**TITLE:**

**COLLEGE NETWORK HARDWARE DATABASE**

**Abstract:**

The database is designed to store information about network hardware connections. It maintains a comprehensive record of the various devices and their connections within the network infrastructure, including switches, routers, servers, and storage devices. The database also tracks configuration details, such as IP addresses, VLAN assignments, and port mappings, to ensure accurate and up-to-date documentation of the network topology. With this information, network administrators can quickly troubleshoot connectivity issues, plan for network expansion, and optimize performance.

**List of design requirements(Tables):**

DEVICE:

1. MAC address - CHAR(14)
2. IP address - CHAR(15)
3. Model - VARCHAR2(8)
4. Manufacturer - VARCHAR2(10)

CONNECTION:

1. From IP address - CHAR(15)
2. To IP address - CHAR(15)

USER:

1. User ID - VARCHAR2(10)
2. Department - VARCHAR(10)
3. IP address - CHAR(15)

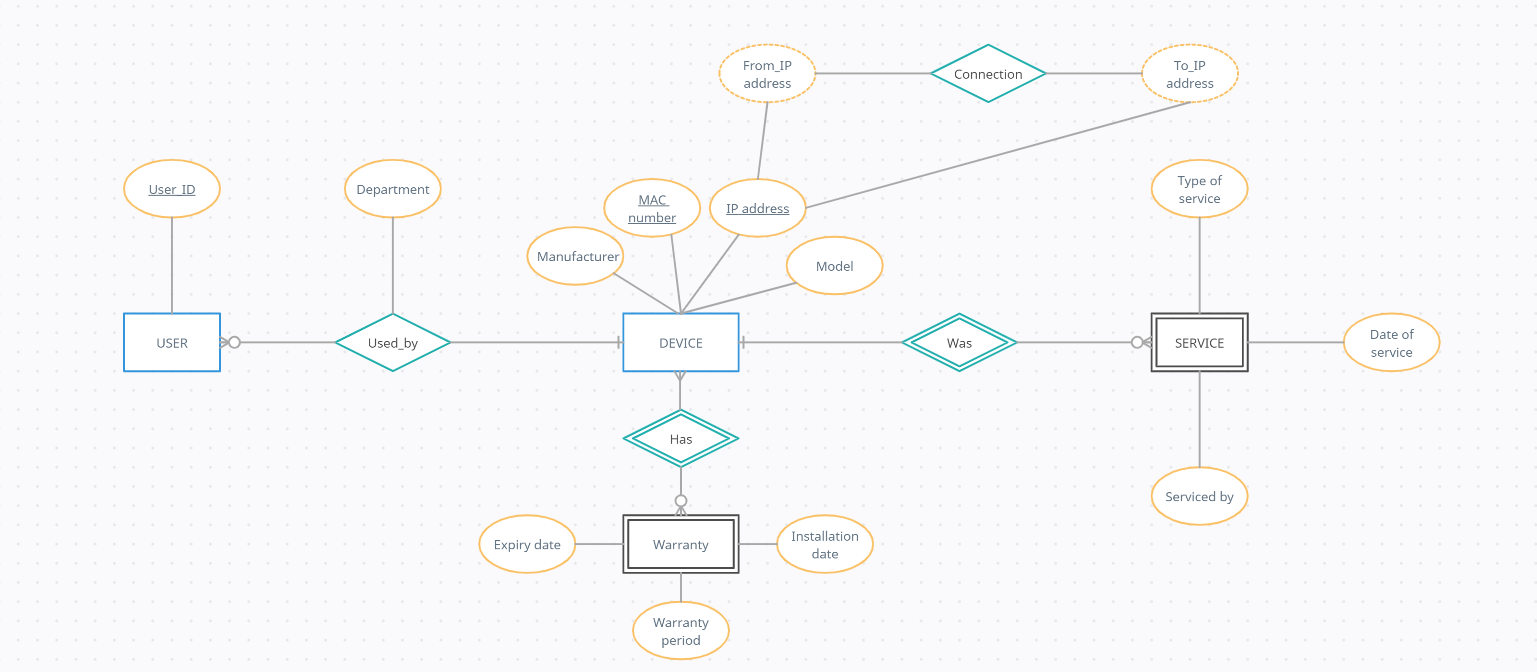
SERVICE:

