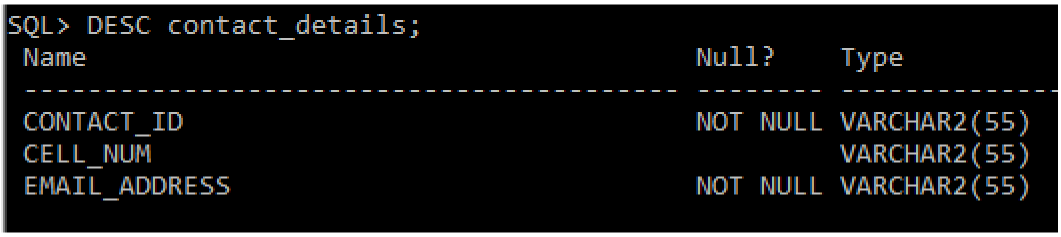
3) Creating Contact_details table:

   It has 3 fields: contact_id, cell_num (may be null) and email_address. It stores the contact details of last time.



```
SQL> CREATE TABLE contact_details(
  2  contact_id VARCHAR2(55) NOT NULL,
  3  cell_num VARCHAR2(55),
  4  email_address VARCHAR2(55) NOT NULL,
  5  PRIMARY KEY(contact_id)
  6  );

Table created.
```

Figure 6: creating Contact_details table

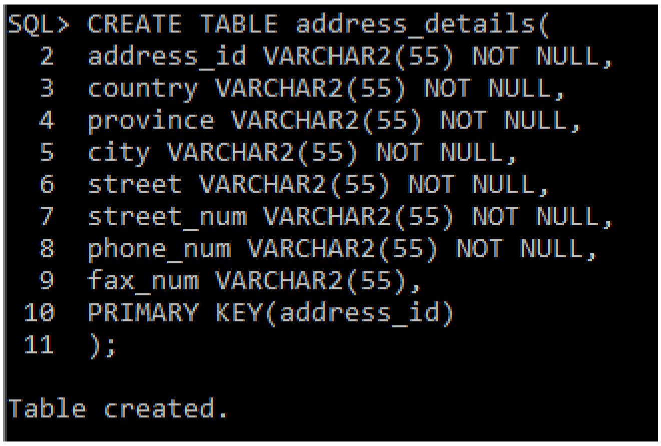


```
SQL> DESC contact_details;
 Name                                      Null?    Type
 ----------------------------------------- -------- -------------
 CONTACT_ID                                NOT NULL VARCHAR2(55)
 CELL_NUM                                           VARCHAR2(55)
 EMAIL_ADDRESS                             NOT NULL VARCHAR2(55)
```

Figure 7: describing Contact_details table

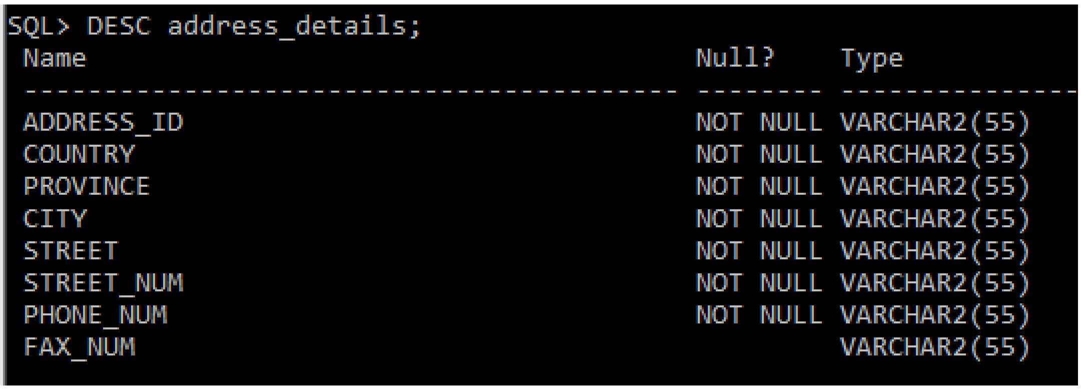
4) Creating Address_details table:

   It stores the address details of patients and staffs.



```
SQL> CREATE TABLE address_details(
address_id VARCHAR2(55) NOT NULL,
country VARCHAR2(55) NOT NULL,
province VARCHAR2(55) NOT NULL,
city VARCHAR2(55) NOT NULL,
street VARCHAR2(55) NOT NULL,
street_num VARCHAR2(55) NOT NULL,
phone_num VARCHAR2(55) NOT NULL,
fax_num VARCHAR2(55),
PRIMARY KEY(address_id)
);

Table created.
```

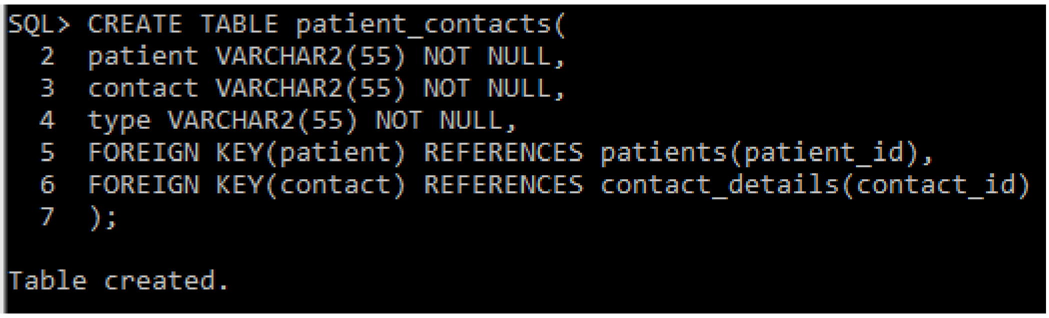
Figure 8: creating Address-details table



```
SQL> DESC address_details;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 ADDRESS_ID                                NOT NULL VARCHAR2(55)
 COUNTRY                                   NOT NULL VARCHAR2(55)
 PROVINCE                                  NOT NULL VARCHAR2(55)
 CITY                                      NOT NULL VARCHAR2(55)
 STREET                                    NOT NULL VARCHAR2(55)
 STREET_NUM                                NOT NULL VARCHAR2(55)
 PHONE_NUM                                 NOT NULL VARCHAR2(55)
 FAX_NUM                                            VARCHAR2(55)
```

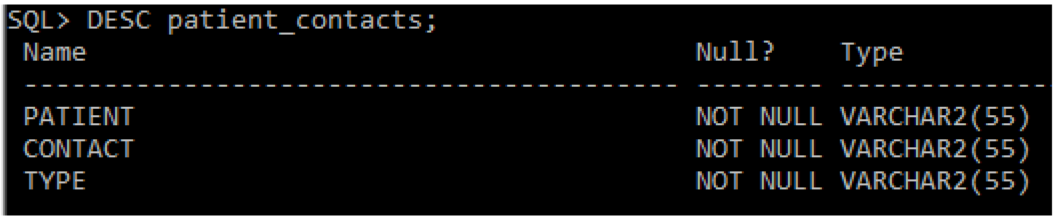
Figure 9: describing Address_details

5) Creating Patient_contacts table:
   It stores the type of the address of the patients.



```
SQL> CREATE TABLE patient_contacts(
patient VARCHAR2(55) NOT NULL,
contact VARCHAR2(55) NOT NULL,
type VARCHAR2(55) NOT NULL,
FOREIGN KEY(patient) REFERENCES patients(patient_id),
FOREIGN KEY(contact) REFERENCES contact_details(contact_id)
);

Table created.
```

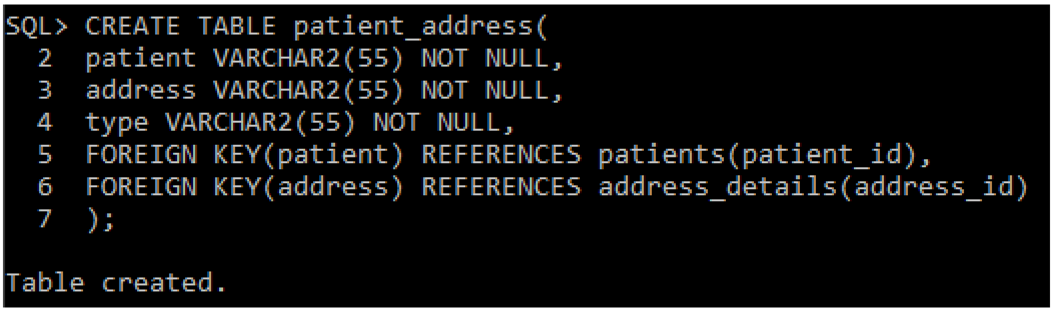
Figure 10: creating Patient_contact



```
SQL> DESC patient_contacts;
 Name                                      Null?    Type
 ----------------------------------------- -------- ------------
 PATIENT                                   NOT NULL VARCHAR2(55)
 CONTACT                                   NOT NULL VARCHAR2(55)
 TYPE                                      NOT NULL VARCHAR2(55)
```

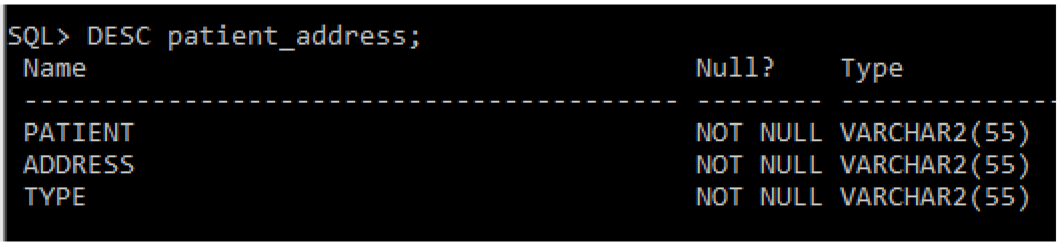
Figure 11: describing Patient_contacts

6) Creating Patient_address table:



```
SQL> CREATE TABLE patient_address(
patient VARCHAR2(55) NOT NULL,
address VARCHAR2(55) NOT NULL,
type VARCHAR2(55) NOT NULL,
FOREIGN KEY(patient) REFERENCES patients(patient_id),
FOREIGN KEY(address) REFERENCES address_details(address_id)
);

Table created.
```

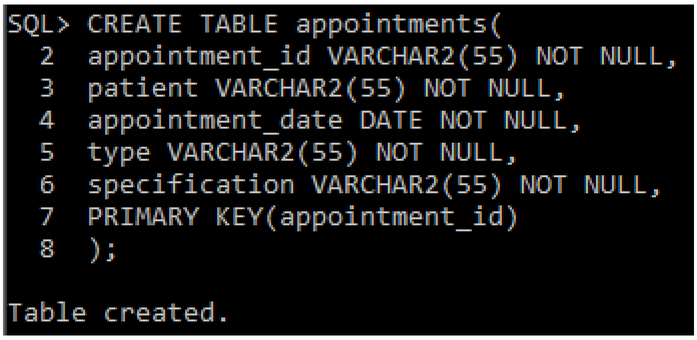
Figure 12: Creating Patient_address



```
SQL> DESC patient_address;
 Name                                      Null?    Type
 ----------------------------------------- -------- ------------
 PATIENT                                   NOT NULL VARCHAR2(55)
 ADDRESS                                   NOT NULL VARCHAR2(55)
 TYPE                                      NOT NULL VARCHAR2(55)
```

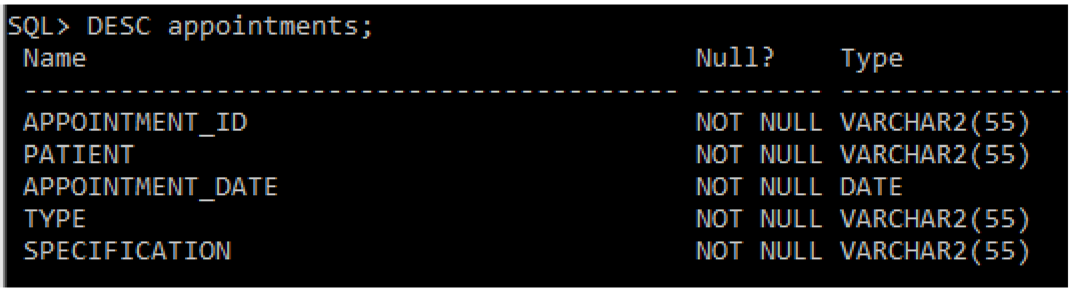
Figure 13 : describing Patient_address

7) Creating Appointments:



```
SQL> CREATE TABLE appointments(
     appointment_id VARCHAR2(55) NOT NULL,
     patient VARCHAR2(55) NOT NULL,
     appointment_date DATE NOT NULL,
     type VARCHAR2(55) NOT NULL,
     specification VARCHAR2(55) NOT NULL,
     PRIMARY KEY(appointment_id)
     );

Table created.
```

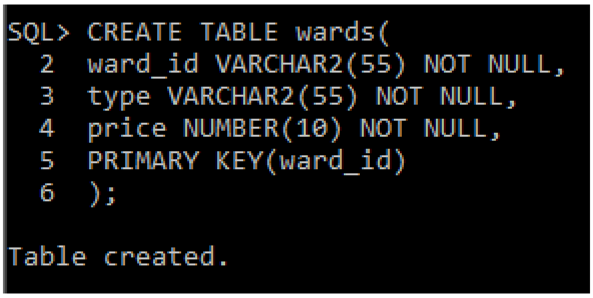
Figure 14: creating appointments



```
SQL> DESC appointments;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 APPOINTMENT_ID                            NOT NULL VARCHAR2(55)
 PATIENT                                   NOT NULL VARCHAR2(55)
 APPOINTMENT_DATE                          NOT NULL DATE
 TYPE                                      NOT NULL VARCHAR2(55)
 SPECIFICATION                             NOT NULL VARCHAR2(55)
```

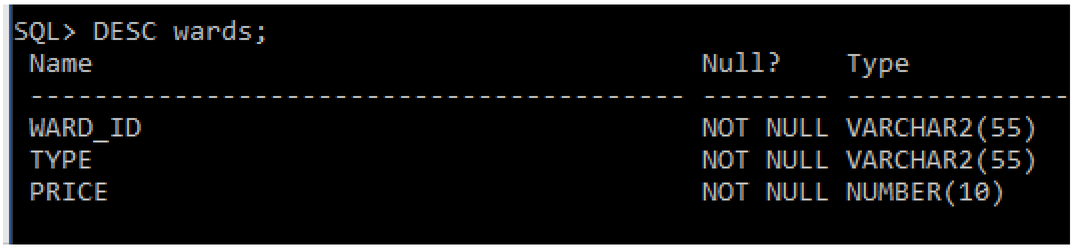
Figure 15: describing creating appointments

8) Creating wards:



```
SQL> CREATE TABLE wards(
     ward_id VARCHAR2(55) NOT NULL,
     type VARCHAR2(55) NOT NULL,
     price NUMBER(10) NOT NULL,
     PRIMARY KEY(ward_id)
     );

Table created.
```

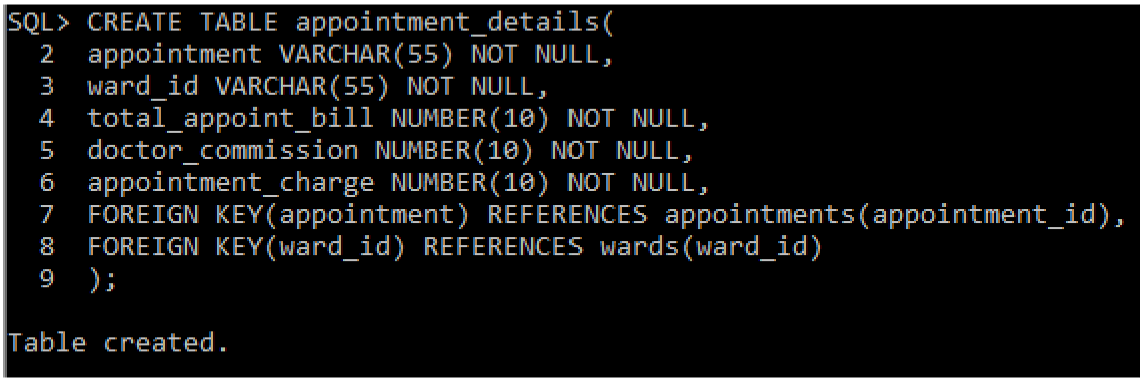
Figure 16: creating wards



```
SQL> DESC wards;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 WARD_ID                                   NOT NULL VARCHAR2(55)
 TYPE                                      NOT NULL VARCHAR2(55)
 PRICE                                     NOT NULL NUMBER(10)
```

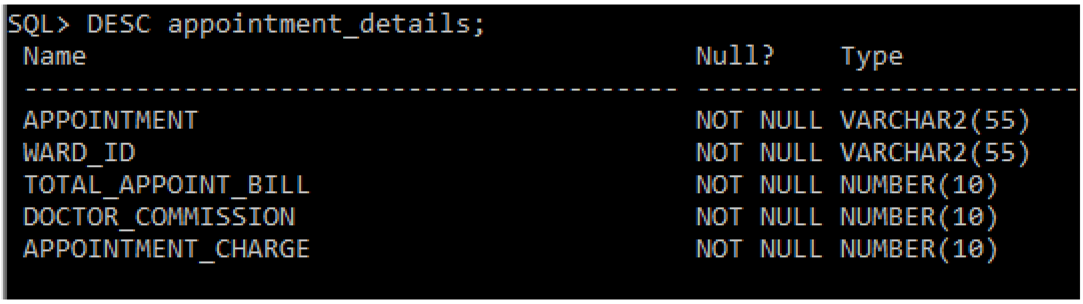
Figure 17 describing wards

9) Creating Appointment_details:



```
SQL> CREATE TABLE appointment_details(
     appointment VARCHAR(55) NOT NULL,
     ward_id VARCHAR(55) NOT NULL,
     total_appoint_bill NUMBER(10) NOT NULL,
     doctor_commission NUMBER(10) NOT NULL,
     appointment_charge NUMBER(10) NOT NULL,
     FOREIGN KEY(appointment) REFERENCES appointments(appointment_id),
     FOREIGN KEY(ward_id) REFERENCES wards(ward_id)
     );

Table created.
```

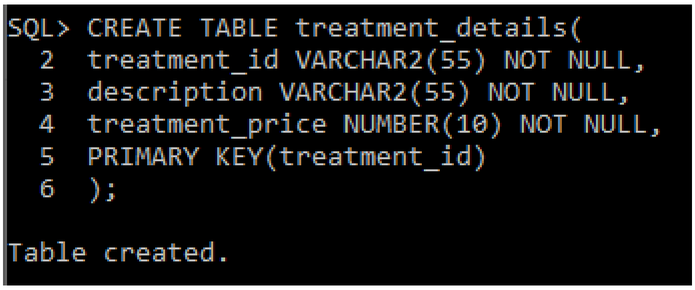
Figure 18: creating Appointment_details



```
SQL> DESC appointment_details;
 Name                                      Null?    Type
 ----------------------------------------- -------- ---------------
 APPOINTMENT                               NOT NULL VARCHAR2(55)
 WARD_ID                                   NOT NULL VARCHAR2(55)
 TOTAL_APPOINT_BILL                        NOT NULL NUMBER(10)
 DOCTOR_COMMISSION                         NOT NULL NUMBER(10)
 APPOINTMENT_CHARGE                        NOT NULL NUMBER(10)
```

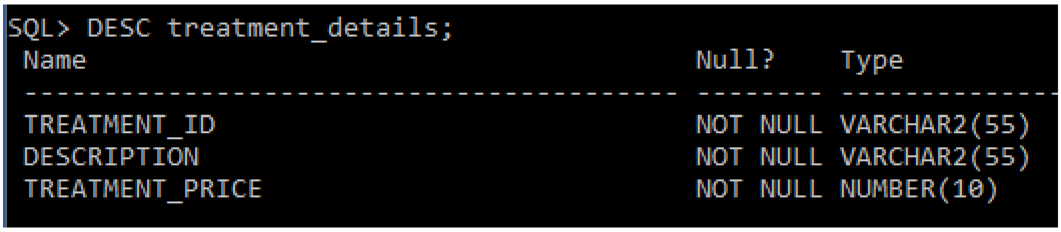
Figure 19: describing Appointment_details

10) Creating treatment_details:



```
SQL> CREATE TABLE treatment_details(
     treatment_id VARCHAR2(55) NOT NULL,
     description VARCHAR2(55) NOT NULL,
     treatment_price NUMBER(10) NOT NULL,
     PRIMARY KEY(treatment_id)
     );

Table created.
```

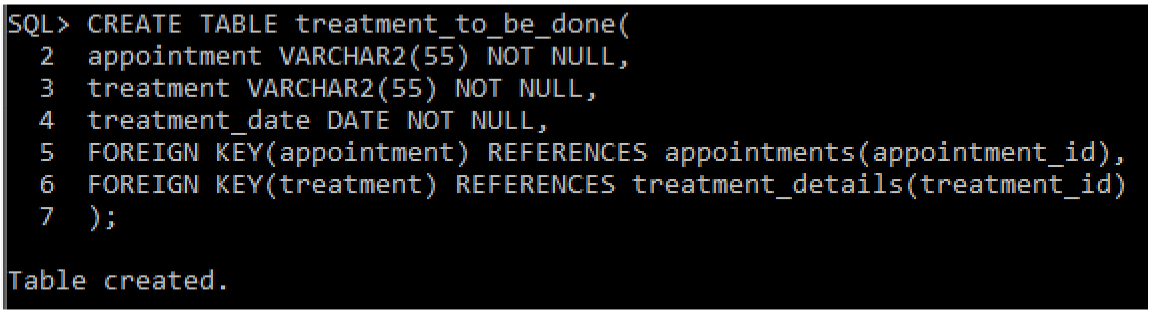
Figure 20: creating treatment_details



```
SQL> DESC treatment_details;
 Name                                      Null?    Type
 ----------------------------------------- -------- --------------
 TREATMENT_ID                              NOT NULL VARCHAR2(55)
 DESCRIPTION                               NOT NULL VARCHAR2(55)
 TREATMENT_PRICE                           NOT NULL NUMBER(10)
```

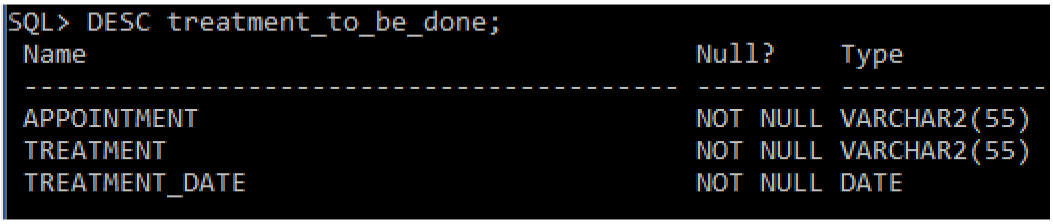
Figure 21: describing treatment_details

11) Creating treatment_to_be_done:



```
SQL> CREATE TABLE treatment_to_be_done(
  appointment VARCHAR2(55) NOT NULL,
  treatment VARCHAR2(55) NOT NULL,
  treatment_date DATE NOT NULL,
  FOREIGN KEY(appointment) REFERENCES appointments(appointment_id),
  FOREIGN KEY(treatment) REFERENCES treatment_details(treatment_id)
  );

Table created.
```

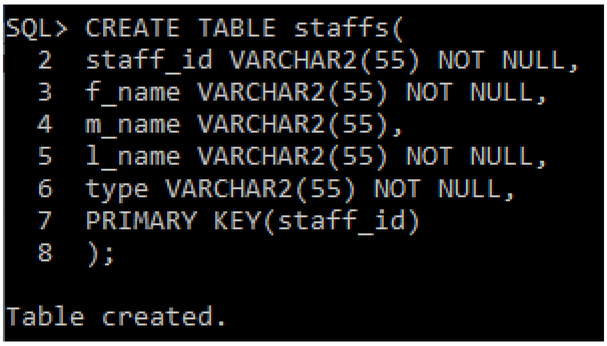
Figure 22: creating treatment_to_be_done



```
SQL> DESC treatment_to_be_done;
 Name                                      Null?    Type
 ----------------------------------------- -------- ------------
 APPOINTMENT                               NOT NULL VARCHAR2(55)
 TREATMENT                                 NOT NULL VARCHAR2(55)
 TREATMENT_DATE                            NOT NULL DATE
```

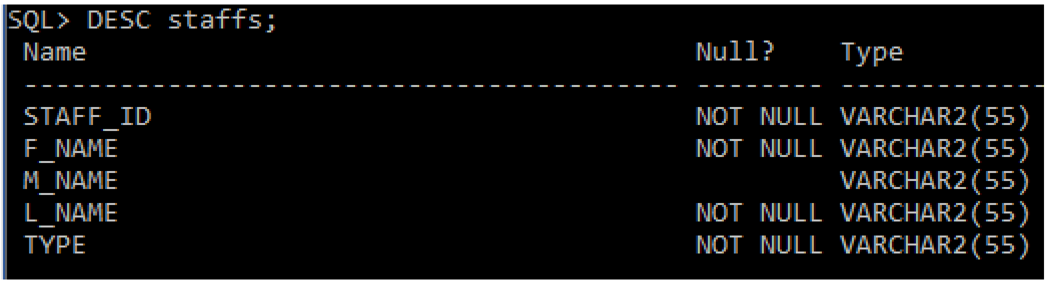
Figure 23: describing treatment_to_be_done

12) Creating staffs table:



```
SQL> CREATE TABLE staffs(
  staff_id VARCHAR2(55) NOT NULL,
  f_name VARCHAR2(55) NOT NULL,
  m_name VARCHAR2(55),
  l_name VARCHAR2(55) NOT NULL,
  type VARCHAR2(55) NOT NULL,
  PRIMARY KEY(staff_id)
  );

Table created.
```

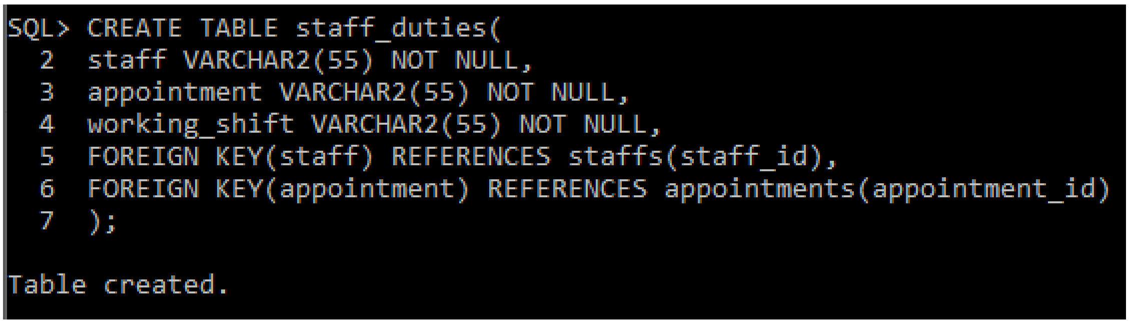
Figure 24: creating staff table



```
SQL> DESC staffs;
 Name                                      Null?    Type
 ----------------------------------------- -------- ------------
 STAFF_ID                                  NOT NULL VARCHAR2(55)
 F_NAME                                    NOT NULL VARCHAR2(55)
 M_NAME                                             VARCHAR2(55)
 L_NAME                                    NOT NULL VARCHAR2(55)
 TYPE                                      NOT NULL VARCHAR2(55)
```

Figure 25 describing describe tall

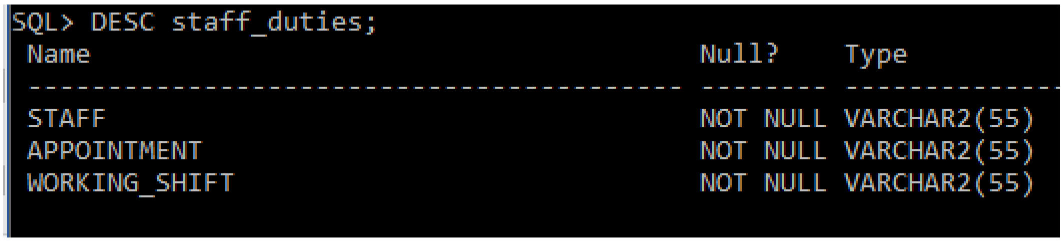
13) Creating Staff_duties table:



```
SQL> CREATE TABLE staff_duties(
staff VARCHAR2(55) NOT NULL,
appointment VARCHAR2(55) NOT NULL,
working_shift VARCHAR2(55) NOT NULL,
FOREIGN KEY(staff) REFERENCES staffs(staff_id),
FOREIGN KEY(appointment) REFERENCES appointments(appointment_id)
);

Table created.
```

Figure 26: creating Staff_duties

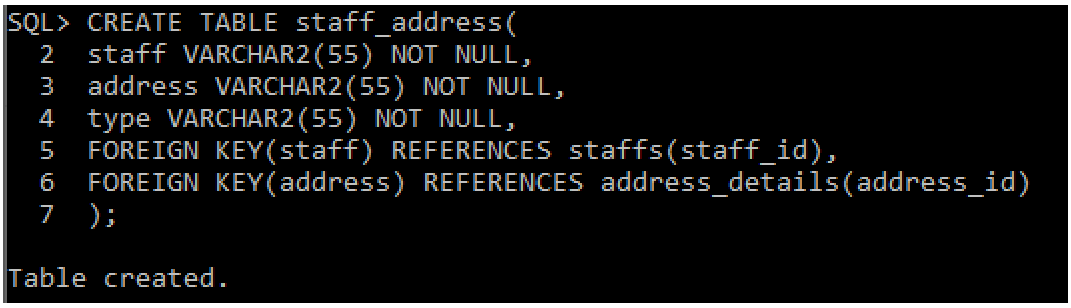
,



```
SQL> DESC staff_duties;
 Name                                      Null?    Type
 ----------------------------------------- -------- -------------
 STAFF                                     NOT NULL VARCHAR2(55)
 APPOINTMENT                               NOT NULL VARCHAR2(55)
 WORKING_SHIFT                             NOT NULL VARCHAR2(55)
```

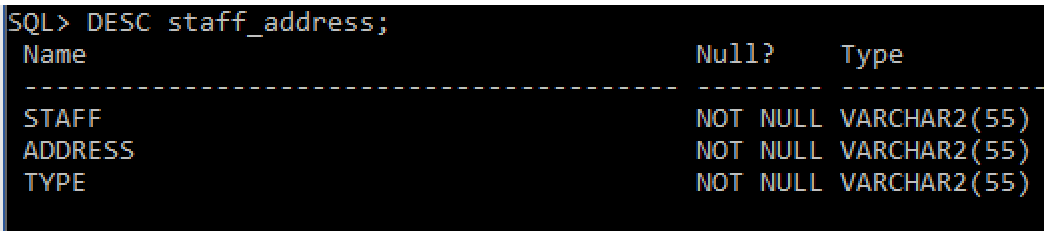
Figure 27: describing Staff_duties

14) Creating Staff_address



```
SQL> CREATE TABLE staff_address(
staff VARCHAR2(55) NOT NULL,
address VARCHAR2(55) NOT NULL,
type VARCHAR2(55) NOT NULL,
FOREIGN KEY(staff) REFERENCES staffs(staff_id),
FOREIGN KEY(address) REFERENCES address_details(address_id)
);

Table created.
```

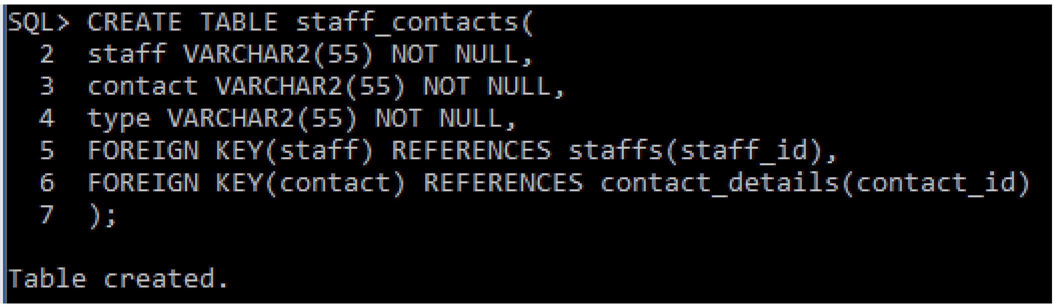
Figure 28: creating Staff_address



```
SQL> DESC staff_address;
 Name                                      Null?    Type
 ----------------------------------------- -------- ------------
 STAFF                                     NOT NULL VARCHAR2(55)
 ADDRESS                                   NOT NULL VARCHAR2(55)
 TYPE                                      NOT NULL VARCHAR2(55)
```

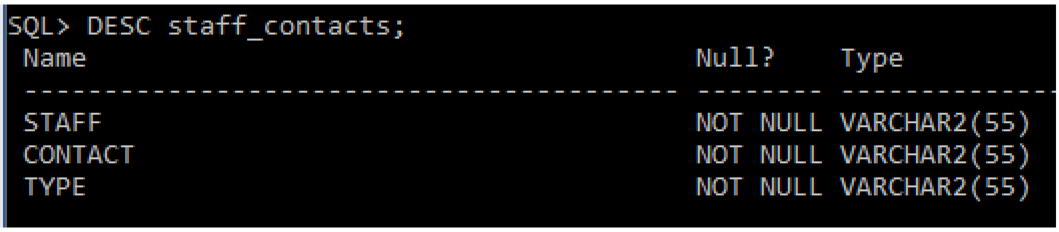
Figure 29: describing staff_id

15) Creating Staff_contacts:



```
SQL> CREATE TABLE staff_contacts(
  2  staff VARCHAR2(55) NOT NULL,
  3  contact VARCHAR2(55) NOT NULL,
  4  type VARCHAR2(55) NOT NULL,
  5  FOREIGN KEY(staff) REFERENCES staffs(staff_id),
  6  FOREIGN KEY(contact) REFERENCES contact_details(contact_id)
  7  );

Table created.
```

Figure 30: creating Staff_contacts

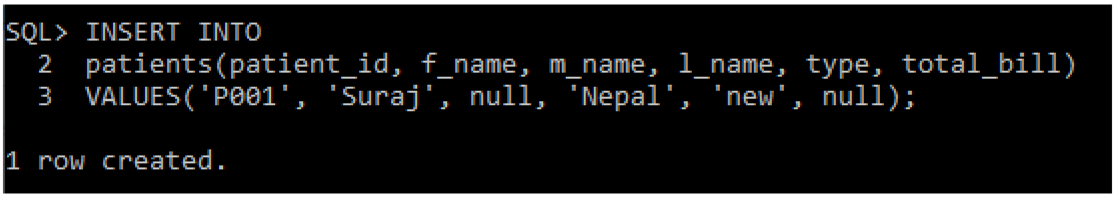


```
SQL> DESC staff_contacts;
 Name                                      Null?    Type
 ----------------------------------------- -------- ------------
 STAFF                                     NOT NULL VARCHAR2(55)
 CONTACT                                   NOT NULL VARCHAR2(55)
 TYPE                                      NOT NULL VARCHAR2(55)
```