1. Type of service - VARCHAR(20)
2. Date of service - DATE
3. Serviced by - VARCHAR(20)
4. MAC address - CHAR(14)

WARRANTY:

1. MAC address - CHAR(14)
2. Expiry date - DATE
3. Installation date - DATE
4. Warranty Period - TINYINT(80)

**ER DIAGRAM:**



**Logical database design- DDL operations:**

**Syntaxes:**

CREATE TABLE DEVICE( mac\_address CHAR(14),

ip\_address CHAR(15),

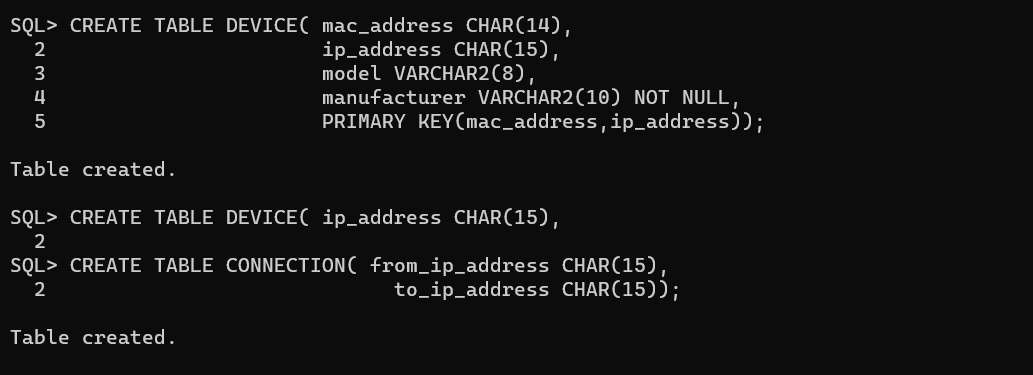
model VARCHAR2(8),

manufacturer VARCHAR2(10) NOT NULL,

PRIMARY KEY(mac\_address,ip\_address));

CREATE TABLE CONNECTION( from\_ip\_address CHAR(15),

to\_ip\_address CHAR(15));

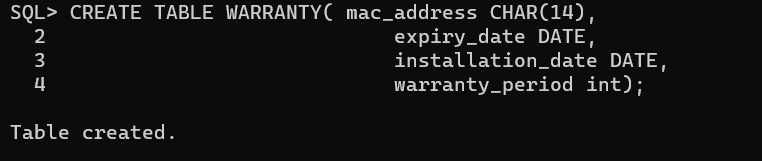


CREATE TABLE WARRANTY( mac\_address CHAR(14),

expiry\_date DATE,

installation\_date DATE,

warranty\_period int);



alter table device drop primary key;

alter table device add primary key(mac\_address);

alter table warranty ADD CONSTRAINT mac\_for FOREIGN KEY(mac\_address) REFERENCES DEVICE(mac\_address);

alter table warranty ADD CONSTRAINT warr\_check CHECK(warranty\_period<=80 AND expiry\_date>installation\_date);

alter table device add unique(ip\_address);

CREATE TABLE USERS( ip\_address CHAR(15),

user\_id VARCHAR(10) PRIMARY KEY,

department VARCHAR2(10),

FOREIGN KEY(ip\_address) REFERENCES DEVICE(ip\_address));