Figure 31: describing MINISO kin mahango le garda

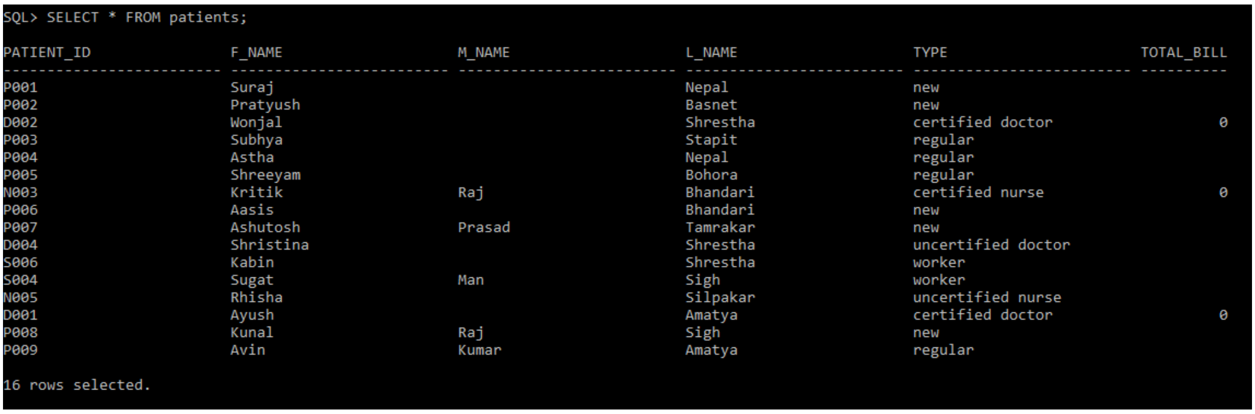
Populate DB tables

1) Patients:



```
SQL> INSERT INTO
  2  patients(patient_id, f_name, m_name, l_name, type, total_bill)
  3  VALUES('P001', 'Suraj', null, 'Nepal', 'new', null);

1 row created.
```

Figure 32: value insert in patients



```
SQL> SELECT * FROM patients;

PATIENT_ID               F_NAME                   M_NAME                   L_NAME                   TYPE                     TOTAL_BILL
------------------------ ------------------------ ------------------------ ------------------------ ------------------------ ----------
P001                     Suraj                                             Nepal                    new
P002                     Pratyush                                          Basnet                   new
D002                     Wonjal                                            Shrestha                 certified doctor                  0
P003                     Subhya                                            Stapit                   regular
P004                     Astha                                             Nepal                    regular
P005                     Shreeyam                                          Bohora                   regular
N003                     Kritik                   Raj                      Bhandari                 certified nurse                   0
P006                     Aasis                                             Bhandari                 new
P007                     Ashutosh                 Prasad                   Tamrakar                 new
D004                     Shristina                                         Shrestha                 uncertified doctor
S006                     Kabin                                             Shrestha                 worker
S004                     Sugat                    Man                      Sigh                     worker
N005                     Rhisha                                            Silpakar                 uncertified nurse
D001                     Ayush                                             Amatya                   certified doctor                  0
P008                     Kunal                    Raj                      Sigh                     new
P009                     Avin                     Kumar                    Amatya                   regular

16 rows selected.
```

Figure 33: data in patients

INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('P001', 'Suraj', null, 'Nepal', 'new', 3500);

INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('P002', 'Pratyush', null, 'Basnet', 'new', 2500);

INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('P003', 'Subhay', null, 'Sthapit', 'regular', 2300);

INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('D002', 'Wonjal', null, 'Shrestha', 'certified doctor', 0);

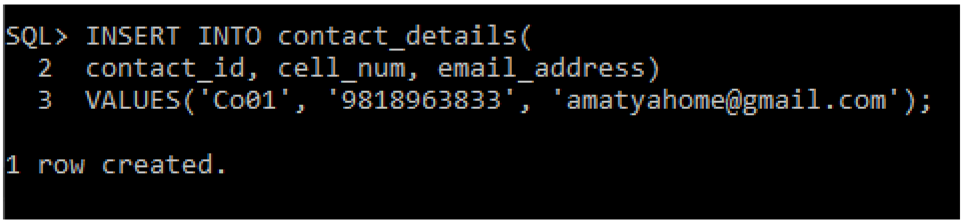
INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('D003', 'Babin', 'Raj', 'Chaguthi', 'uncertified doctor', 1500);

INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('S002', 'Billish', null, 'Kharguja', 'worker', 1700);

INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('N005', 'Rhisha', null, 'Silpakar', 'uncertified nurse', 1500);

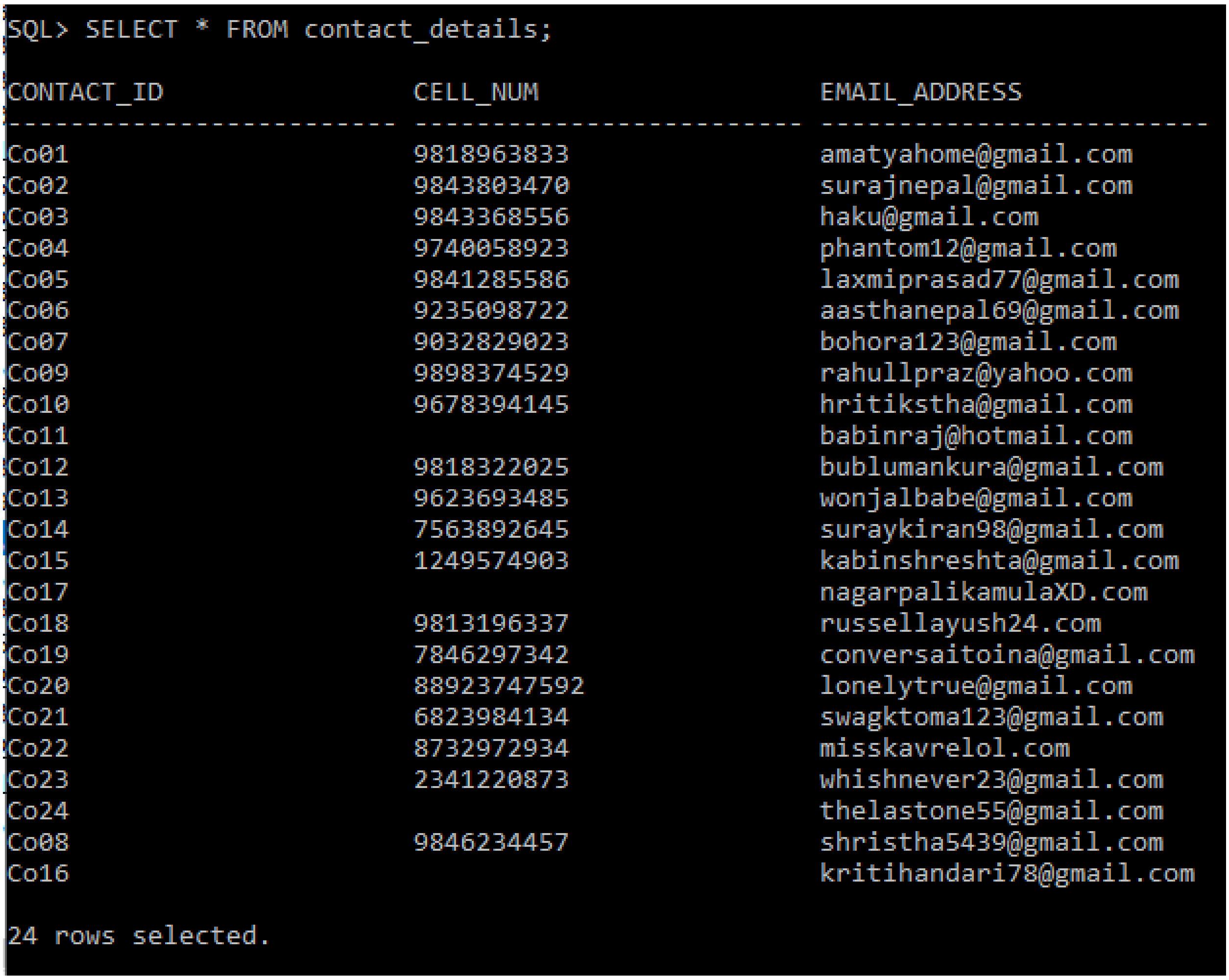
INSERT INTO patients(patient_id, f_name, m_name, l_name, type, total_bill) VALUES('D001', 'Ayush', null, 'Amatya', 'certified doctor', 1650);

2) Contact_details:



```
SQL> INSERT INTO contact_details(
  2  contact_id, cell_num, email_address)
  3  VALUES('Co01', '9818963833', 'amatyahome@gmail.com');

1 row created.
```

Figure 34: value insert in details



```
SQL> SELECT * FROM contact_details;

CONTACT_ID                CELL_NUM                  EMAIL_ADDRESS
------------------------- ------------------------- -------------------------
Co01                      9818963833                amatyahome@gmail.com
Co02                      9843803470                surajnepal@gmail.com
Co03                      9843368556                haku@gmail.com
Co04                      9740058923                phantom12@gmail.com
Co05                      9841285586                laxmiprasad77@gmail.com
Co06                      9235098722                aasthanepal69@gmail.com
Co07                      9032829023                bohora123@gmail.com
Co09                      9898374529                rahullpraz@yahoo.com
Co10                      9678394145                hritikstha@gmail.com
Co11                                                babinraj@hotmail.com
Co12                      9818322025                bublumankura@gmail.com
Co13                      9623693485                wonjalbabe@gmail.com
Co14                      7563892645                suraykiran98@gmail.com
Co15                      1249574903                kabinshreshta@gmail.com
Co17                                                nagarpalikamulaXD.com
Co18                      9813196337                russellayush24.com
Co19                      7846297342                conversaitoina@gmail.com
Co20                      88923747592               lonelytrue@gmail.com
Co21                      6823984134                swagktoma123@gmail.com
Co22                      8732972934                misskavrelol.com
Co23                      2341220873                whishnever23@gmail.com
Co24                                                thelastone55@gmail.com
Co08                      9846234457                shristha5439@gmail.com
Co16                                                kritihandari78@gmail.com

24 rows selected.
```

Figure 35: value insert in Contact_details

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co01', '9818963833', 'amatyahome@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co02', '9843803470', 'surajnepal@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co03', '9843368556', 'haku@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co04', '9740058923', 'phantom12@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co05', '9841285586', 'laxmiprasad77@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co06', '9235098722', 'aasthanepal69@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co07', '9032829023', 'bohora123@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co08', '9846234457', 'shristha5439@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co09', '9898374529', 'rahullpraz@yahoo.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co10', '9678394145', 'hritikstha@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co11', null, 'babinraj@hotmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co12', '9818322025', 'bublumankura@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co13', '9623693485', 'wonjalbabe@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co14', '7563892645', 'suraykiran98@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co15', '1249574903', 'kabinshreshta@gmail.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co16', null, 'kritihandari78@gmail.com');

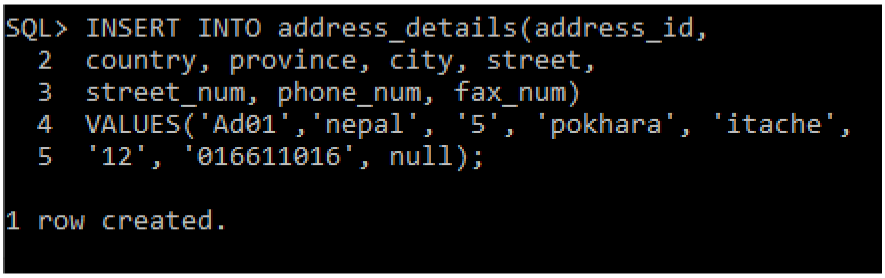
INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co17', null, 'nagarpalikamulaXD.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co18', '9813196337', 'russellayush24.com');

INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co19', '7846297342', 'conversaitoina@gmail.com');

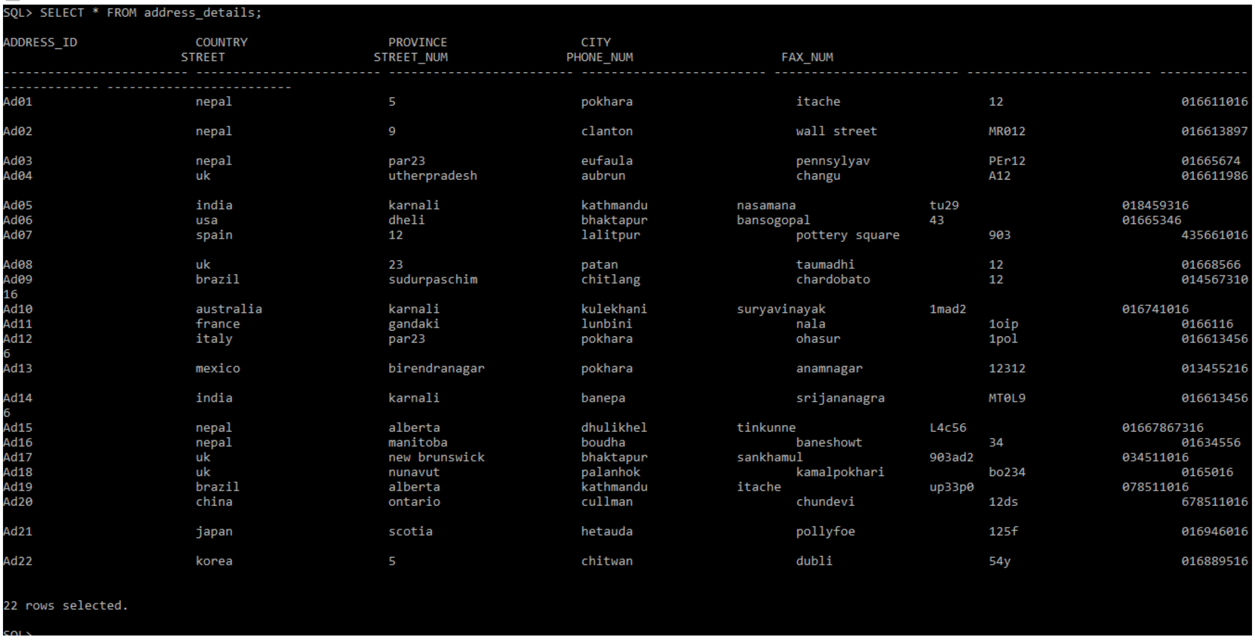
INSERT INTO contact_details(contact_id, cell_num, email_address) VALUES('Co20', '88923747592', 'lonelytrue@gmail.com');

3) Address_details:



```
SQL> INSERT INTO address_details(address_id,
  2  country, province, city, street,
  3  street_num, phone_num, fax_num)
  4  VALUES('Ad01','nepal', '5', 'pokhara', 'itache',
  5  '12', '016611016', null);

1 row created.
```

Figure 36: value insert in Address_details



```
SQL> SELECT * FROM address_details;

ADDRESS_ID                COUNTRY                   PROVINCE                  CITY
                        STREET                    STREET_NUM                PHONE_NUM                    FAX_NUM
------------------------- ------------------------- ------------------------- ------------------------- ------------------------- ------------------------- ------------
------------ -------------------------
Ad01                      nepal                     5                         pokhara                      itache                    12                        016611016

Ad02                      nepal                     9                         clanton                      wall street               MR012                     016613897

Ad03                      nepal                     par23                     eufaula                      pennsylyav                PEr12                     01665674
Ad04                      uk                        utherpradesh              aubrun                       changu                    A12                       016611986

Ad05                      india                     karnali                   kathmandu            nasamana                  tu29                      018459316
Ad06                      usa                       dheli                     bhaktapur            bansogopal                43                        01665346
Ad07                      spain                     12                        lalitpur                     pottery square            903                       435661016

Ad08                      uk                        23                        patan                        taumadhi                  12                        01668566
Ad09                      brazil                    sudurpaschim              chitlang                     chardobato                12                        014567310
16
Ad10                      australia                 karnali                   kulekhani            suryavinayak              1mad2                     016741016
Ad11                      france                    gandaki                   lunbini                      nala                      1oip                      0166116
Ad12                      italy                     par23                     pokhara                      ohasur                    1pol                      016613456
6
Ad13                      mexico                    birendranagar             pokhara                      anamnagar                 12312                     013455216

Ad14                      india                     karnali                   banepa                       srijananagra              MT0L9                     016613456
6
Ad15                      nepal                     alberta                   dhulikhel            tinkunne                  L4c56                     01667867316
Ad16                      nepal                     manitoba                  boudha                       baneshowt                 34                        01634556
Ad17                      uk                        new brunswick             bhaktapur            sankhamul                 903ad2                    034511016
Ad18                      uk                        nunavut                   palanhok                     kamalpokhari              bo234                     0165016
Ad19                      brazil                    alberta                   kathmandu            itache                    up33p0                    078511016
Ad20                      china                     ontario                   cullman                      chundevi                  12ds                      678511016

Ad21                      japan                     scotia                    hetauda                      pollyfoe                  125f                      016946016

Ad22                      korea                     5                         chitwan                      dubli                     54y                       016889516


22 rows selected.

SQL>
```

Figure 37: value insert in address_details

INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad01','nepal', '5', 'pokhara', 'itache', '12', '016611016', null);

INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad02','nepal', '9', 'clanton', 'wall street', 'MR012', '016613897', null);

INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad03','nepal', 'par23', 'eufaula', 'pennsylyav', 'PEr12', '01665674', null);

INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad04','uk', 'utherpradesh', 'aubrun', 'changu', 'A12', '016611986', null);

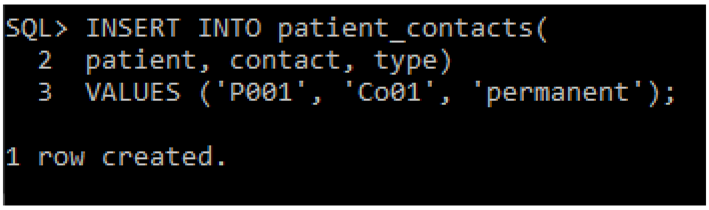
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad05','india', 'karnali', 'kathmandu', 'nasamana', 'tu29', '018459316', null);

INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad06','usa', 'dheli', 'bhaktapur', 'bansogopal', '43', '01665346', null);

```
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad07','spain', '12', 'lalitpur', 'pottery square', '903', '435661016', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad08','uk', '23', 'patan', 'taumadhi', '12', '01668566', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad09','brazil', 'sudurpaschim', 'chitlang', 'chardobato', '12', '01456731016', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad10','australia', 'karnali', 'kulekhani', 'suryavinayak', '1mad2', '016741016', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad11','france', 'gandaki', 'lunbini', 'nala', '1oip', '0166116', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad12','italy', 'par23', 'pokhara', 'ohasur', '1pol', '0166134566', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad13','mexico', 'birendranagar', 'pokhara', 'anamnagar', '12312', '013455216', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad14','india', 'karnali', 'banepa', 'srijananagra', 'MT0L9', '0166134566', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad15','nepal', 'alberta', 'dhulikhel', 'tinkunne', 'L4c56', '01667867316', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad16','nepal', 'manitoba', 'boudha', 'baneshowt', '34', '01634556', null);
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad17','uk', 'new brunswick', 'bhaktapur', 'sankhamul', '903ad2', '034511016', null);
```

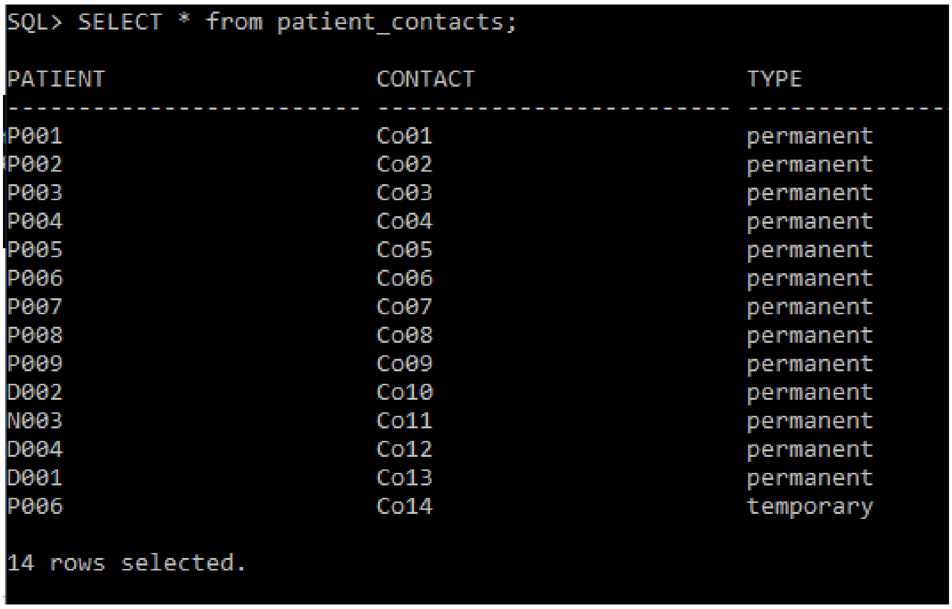
INSERT INTO address_details(address_id, country, province, city, street, street_num, phone_num, fax_num) VALUES('Ad18','uk', 'nunavut', 'palanhok', 'kamalpokhari', 'bo234', '0165016', null);

4) Patient_contacts:



```
SQL> INSERT INTO patient_contacts(
  2  patient, contact, type)
  3  VALUES ('P001', 'Co01', 'permanent');

1 row created.
```

Figure 38: value insert in Patient_contacts



```
SQL> SELECT * from patient_contacts;

PATIENT                   CONTACT                   TYPE
------------------------- ------------------------- -------------
P001                      Co01                      permanent
P002                      Co02                      permanent
P003                      Co03                      permanent
P004                      Co04                      permanent
P005                      Co05                      permanent
P006                      Co06                      permanent
P007                      Co07                      permanent
P008                      Co08                      permanent
P009                      Co09                      permanent
D002                      Co10                      permanent
N003                      Co11                      permanent
D004                      Co12                      permanent
D001                      Co13                      permanent
P006                      Co14                      temporary

14 rows selected.
```

Figure 39: value insert in Patient_contacts

INSERT INTO patient_contacts(patient, contact, type) VALUES ('P001', 'Co01', 'permanent');

INSERT INTO patient_contacts(patient, contact, type) VALUES ('P002', 'Co02', 'permanent');

INSERT INTO patient_contacts(patient, contact, type) VALUES ('D002', 'Co10', 'permanent');

INSERT INTO patient_contacts(patient, contact, type) VALUES ('N005', 'Co11', 'permanent');

INSERT INTO patient_contacts(patient, contact, type) VALUES ('D003', 'Co12', 'permanent');

INSERT INTO patient_contacts(patient, contact, type) VALUES ('D001', 'Co13', 'permanent');

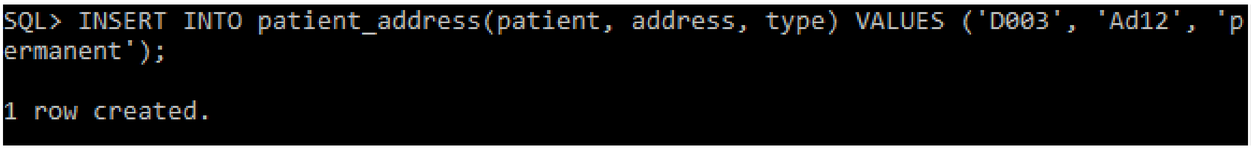
INSERT INTO patient_contacts(patient, contact, type) VALUES ('S002', 'Co14', 'permanent');

INSERT INTO patient_contacts(patient, contact, type) VALUES ('P003', 'Co03', 'permanent');

INSERT INTO patient_contacts(patient, contact, type) VALUES ('D001', 'Co09', 'temporary');

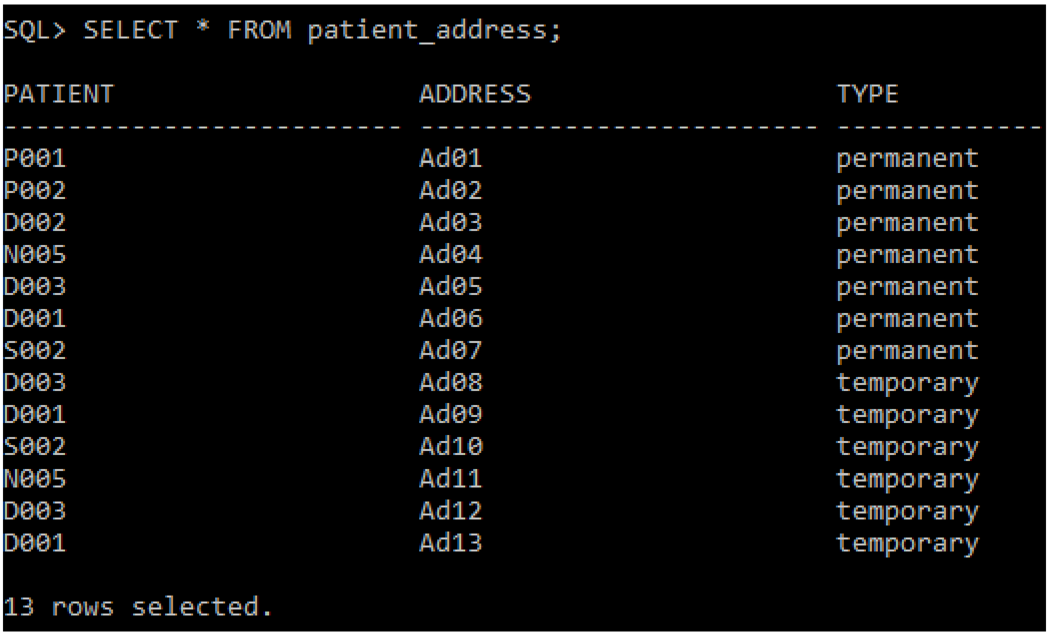
INSERT INTO patient_contacts(patient, contact, type) VALUES ('S002', 'Co15', 'temporary');

5) Patient_address:



```
SQL> INSERT INTO patient_address(patient, address, type) VALUES ('D003', 'Ad12', 'p
ermanent');

1 row created.
```

Figure 40: value insert in Patient_address



```
SQL> SELECT * FROM patient_address;

PATIENT                   ADDRESS                   TYPE
------------------------- ------------------------- -------------
P001                      Ad01                      permanent
P002                      Ad02                      permanent
D002                      Ad03                      permanent
N005                      Ad04                      permanent
D003                      Ad05                      permanent
D001                      Ad06                      permanent
S002                      Ad07                      permanent
D003                      Ad08                      temporary
D001                      Ad09                      temporary
S002                      Ad10                      temporary
N005                      Ad11                      temporary
D003                      Ad12                      temporary
D001                      Ad13                      temporary

13 rows selected.
```

Figure 41: value insert in Patient_address

INSERT INTO patient_address(patient, address, type) VALUES ('P001', 'Ad01', 'permanent');

INSERT INTO patient_address(patient, address, type) VALUES ('P002', 'Ad02', 'permanent');

INSERT INTO patient_address(patient, address, type) VALUES ('D002', 'Ad03', 'permanent');

INSERT INTO patient_address(patient, address, type) VALUES ('N005', 'Ad04', 'permanent');

INSERT INTO patient_address(patient, address, type) VALUES ('D003', 'Ad05', 'permanent');

INSERT INTO patient_address(patient, address, type) VALUES ('D001', 'Ad06', 'permanent');

INSERT INTO patient_address(patient, address, type) VALUES ('S002', 'Ad07', 'permanent');

INSERT INTO patient_address(patient, address, type) VALUES ('P003', 'Ad08', 'temporary');

INSERT INTO patient_address(patient, address, type) VALUES ('D001', 'Ad09', 'temporary');

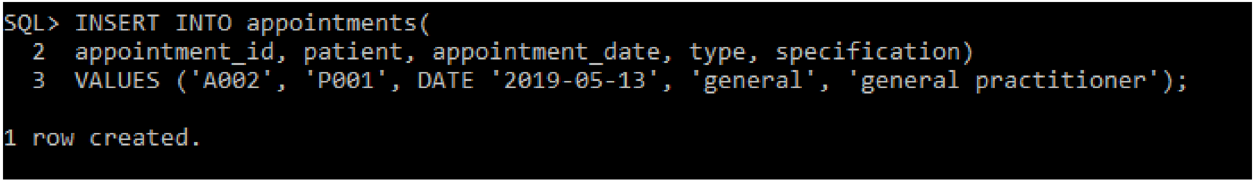
INSERT INTO patient_address(patient, address, type) VALUES ('S002', 'Ad10', 'temporary');

INSERT INTO patient_address(patient, address, type) VALUES ('N005', 'Ad11', 'temporary');

INSERT INTO patient_address(patient, address, type) VALUES ('P003', 'Ad12', 'permanent');

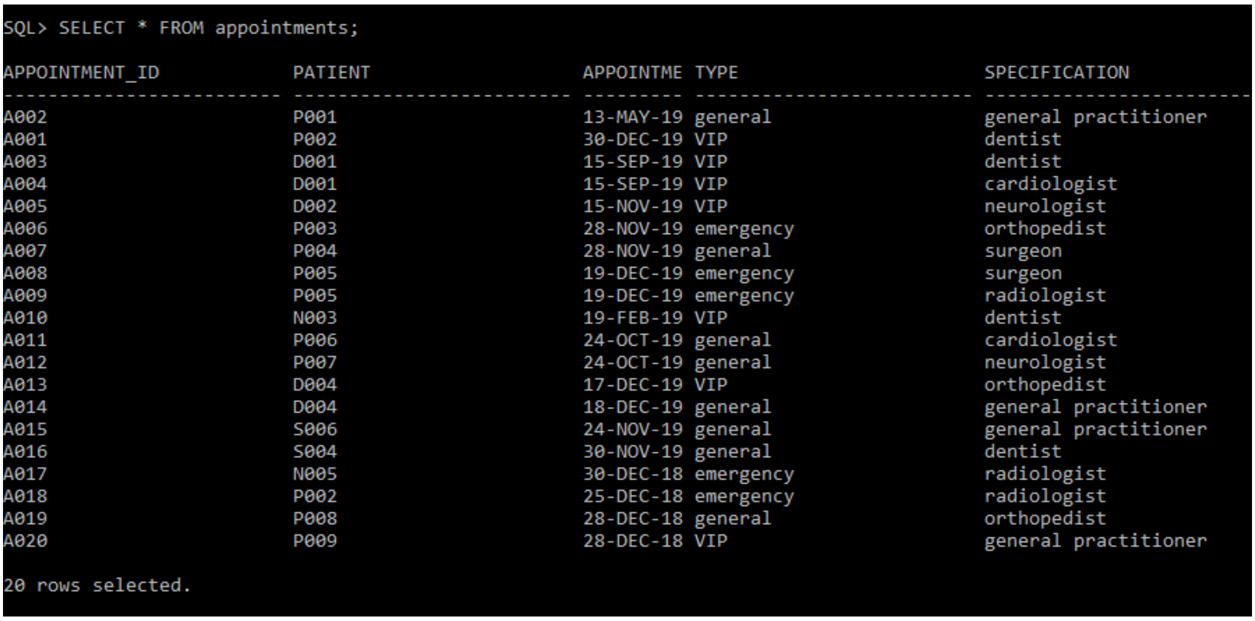
INSERT INTO patient_address(patient, address, type) VALUES ('D001', 'Ad13', 'temporary');

6) Appointments:



```
SQL> INSERT INTO appointments(
  2  appointment_id, patient, appointment_date, type, specification)
  3  VALUES ('A002', 'P001', DATE '2019-05-13', 'general', 'general practitioner');

1 row created.
```

Figure 42: value insert in appointments



```
SQL> SELECT * FROM appointments;

APPOINTMENT_ID            PATIENT                   APPOINTME TYPE                      SPECIFICATION
------------------------- ------------------------- --------- ------------------------- -------------------------
A002                      P001                      13-MAY-19 general                   general practitioner
A001                      P002                      30-DEC-19 VIP                       dentist
A003                      D001                      15-SEP-19 VIP                       dentist
A004                      D001                      15-SEP-19 VIP                       cardiologist
A005                      D002                      15-NOV-19 VIP                       neurologist
A006                      P003                      28-NOV-19 emergency                 orthopedist
A007                      P004                      28-NOV-19 general                   surgeon
A008                      P005                      19-DEC-19 emergency                 surgeon
A009                      P005                      19-DEC-19 emergency                 radiologist
A010                      N003                      19-FEB-19 VIP                       dentist
A011                      P006                      24-OCT-19 general                   cardiologist
A012                      P007                      24-OCT-19 general                   neurologist
A013                      D004                      17-DEC-19 VIP                       orthopedist
A014                      D004                      18-DEC-19 general                   general practitioner
A015                      S006                      24-NOV-19 general                   general practitioner
A016                      S004                      30-NOV-19 general                   dentist
A017                      N005                      30-DEC-18 emergency                 radiologist
A018                      P002                      25-DEC-18 emergency                 radiologist
A019                      P008                      28-DEC-18 general                   orthopedist
A020                      P009                      28-DEC-18 VIP                       general practitioner

20 rows selected.
```

Figure 43: value insert in appointments

INSERT INTO appointments(appointment_id, patient, appointment_date, type, specification) VALUES ('A001', 'P001', DATE '2019-05-13', 'general', 'general practitioner');

insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A002', 'P002', DATE '2019-12-30', 'VIP', 'dentist');

insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A003', 'D001', DATE '2019-09-15', 'VIP', 'dentist');

insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A004', 'D001', DATE '2019-09-15', 'VIP', 'cardiologist');

insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A005', 'D002', DATE '2019-11-15', 'VIP', 'neurologist');

insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A006', 'D002', DATE '2019-12-18', 'general', 'general practitioner');

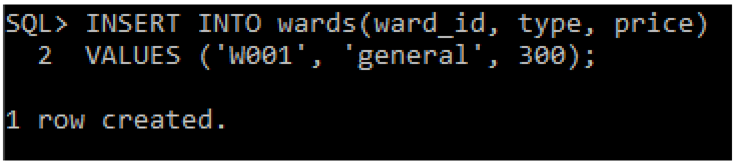
insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A007', 'S002', DATE '2019-11-30', 'general', 'dentist');

insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A008', 'N005', DATE '2018-12-30', 'emergency', 'radiologist');

insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A009', 'P002', DATE '2018-12-25', 'emergency', 'radiologist');