CREATE TABLE SERVICE(

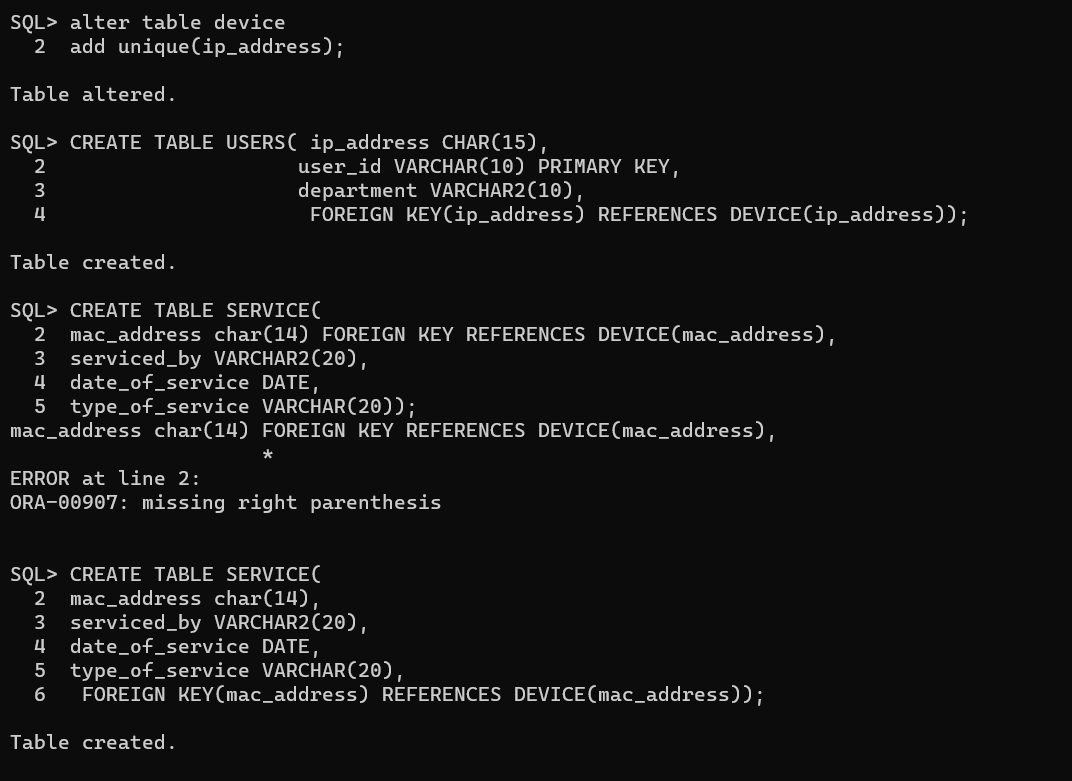
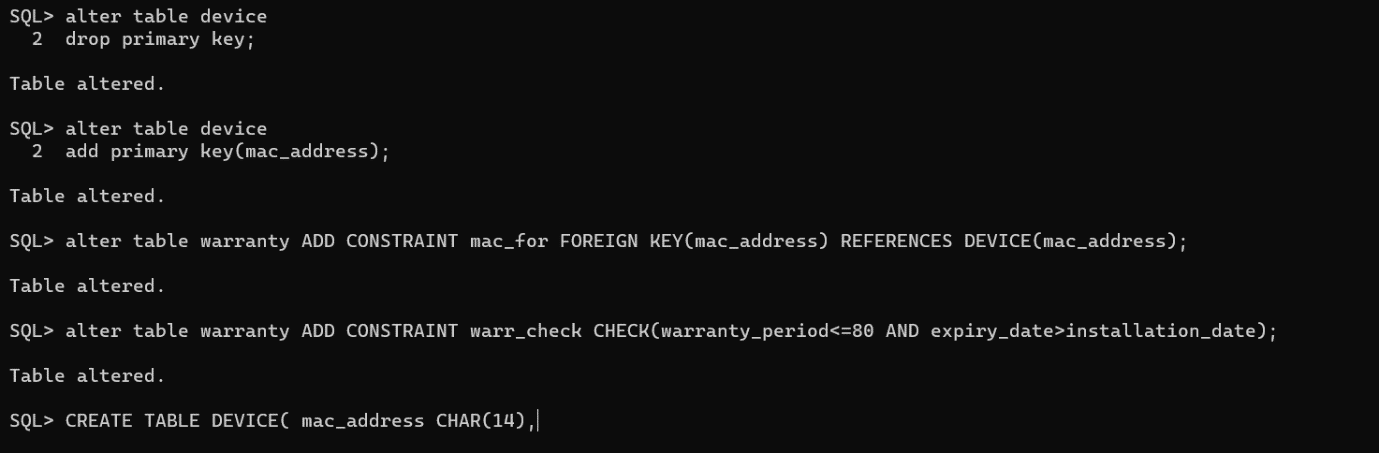
mac\_address char(14),