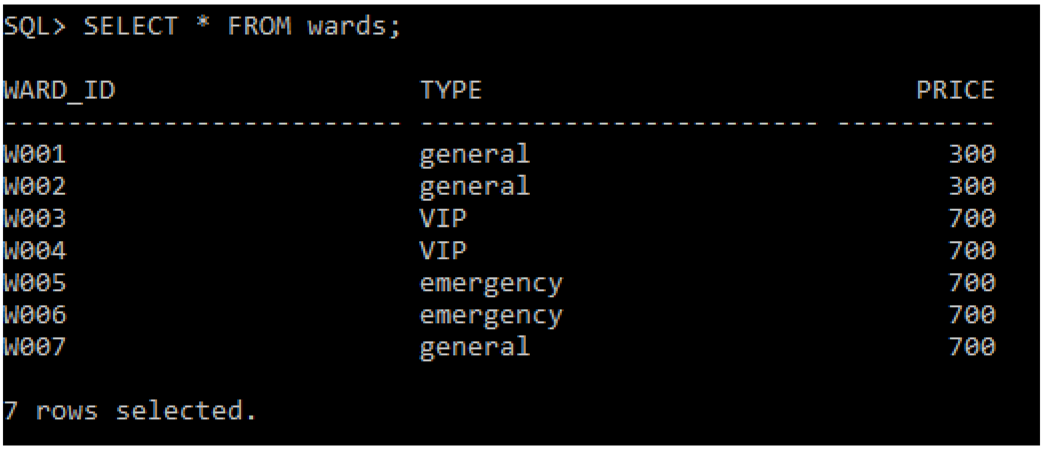
insert into appointments(appointment_id, patient, appointment_date, type, specification) values('A010', 'P003', DATE '2018-12-05', 'general', 'radiologist');

7) Wards:



```
SQL> INSERT INTO wards(ward_id, type, price)
  2  VALUES ('W001', 'general', 300);

1 row created.
```

Figure 44: value insert in Wards



```
SQL> SELECT * FROM wards;

WARD_ID                   TYPE                         PRICE
------------------------- ------------------------- ----------
W001                      general                          300
W002                      general                          300
W003                      VIP                              700
W004                      VIP                              700
W005                      emergency                        700
W006                      emergency                        700
W007                      general                          700

7 rows selected.
```

Figure 45: value insert in wards

insert into wards(ward_id, type, price) values ('W001', 'general', 300);

insert into wards(ward_id, type, price) values ('W002', 'general', 300);

insert into wards(ward_id, type, price) values ('W003', 'VIP', 700);

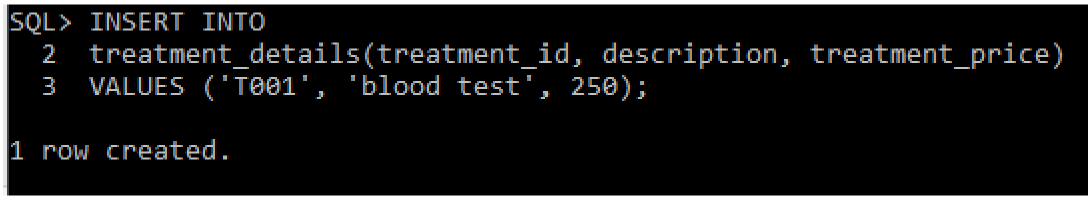
insert into wards(ward_id, type, price) values ('W004', 'VIP', 700);

insert into wards(ward_id, type, price) values ('W005', 'emergency', 700);

insert into wards(ward_id, type, price) values ('W006', 'emergency', 700);

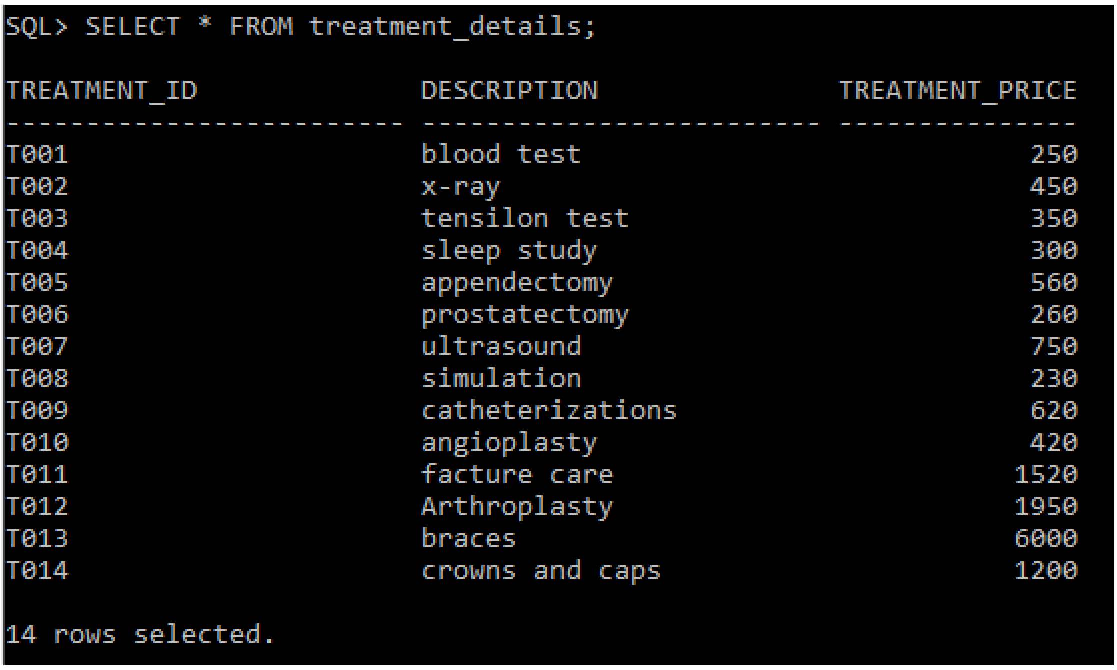
insert into wards(ward_id, type, price) values ('W007', 'general', 700);

8) Treatment_details:



```
SQL> INSERT INTO
  2  treatment_details(treatment_id, description, treatment_price)
  3  VALUES ('T001', 'blood test', 250);

1 row created.
```

Figure 46: value insert in Treatment_details



```
SQL> SELECT * FROM treatment_details;

TREATMENT_ID              DESCRIPTION               TREATMENT_PRICE
------------------------- ------------------------- ---------------
T001                      blood test                            250
T002                      x-ray                                 450
T003                      tensilon test                         350
T004                      sleep study                           300
T005                      appendectomy                          560
T006                      prostatectomy                         260
T007                      ultrasound                            750
T008                      simulation                            230
T009                      catheterizations                      620
T010                      angioplasty                           420
T011                      facture care                         1520
T012                      Arthroplasty                         1950
T013                      braces                               6000
T014                      crowns and caps                      1200

14 rows selected.
```

Figure 47: value insert in Treatment_details

INSERT INTO treatment_details(treatment_id, description, treatment_price) VALUES ('T001', 'blood test', 250);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T002', 'x-ray', 450);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T003', 'tensilon test', 350);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T004', 'sleep study', 300);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T005', 'appendectomy', 560);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T006', 'prostatectomy', 260);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T007', 'ultrasound', 750);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T008', 'simulation', 230);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T009', 'catheterizations', 620);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T010', 'angioplasty', 420);

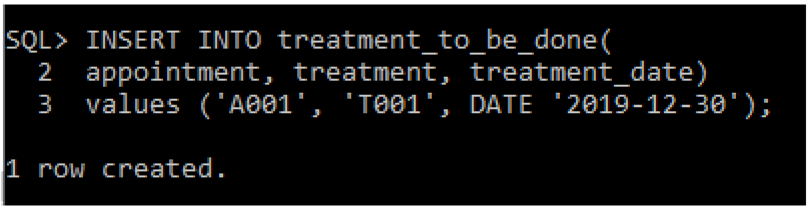
INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T011', 'facture care', 1520);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T012', 'Arthroplasty', 1950);

INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T013', 'braces', 6000);

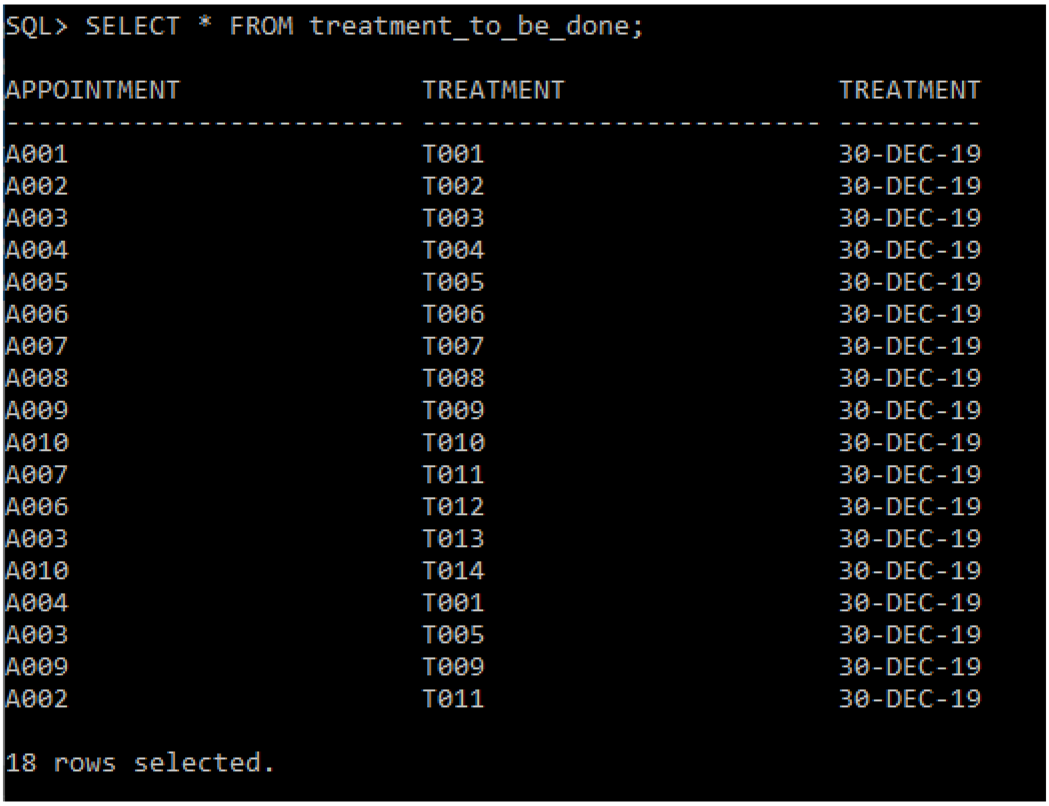
INSERT INTO treatment_details (treatment_id, description, treatment_price) VALUES ('T014', 'crowns and caps', 1200);

9) Treatment_to_be_done:



```
SQL> INSERT INTO treatment_to_be_done(
  2  appointment, treatment, treatment_date)
  3  values ('A001', 'T001', DATE '2019-12-30');

1 row created.
```

Figure 48: value insert in Treatment_to_be_done



```
SQL> SELECT * FROM treatment_to_be_done;

APPOINTMENT                TREATMENT                  TREATMENT
-------------------------- -------------------------- ---------
A001                       T001                       30-DEC-19
A002                       T002                       30-DEC-19
A003                       T003                       30-DEC-19
A004                       T004                       30-DEC-19
A005                       T005                       30-DEC-19
A006                       T006                       30-DEC-19
A007                       T007                       30-DEC-19
A008                       T008                       30-DEC-19
A009                       T009                       30-DEC-19
A010                       T010                       30-DEC-19
A007                       T011                       30-DEC-19
A006                       T012                       30-DEC-19
A003                       T013                       30-DEC-19
A010                       T014                       30-DEC-19
A004                       T001                       30-DEC-19
A003                       T005                       30-DEC-19
A009                       T009                       30-DEC-19
A002                       T011                       30-DEC-19

18 rows selected.
```

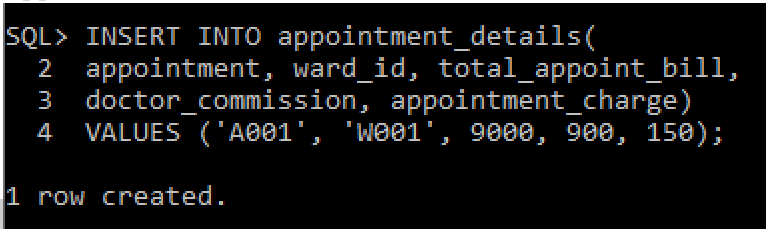
Figure 49: value insert in treatment_to_be_done

```
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A001', 'T001', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A002', 'T002', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A003', 'T003', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A004', 'T004', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A005', 'T005', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A006', 'T006', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A007', 'T007', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A008', 'T008', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A009', 'T009', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A010', 'T010', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A007', 'T011', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A006', 'T012', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A003', 'T013', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A010', 'T014', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A004', 'T001', DATE '2019-12-30');
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values
('A003', 'T005', DATE '2019-12-30');
```

INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values ('A009', 'T009', DATE '2019-12-30');

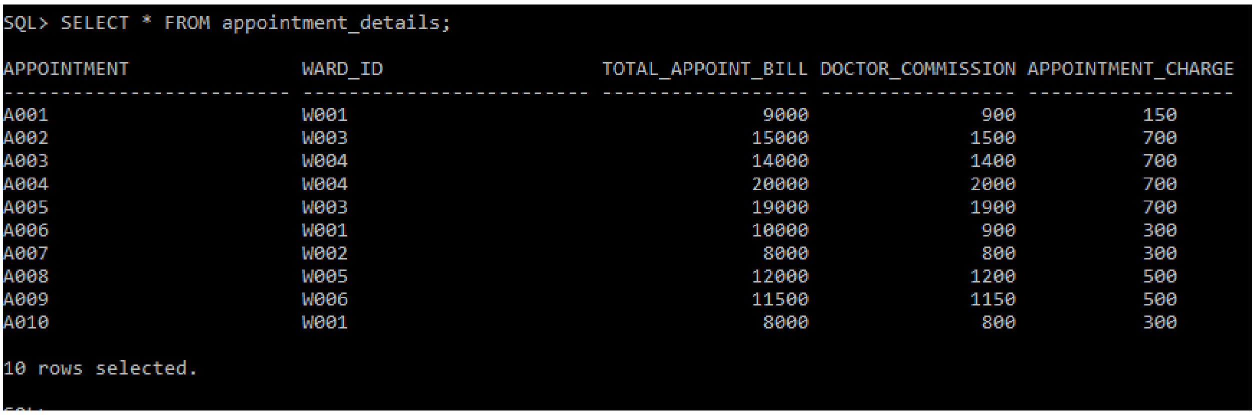
INSERT INTO treatment_to_be_done(appointment, treatment, treatment_date) values ('A002', 'T011', DATE '2019-12-30');

10) Appointment_details:



```
SQL> INSERT INTO appointment_details(
  2  appointment, ward_id, total_appoint_bill,
  3  doctor_commission, appointment_charge)
  4  VALUES ('A001', 'W001', 9000, 900, 150);

1 row created.
```

Figure 50: value insert in Appointment_details



```
SQL> SELECT * FROM appointment_details;

APPOINTMENT              WARD_ID                  TOTAL_APPOINT_BILL DOCTOR_COMMISSION APPOINTMENT_CHARGE
------------------------ ------------------------ ------------------ ----------------- ------------------
A001                     W001                                   9000               900                150
A002                     W003                                  15000              1500                700
A003                     W004                                  14000              1400                700
A004                     W004                                  20000              2000                700
A005                     W003                                  19000              1900                700
A006                     W001                                  10000               900                300
A007                     W002                                   8000               800                300
A008                     W005                                  12000              1200                500
A009                     W006                                  11500              1150                500
A010                     W001                                   8000               800                300

10 rows selected.
```

Figure 51: value insert in Appointment_details

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A001', 'W001', 9000, 900, 300);

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A002', 'W003', 15000, 1500, 700);

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A003', 'W004', 14000, 1400, 700);

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A004', 'W004', 20000, 2000, 700);

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A005', 'W003', 19000, 1900, 700);

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A006', 'W001', 10000, 900, 300);

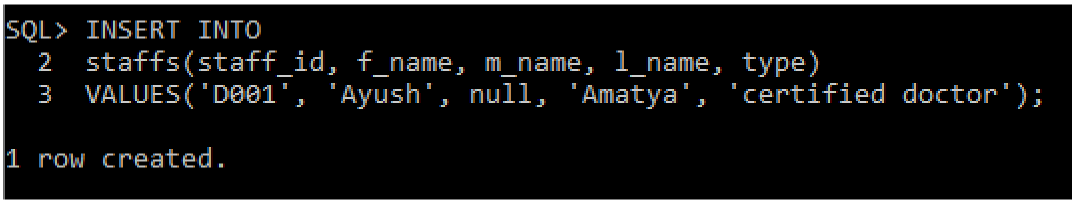
INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A007', 'W002', 8000, 800, 300);

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A008', 'W005', 12000, 1200, 500);

INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A009', 'W006', 11500, 1150, 500);

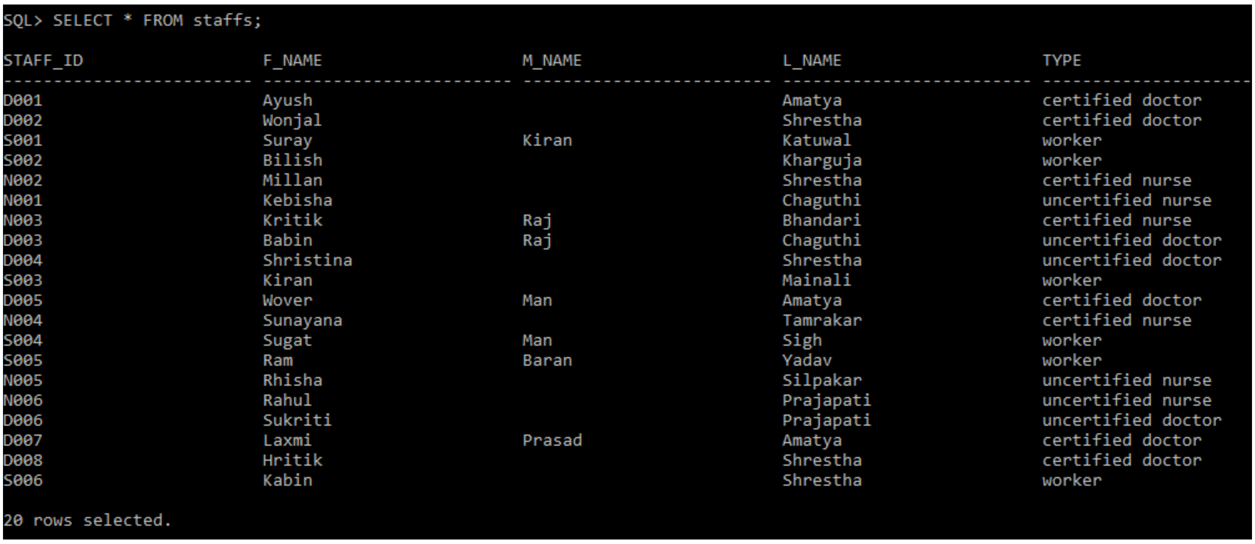
INSERT INTO appointment_details(appointment, ward_id, total_appoint_bill, doctor_commission, appointment_charge) VALUES ('A010', 'W001', 8000, 800, 300);

11) Staffs:



```
SQL> INSERT INTO
  2  staffs(staff_id, f_name, m_name, l_name, type)
  3  VALUES('D001', 'Ayush', null, 'Amatya', 'certified doctor');

1 row created.
```

Figure 52: value insert in staffs



```
SQL> SELECT * FROM staffs;

STAFF_ID                 F_NAME                   M_NAME                   L_NAME                   TYPE
------------------------ ------------------------ ------------------------ ------------------------ --------------------
D001                     Ayush                                             Amatya                   certified doctor
D002                     Wonjal                                            Shrestha                 certified doctor
S001                     Suray                    Kiran                    Katuwal                  worker
S002                     Bilish                                            Kharguja                 worker
N002                     Millan                                            Shrestha                 certified nurse
N001                     Kebisha                                           Chaguthi                 uncertified nurse
N003                     Kritik                   Raj                      Bhandari                 certified nurse
D003                     Babin                    Raj                      Chaguthi                 uncertified doctor
D004                     Shristina                                         Shrestha                 uncertified doctor
S003                     Kiran                                             Mainali                  worker
D005                     Wover                    Man                      Amatya                   certified doctor
N004                     Sunayana                                          Tamrakar                 certified nurse
S004                     Sugat                    Man                      Sigh                     worker
S005                     Ram                      Baran                    Yadav                    worker
N005                     Rhisha                                            Silpakar                 uncertified nurse
N006                     Rahul                                             Prajapati                uncertified nurse
D006                     Sukriti                                           Prajapati                uncertified doctor
D007                     Laxmi                    Prasad                   Amatya                   certified doctor
D008                     Hritik                                            Shrestha                 certified doctor
S006                     Kabin                                             Shrestha                 worker

20 rows selected.
```

Figure 53: value insert in staffs;

INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) VALUES('D001', 'Ayush', null, 'Amatya', 'certified doctor');

INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) values ('D002', 'Wonjal', null, 'Shrestha', 'certified doctor');

INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) values ('S001', 'Suray', 'Kiran', 'Katuwal', 'worker');

INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) values ('S002', 'Bilish', null, 'Kharguja', 'worker');

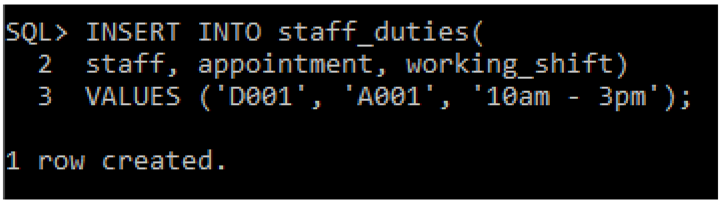
INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) values ('N002', 'Millan', null, 'Shrestha', 'certified nurse');

INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) values ('N001', 'Kebisha', null, 'Chaguthi', 'uncertified nurse');

INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) values ('D003', 'Babin', 'Raj', 'Chaguthi', 'uncertified doctor');

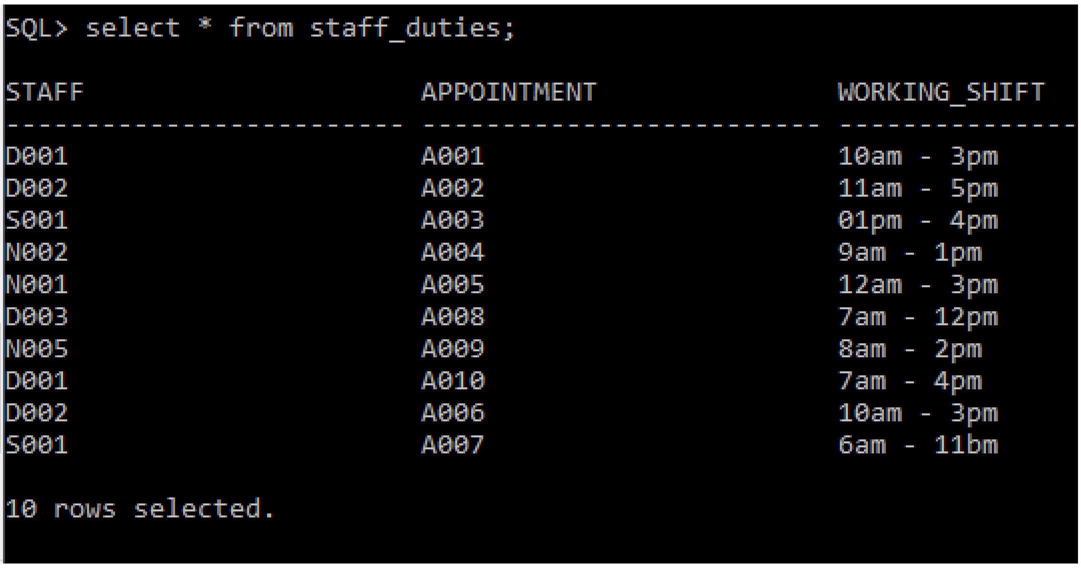
INSERT INTO staffs(staff_id, f_name, m_name, l_name, type) values ('N005', 'Rhisha', null, 'Silpakar', 'uncertified nurse');

12) Staff_duties:



```
SQL> INSERT INTO staff_duties(
  2  staff, appointment, working_shift)
  3  VALUES ('D001', 'A001', '10am - 3pm');

1 row created.
```

Figure 54: value insert in Staff_duties



```
SQL> select * from staff_duties;

STAFF                     APPOINTMENT               WORKING_SHIFT
------------------------- ------------------------- ---------------
D001                      A001                      10am - 3pm
D002                      A002                      11am - 5pm
S001                      A003                      01pm - 4pm
N002                      A004                      9am - 1pm
N001                      A005                      12am - 3pm
D003                      A008                      7am - 12pm
N005                      A009                      8am - 2pm
D001                      A010                      7am - 4pm
D002                      A006                      10am - 3pm
S001                      A007                      6am - 11bm

10 rows selected.
```

Figure 55: value insert in Staff_duties

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('D001', 'A001', '10am - 3pm');

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('D002', 'A002', '11am - 5pm');

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('S001', 'A003', '01pm - 4pm');

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('N002', 'A004', '9am - 1pm');

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('N001', 'A005', '12am - 3pm');

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('D003', 'A008', '7am - 12pm');

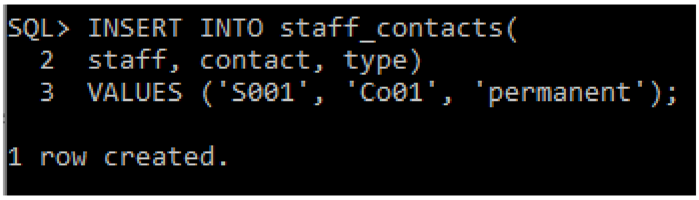
INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('N005', 'A009', '8am - 2pm');

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('D001', 'A010', '7am - 4pm');

INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('D002', 'A006', '10am - 3pm');

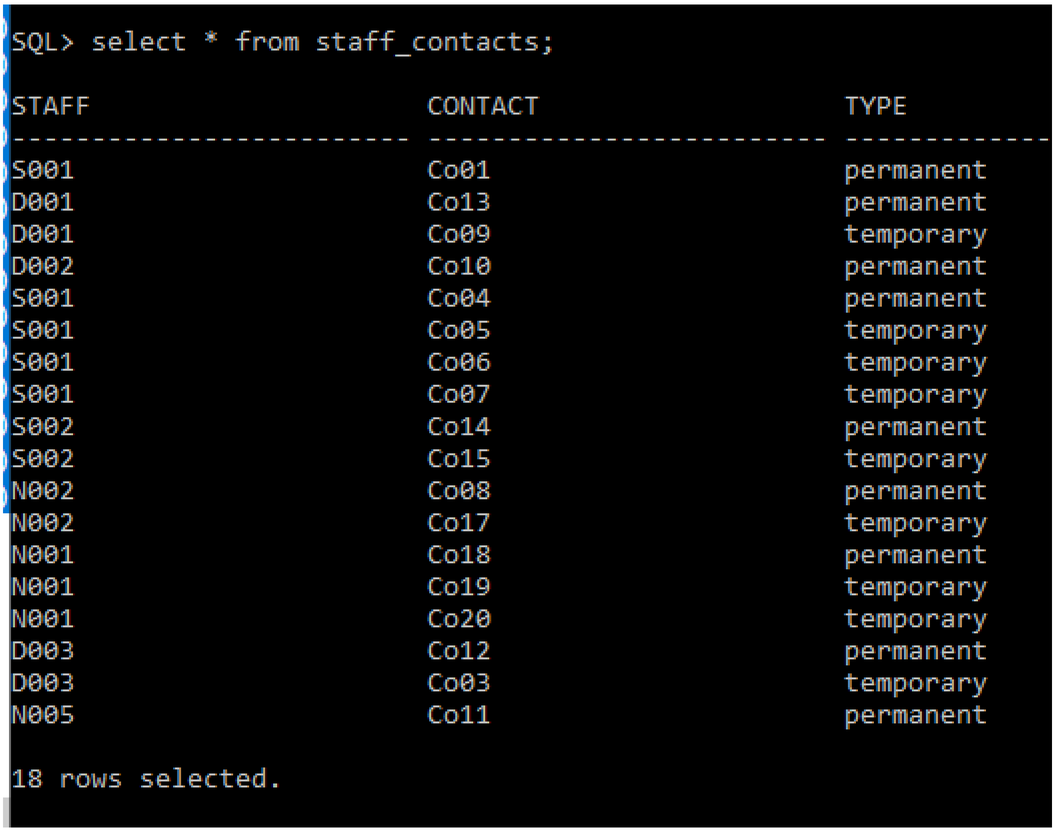
INSERT INTO staff_duties(staff, appointment, working_shift) VALUES ('S001', 'A007', '6am - 11bm');

13) Staff_contacts:



```
SQL> INSERT INTO staff_contacts(
  2  staff, contact, type)
  3  VALUES ('S001', 'Co01', 'permanent');

1 row created.
```

Figure 56: Staff_contacts



```
SQL> select * from staff_contacts;

STAFF                     CONTACT                   TYPE
------------------------- ------------------------- -------------
S001                      Co01                      permanent
D001                      Co13                      permanent
D001                      Co09                      temporary
D002                      Co10                      permanent
S001                      Co04                      permanent
S001                      Co05                      temporary
S001                      Co06                      temporary
S001                      Co07                      temporary
S002                      Co14                      permanent
S002                      Co15                      temporary
N002                      Co08                      permanent
N002                      Co17                      temporary
N001                      Co18                      permanent
N001                      Co19                      temporary
N001                      Co20                      temporary
D003                      Co12                      permanent
D003                      Co03                      temporary
N005                      Co11                      permanent

18 rows selected.
```

Figure 57: value insert in Staff_contacts

INSERT INTO staff_contacts(staff, contact, type) VALUES ('D001', 'Co13', 'permanent');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('D001', 'Co09', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('D002', 'Co10', 'permanent');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('S001', 'Co04', 'permanent');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('S001', 'Co05', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('S001', 'Co06', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('S001', 'Co07', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('S002', 'Co14', 'permanent');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('S002', 'Co15', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('N002', 'Co08', 'permanent');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('N002', 'Co26', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('N002', 'Co17', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('N001', 'Co18', 'permanent');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('N001', 'Co19', 'temporary');

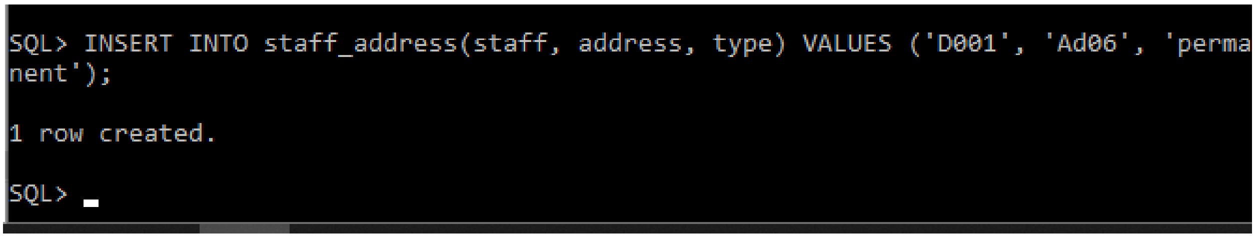
INSERT INTO staff_contacts(staff, contact, type) VALUES ('N001', 'Co20', 'temporary');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('D003', 'Co12', 'permanent');

INSERT INTO staff_contacts(staff, contact, type) VALUES ('D003', 'Co03', 'temporary');

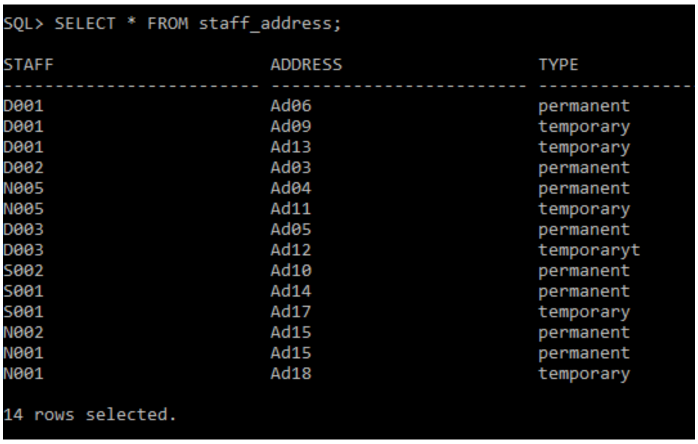
INSERT INTO staff_contacts(staff, contact, type) VALUES ('N005', 'Co11', 'permanent');

14) Staff_address:



```
SQL> INSERT INTO staff_address(staff, address, type) VALUES ('D001', 'Ad06', 'perma
nent');

1 row created.

SQL>
```

Figure 58: value insert in Staff_address



```
SQL> SELECT * FROM staff_address;

STAFF                    ADDRESS                  TYPE
------------------------ ------------------------ --------------
D001                     Ad06                     permanent
D001                     Ad09                     temporary
D001                     Ad13                     temporary
D002                     Ad03                     permanent
N005                     Ad04                     permanent
N005                     Ad11                     temporary
D003                     Ad05                     permanent
D003                     Ad12                     temporaryt
S002                     Ad10                     permanent
S001                     Ad14                     permanent
S001                     Ad17                     temporary
N002                     Ad15                     permanent
N001                     Ad15                     permanent
N001                     Ad18                     temporary

14 rows selected.
```

Figure 59: value insert in Staff_address

INSERT INTO staff_address(staff, address, type) VALUES ('D001', 'Ad06', 'permanent');

INSERT INTO staff_address(staff, address, type) VALUES ('D001', 'Ad09', 'temporary');

INSERT INTO staff_address(staff, address, type) VALUES ('D001', 'Ad13', 'temporary');

INSERT INTO staff_address(staff, address, type) VALUES ('D002', 'Ad03', 'permanent');

INSERT INTO staff_address(staff, address, type) VALUES ('N005', 'Ad04', 'permanent');

INSERT INTO staff_address(staff, address, type) VALUES ('N005', 'Ad11', 'temporary');

INSERT INTO staff_address(staff, address, type) VALUES ('D003', 'Ad05', 'permanent');

INSERT INTO staff_address(staff, address, type) VALUES ('D003', 'Ad12', 'temporaryt');

INSERT INTO staff_address(staff, address, type) VALUES ('S002', 'Ad10', 'permanent');

INSERT INTO staff_address(staff, address, type) VALUES ('S001', 'Ad14', 'permanent');

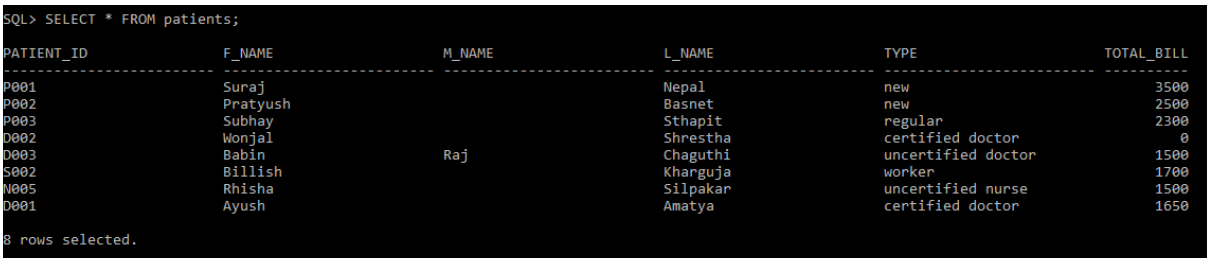
```
INSERT INTO staff_address(staff, address, type) VALUES ('S001', 'Ad17', 'temporary');

INSERT INTO staff_address(staff, address, type) VALUES ('N002', 'Ad15', 'permanent');

INSERT INTO staff_address(staff, address, type) VALUES ('N001', 'Ad15', 'permanent');

INSERT INTO staff_address(staff, address, type) VALUES ('N001', 'Ad18', 'temporary');
```

Database Querying

1) 4 SQL Information Queries

1.1. List all patients, regular and new:

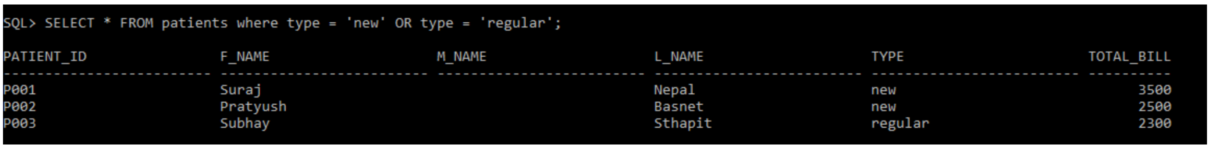
➔ SELECT * FROM patients;



```
SQL> SELECT * FROM patients;

PATIENT_ID               F_NAME                   M_NAME                   L_NAME                   TYPE                     TOTAL_BILL
------------------------ ------------------------ ------------------------ ------------------------ ------------------------ ----------
P001                     Suraj                                             Nepal                    new                            3500
P002                     Pratyush                                          Basnet                   new                            2500
P003                     Subhay                                            Sthapit                  regular                        2300
D002                     Wonjal                                            Shrestha                 certified doctor                  0
D003                     Babin                    Raj                      Chaguthi                 uncertified doctor             1500
S002                     Billish                                           Kharguja                 worker                         1700
N005                     Rhisha                                            Silpakar                 uncertified nurse              1500
D001                     Ayush                                             Amatya                   certified doctor               1650

8 rows selected.
```

Figure 60: 1.1(a) answer

➔ SELECT * FROM patients WHERE type = ‘new’ OR type = ‘regular’

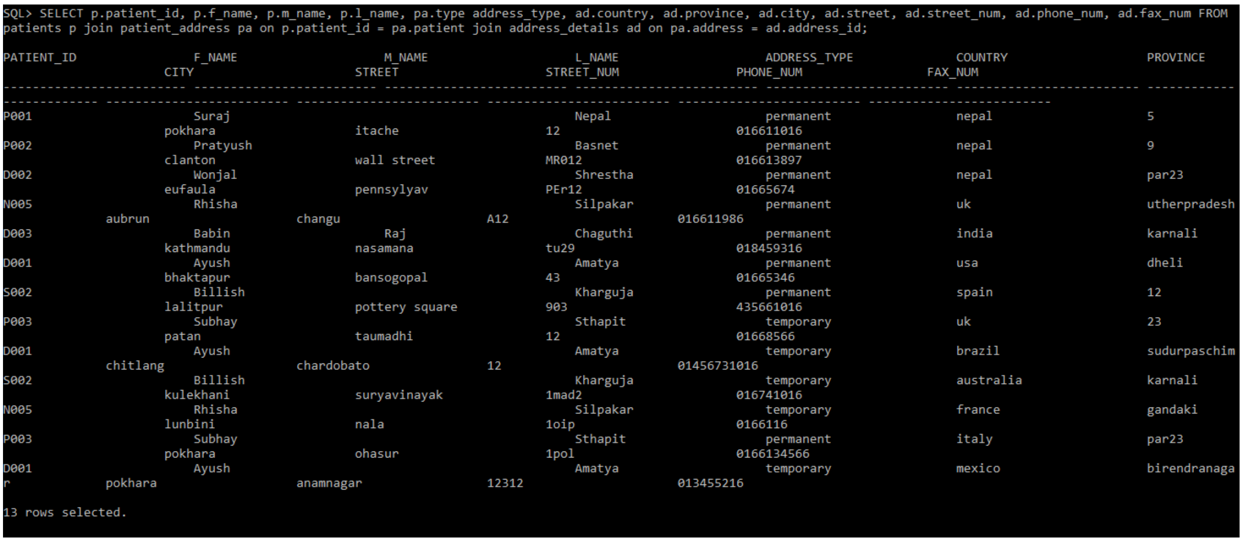


```
SQL> SELECT * FROM patients where type = 'new' OR type = 'regular';

PATIENT_ID               F_NAME                   M_NAME                   L_NAME                   TYPE                     TOTAL_BILL
------------------------ ------------------------ ------------------------ ------------------------ ------------------------ ----------
P001                     Suraj                                             Nepal                    new                            3500
P002                     Pratyush                                          Basnet                   new                            2500
P003                     Subhay                                            Sthapit                  regular                        2300
```

Figure 61: 1.1(b) answer

1.2. List all patients with their addresses:

➔ SELECT p.patient_id, p.f_name, p.m_name, p.l_name, pa.type address_type, ad.country, ad.province, ad.city, ad.street, ad.street_num, ad.phone_num, ad.fax_num FROM patients p join patient_address pa on p.patient_id = pa.patient join address_details ad on pa.address = ad.address_id;

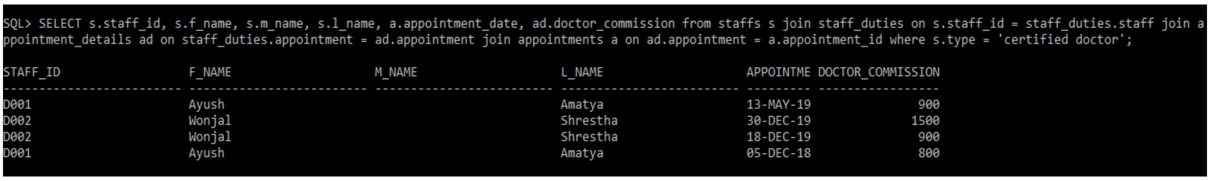


```
SQL> SELECT p.patient_id, p.f_name, p.m_name, p.l_name, pa.type address_type, ad.country, ad.province, ad.city, ad.street, ad.street_num, ad.phone_num, ad.fax_num FROM
patients p join patient_address pa on p.patient_id = pa.patient join address_details ad on pa.address = ad.address_id;

PATIENT_ID               F_NAME                   M_NAME                   L_NAME                   ADDRESS_TYPE             COUNTRY                  PROVINCE
                     CITY                     STREET                   STREET_NUM               PHONE_NUM                FAX_NUM
------------------------ ------------------------ ------------------------ ------------------------ ------------------------ ------------------------ ------------
------------ ------------------------ ------------------------ ------------------------ ------------------------ ------------------------
P001                     Suraj                                             Nepal                    permanent                nepal                    5
                     pokhara                  itache                   12                       016611016
P002                     Pratyush                                          Basnet                   permanent                nepal                    9
                     clanton                  wall street              MR012                    016613897
D002                     Wonjal                                            Shrestha                 permanent                nepal                    par23
                     eufaula                  pennsylyav               PEr12                    01665674
N005                     Rhisha                                            Silpakar                 permanent                uk                       utherpradesh
             aubrun                   changu                   A12                      016611986
D003                     Babin                    Raj                      Chaguthi                 permanent                india                    karnali
                     kathmandu                nasamana                 tu29                     018459316
D001                     Ayush                                             Amatya                   permanent                usa                      dheli
                     bhaktapur                bansogopal               43                       01665346
S002                     Billish                                           Kharguja                 permanent                spain                    12
                     lalitpur                 pottery square           903                      435661016
P003                     Subhay                                            Sthapit                  temporary                uk                       23
                     patan                    taumadhi                 12                       01668566
D001                     Ayush                                             Amatya                   temporary                brazil                   sudurpaschim
             chitlang                 chardobato               12                       01456731016
S002                     Billish                                           Kharguja                 temporary                australia                karnali
                     kulekhani                suryavinayak             1mad2                    016741016
N005                     Rhisha                                            Silpakar                 temporary                france                   gandaki
                     lunbini                  nala                     1oip                     0166116
P003                     Subhay                                            Sthapit                  permanent                italy                    par23
                     pokhara                  ohasur                   1pol                     0166134566
D001                     Ayush                                             Amatya                   temporary                mexico                   birendranaga
r            pokhara                  anamnagar                12312                    013455216

13 rows selected.
```

Figure 62: 1.2 answer

1.3. For a given certified doctor, find all the appointments he/she have conducted and the amount he/she got for conducting the appointment.

➔ SELECT s.staff_id, s.f_name, s.m_name, s.l_name, a.appointment_date, ad.doctor_commission from staffs s join staff_duties on s.staff_id = staff_duties.staff join appointment_details ad on staff_duties.appointment = ad.appointment join appointments a on ad.appointment = a.appointment_id where s.type = 'certified doctor';

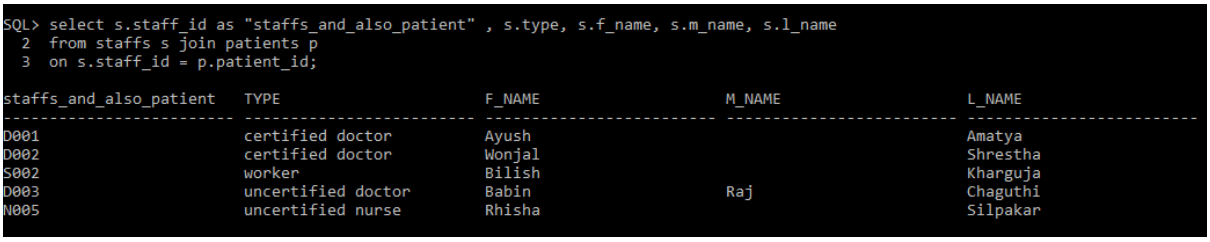


```
SQL> SELECT s.staff_id, s.f_name, s.m_name, s.l_name, a.appointment_date, ad.doctor_commission from staffs s join staff_duties on s.staff_id = staff_duties.staff join a
ppointment_details ad on staff_duties.appointment = ad.appointment join appointments a on ad.appointment = a.appointment_id where s.type = 'certified doctor';

STAFF_ID                 F_NAME                   M_NAME                   L_NAME                   APPOINTME DOCTOR_COMMISSION
------------------------ ------------------------ ------------------------ ------------------------ --------- -----------------
D001                     Ayush                                             Amatya                   13-MAY-19               900
D002                     Wonjal                                            Shrestha                 30-DEC-19              1500
D002                     Wonjal                                            Shrestha                 18-DEC-19               900
D001                     Ayush                                             Amatya                   05-DEC-18               800
```

Figure 63: 1.3 answer

1.4. List all staffs that are also a patient.

➔ select s.staff_id as "staffs_and_also_patient" , s.type, s.f_name, s.m_name, s.l_name from staffs s join patients p on s.staff_id = p.patient_id;

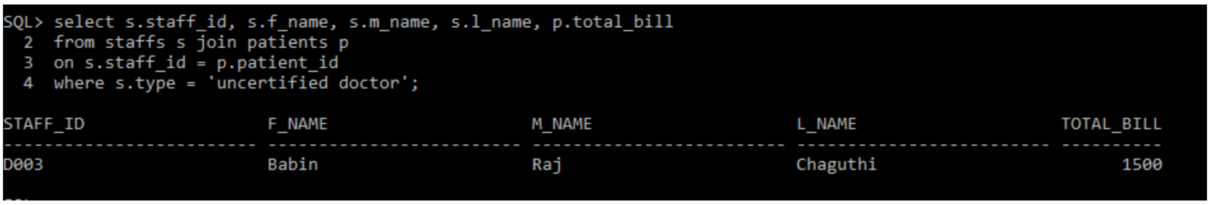


```
SQL> select s.staff_id as "staffs_and_also_patient" , s.type, s.f_name, s.m_name, s.l_name
     from staffs s join patients p
     on s.staff_id = p.patient_id;

staffs_and_also_patient   TYPE                      F_NAME                    M_NAME                    L_NAME
------------------------- ------------------------- ------------------------- ------------------------- -------------------------
D001                      certified doctor          Ayush                                               Amatya
D002                      certified doctor          Wonjal                                              Shrestha
S002                      worker                    Bilish                                              Kharguja
D003                      uncertified doctor        Babin                     Raj                       Chaguthi
N005                      uncertified nurse         Rhisha                                              Silpakar
```

Figure 64: 1.4 answer

2) 4 SQL Transaction Queries

a. List all uncertified doctors who have been attended an appointment for a treatment and the amount he/she have paid.

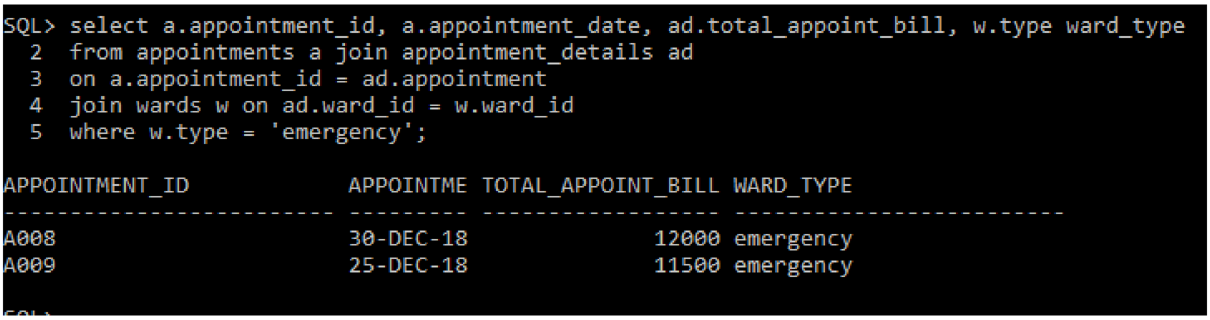


```
SQL> select s.staff_id, s.f_name, s.m_name, s.l_name, p.total_bill
     from staffs s join patients p
     on s.staff_id = p.patient_id
     where s.type = 'uncertified doctor';

STAFF_ID                  F_NAME                    M_NAME                    L_NAME                    TOTAL_BILL
------------------------- ------------------------- ------------------------- ------------------------- ----------
D003                      Babin                     Raj                       Chaguthi                        1500
```

Figure 65: 2.1 answer

b. List the appointments that have been conducted in an emergency ward.

➔ select a.appointment_id, a.appointment_date, ad.total_appoint_bill, w.type ward_type from appointments a join appointment_details ad on a.appointment_id = ad.appointment join wards w on ad.ward_id = w.ward_id where w.type = 'emergency';

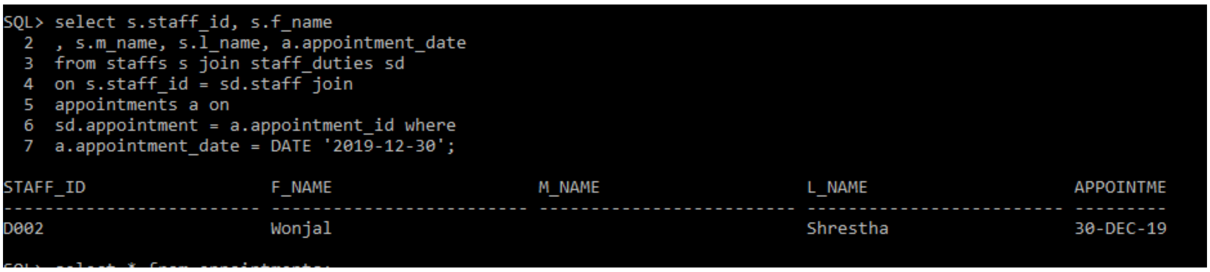


```
SQL> select a.appointment_id, a.appointment_date, ad.total_appoint_bill, w.type ward_type
     from appointments a join appointment_details ad
     on a.appointment_id = ad.appointment
     join wards w on ad.ward_id = w.ward_id
     where w.type = 'emergency';

APPOINTMENT_ID            APPOINTME TOTAL_APPOINT_BILL WARD_TYPE
------------------------- --------- ------------------ -------------------------
A008                      30-DEC-18              12000 emergency
A009                      25-DEC-18              11500 emergency
```

Figure 66: 2(b) answer

c. List all staffs (certified and uncertified) who have conducted or will conduct an appointment on a given date.

- ➔ select s.staff_id, s.f_name, s.m_name, s.l_name, a.appointment_date from staffs s join staff_duties sd on s.staff_id = sd.staff join appointments a on sd.appointment = a.appointment_id where a.appointment_date = DATE '2019-12-30';

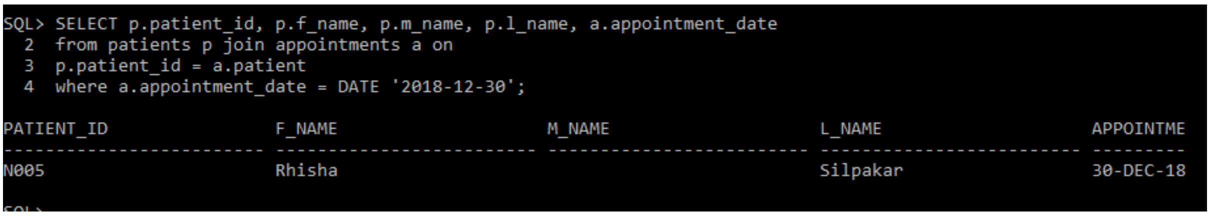


```
SQL> select s.staff_id, s.f_name
     , s.m_name, s.l_name, a.appointment_date
     from staffs s join staff_duties sd
     on s.staff_id = sd.staff join
     appointments a on
     sd.appointment = a.appointment_id where
     a.appointment_date = DATE '2019-12-30';

STAFF_ID                  F_NAME                    M_NAME                    L_NAME                    APPOINTME
------------------------- ------------------------- ------------------------- ------------------------- ---------
D002                      Wonjal                                              Shrestha                  30-DEC-19

SQL> select * from appointments;
```

Figure 67: 2(c) answer

d. List all patients booked for an appointment on a given date.

- ➔ SELECT p.patient_id, p.f_name, p.m_name, p.l_name, a.appointment_date from patients p join appointments a on p.patient_id = a.patient where a.appointment_date = DATE '2018-12-30';

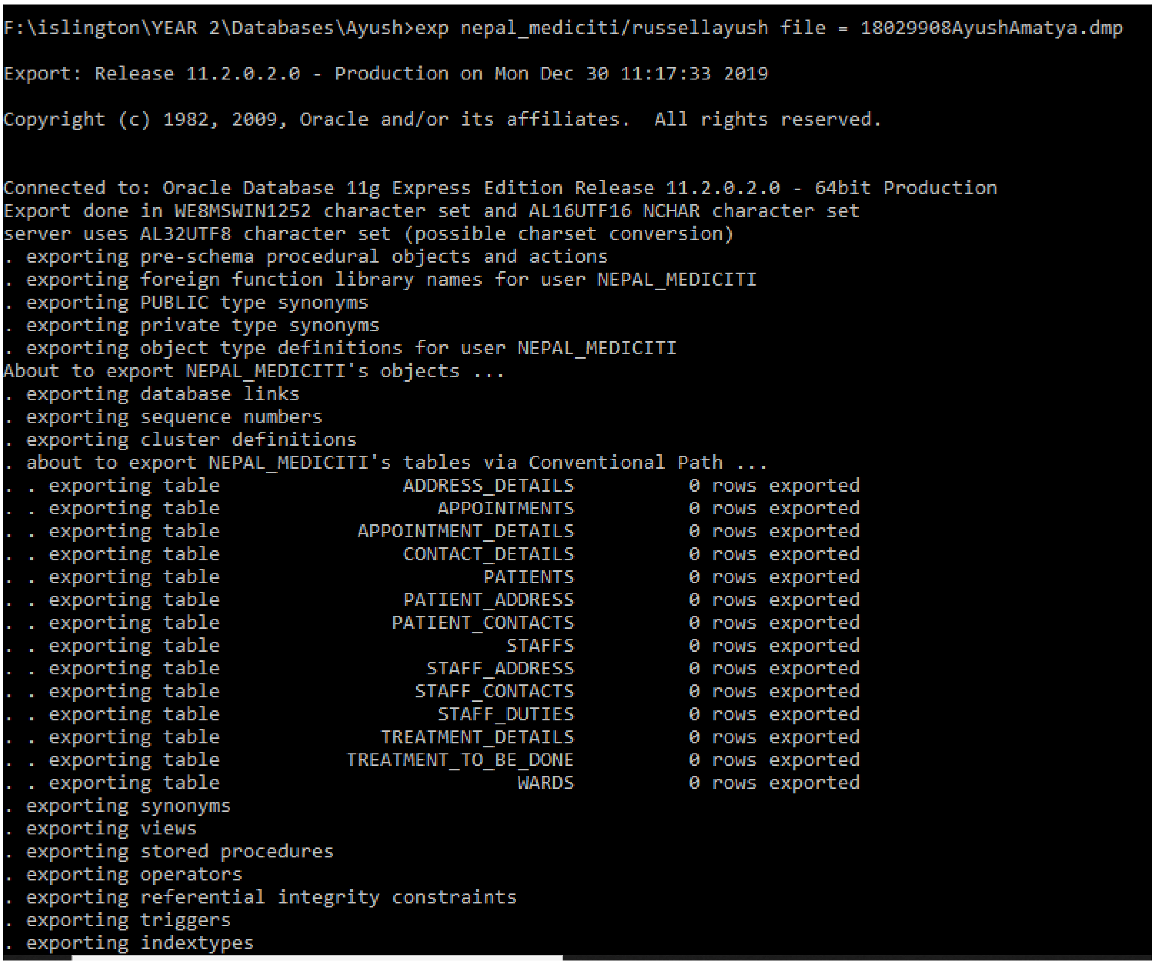


```
SQL> SELECT p.patient_id, p.f_name, p.m_name, p.l_name, a.appointment_date
     from patients p join appointments a on
     p.patient_id = a.patient
     where a.appointment_date = DATE '2018-12-30';

PATIENT_ID                F_NAME                    M_NAME                    L_NAME                    APPOINTME
------------------------- ------------------------- ------------------------- ------------------------- ---------
N005                      Rhisha                                              Silpakar                  30-DEC-18

SQL>
```

Figure 68: 2(d) answer

Screenshots

Creating dump file:



```
F:\islington\YEAR 2\Databases\Ayush>exp nepal_mediciti/russellayush file = 18029908AyushAmatya.dmp

Export: Release 11.2.0.2.0 - Production on Mon Dec 30 11:17:33 2019

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Connected to: Oracle Database 11g Express Edition Release 11.2.0.2.0 - 64bit Production
Export done in WE8MSWIN1252 character set and AL16UTF16 NCHAR character set
server uses AL32UTF8 character set (possible charset conversion)
. exporting pre-schema procedural objects and actions
. exporting foreign function library names for user NEPAL_MEDICITI
. exporting PUBLIC type synonyms
. exporting private type synonyms
. exporting object type definitions for user NEPAL_MEDICITI
About to export NEPAL_MEDICITI's objects ...
. exporting database links
. exporting sequence numbers
. exporting cluster definitions
. about to export NEPAL_MEDICITI's tables via Conventional Path ...
. . exporting table                ADDRESS_DETAILS          0 rows exported
. . exporting table                   APPOINTMENTS          0 rows exported
. . exporting table            APPOINTMENT_DETAILS          0 rows exported
. . exporting table                CONTACT_DETAILS          0 rows exported
. . exporting table                       PATIENTS          0 rows exported
. . exporting table                PATIENT_ADDRESS          0 rows exported
. . exporting table               PATIENT_CONTACTS          0 rows exported
. . exporting table                         STAFFS          0 rows exported
. . exporting table                  STAFF_ADDRESS          0 rows exported
. . exporting table                 STAFF_CONTACTS          0 rows exported
. . exporting table                   STAFF_DUTIES          0 rows exported
. . exporting table              TREATMENT_DETAILS          0 rows exported
. . exporting table             TREATMENT_TO_BE_DONE          0 rows exported
. . exporting table                          WARDS          0 rows exported
. exporting synonyms
. exporting views
. exporting stored procedures
. exporting operators
. exporting referential integrity constraints
. exporting triggers
. exporting indextypes
```
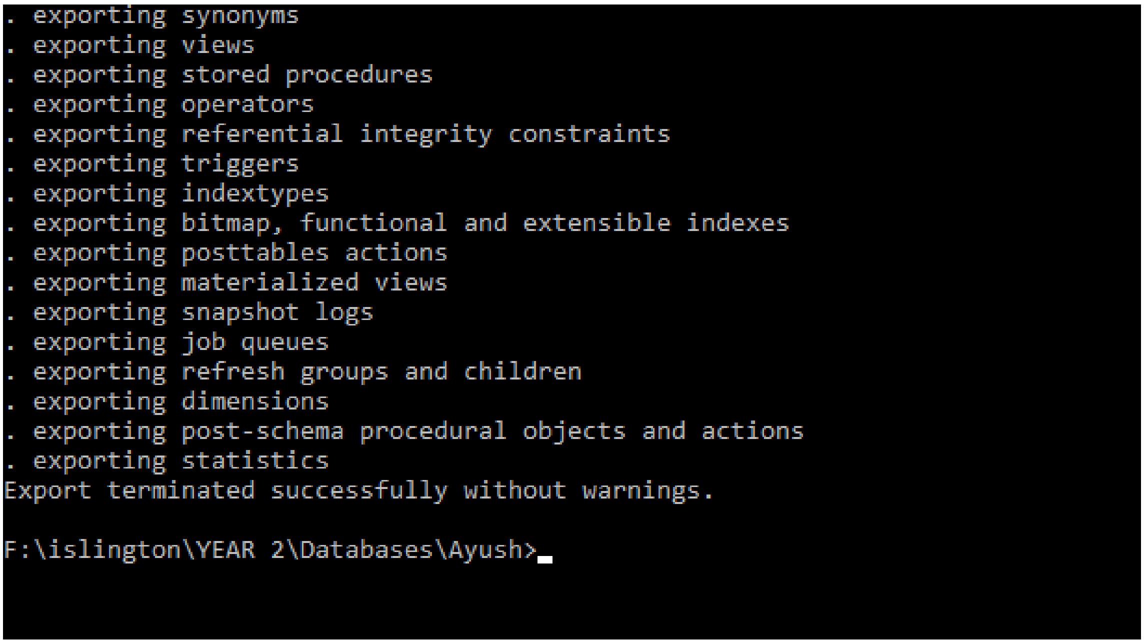
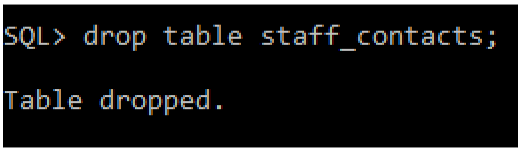

Figure 69: creating dump file (1)



```
. exporting synonyms
. exporting views
. exporting stored procedures
. exporting operators
. exporting referential integrity constraints
. exporting triggers
. exporting indextypes
. exporting bitmap, functional and extensible indexes
. exporting posttables actions
. exporting materialized views
. exporting snapshot logs
. exporting job queues
. exporting refresh groups and children
. exporting dimensions
. exporting post-schema procedural objects and actions
. exporting statistics
Export terminated successfully without warnings.

F:\islington\YEAR 2\Databases\Ayush>_
```

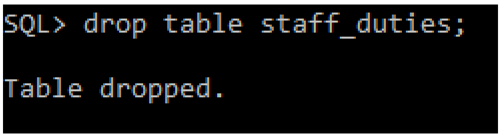
Figure 70: creating dump file (2)

Deleting the files with sequential order:



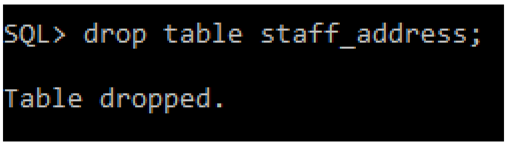
```
SQL> drop table staff_contacts;

Table dropped.
```

Figure 71: deleting staff contacts



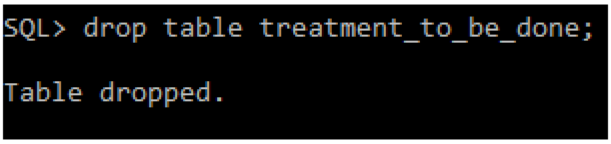
```
SQL> drop table staff_duties;

Table dropped.
```

Figure 72: deleting staff_duties



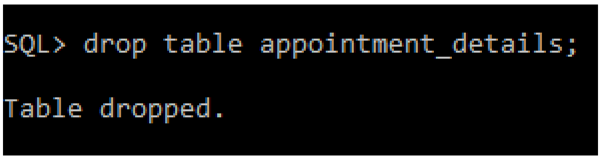
```
SQL> drop table staff_address;

Table dropped.
```

Figure 73: deleting staff_address



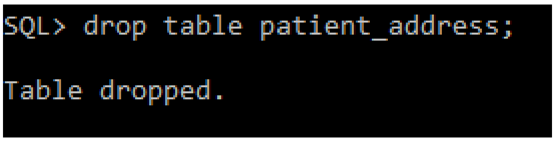
```
SQL> drop table treatment_to_be_done;

Table dropped.
```

Figure 74: deleting treatment_to_be_done



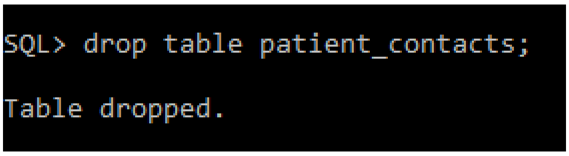
```
SQL> drop table appointment_details;

Table dropped.
```

Figure 75: deleting appointment_details



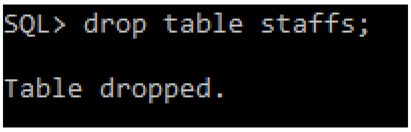
```
SQL> drop table patient_address;

Table dropped.
```

Figure 76: deleting patient_address



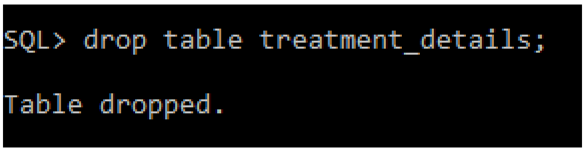
```
SQL> drop table patient_contacts;

Table dropped.
```

Figure 77: deleting patient_contacts



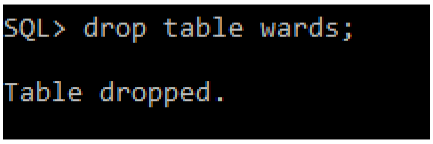
```
SQL> drop table staffs;

Table dropped.
```

Figure 78: deleting staffs



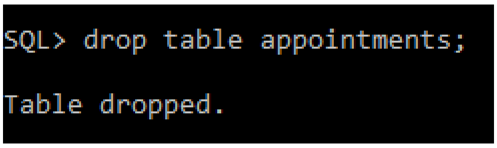
```
SQL> drop table treatment_details;

Table dropped.
```

Figure 79: deleting treatment_details



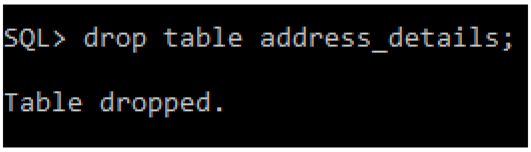
```
SQL> drop table wards;

Table dropped.
```

Figure 80: deleting wards



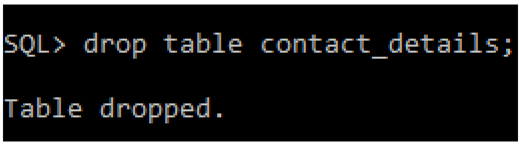
```
SQL> drop table appointments;

Table dropped.
```

Figure 81: deleting appointments



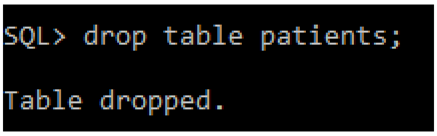
```
SQL> drop table address_details;

Table dropped.
```

Figure 82: deleting address_details



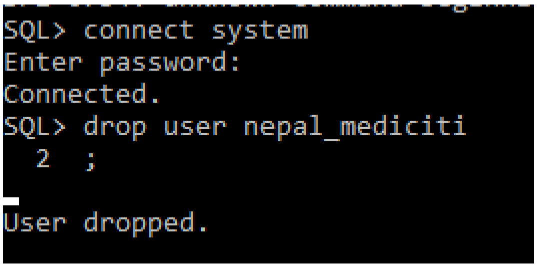
```
SQL> drop table contact_details;

Table dropped.
```

Figure 83: deleting contact_details



```
SQL> drop table patients;

Table dropped.
```

Figure 84: deleting patients



```
SQL> connect system
Enter password:
Connected.
SQL> drop user nepal_mediciti
  2  ;

User dropped.
```

Figure 85: deleting user

Critical Evaluation

Critical Evaluation

This coursework is based on the creation of database of patient recording system of a private or public hospital. All we needed to do in this coursework is to identify attribute and entity according to hospital patient recording procedure, normalize all the identified attributes into meaningful table, draw E-R diagram to represent entity and attributes graphically and store those entity and attribute with some valid data in oracle database.

The task was not easy, it took lots of research work and time to complete tasks in the coursework. All we need to create to patient recording system of hospital based on hospital procedure, business rule and case study given in this coursework. understanding the requirement and following the attribute dependent on case study was difficult. After identification of attributes and entity, initial E-R-D help me to guess possible entities which might be required during the process of normalization. Doing normalize attribute up to successfully was also a challenge for me. Teacher and friends helped me find mistake in the normalization and final ERD was created after normalizing attributes up to 3NF. Table creation and insertion of valid data in oracle database was not difficult task for me because I have better knowledge on those things. Although it took time and research, the coursework was knowledgeable. From this coursework, lots of concept of database was learned and also learned how to implement database in oracle database.

Critical Assessment of coursework

Overall, this coursework turned out to be very useful to me. It has help me to move a step ahead in achieving my dream of becoming a professional IT technician. It taught me about all the process required for a proper data management system. Through the help of this course work, I am now familiar with the real time situation, environment and circumstances for managing a large amount of data. This has cleared my mind teaching me why is data management very important in IT field. Data management and proper data backup is very much required in all kind of fields. Since this is the age of data, the importance, sensitivity and some scope of database has only been increasing. This module has been perfect for brainstorming ourselves to solve the various problems.

Bibliography

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