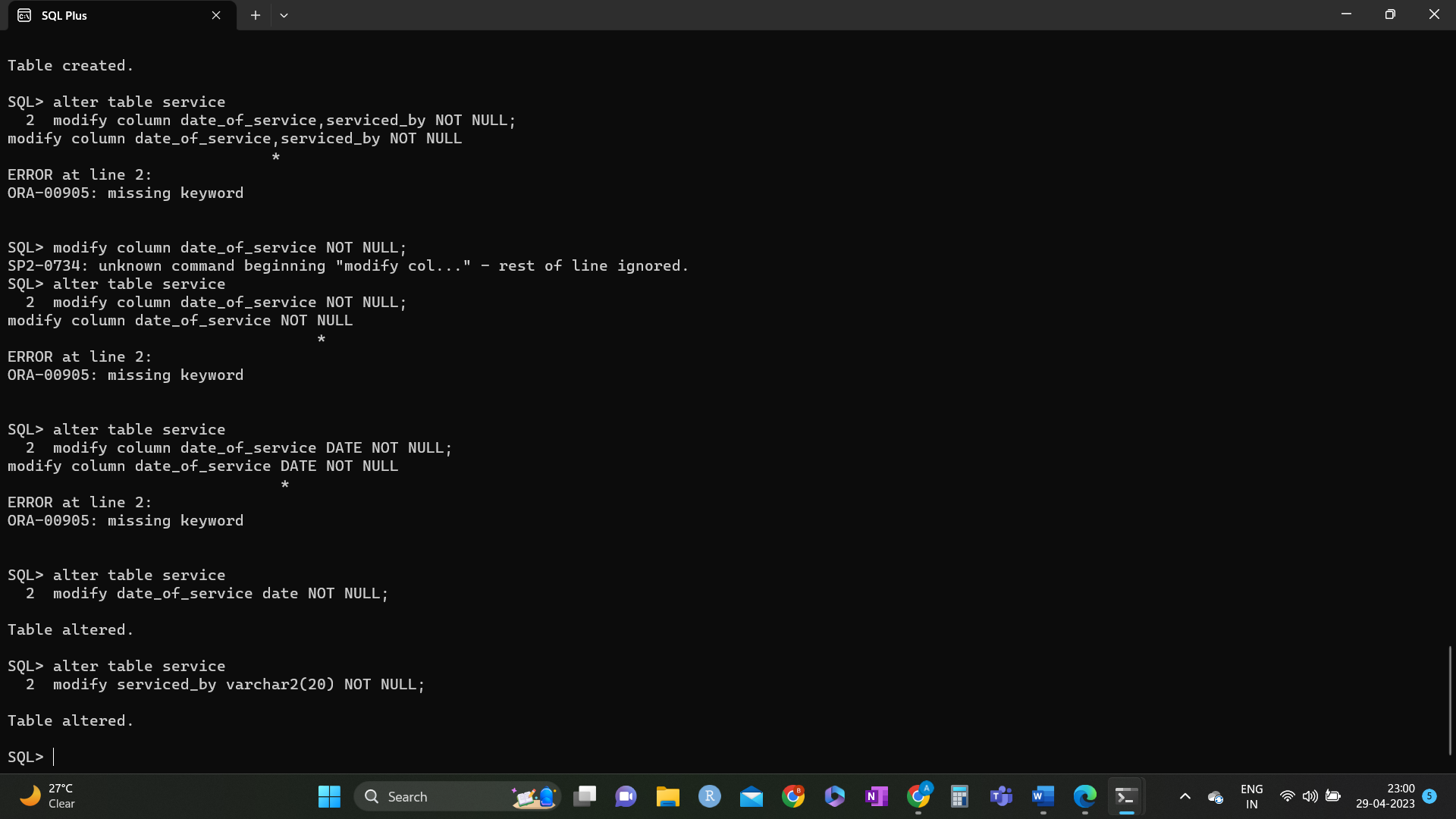
serviced\_by VARCHAR2(20),

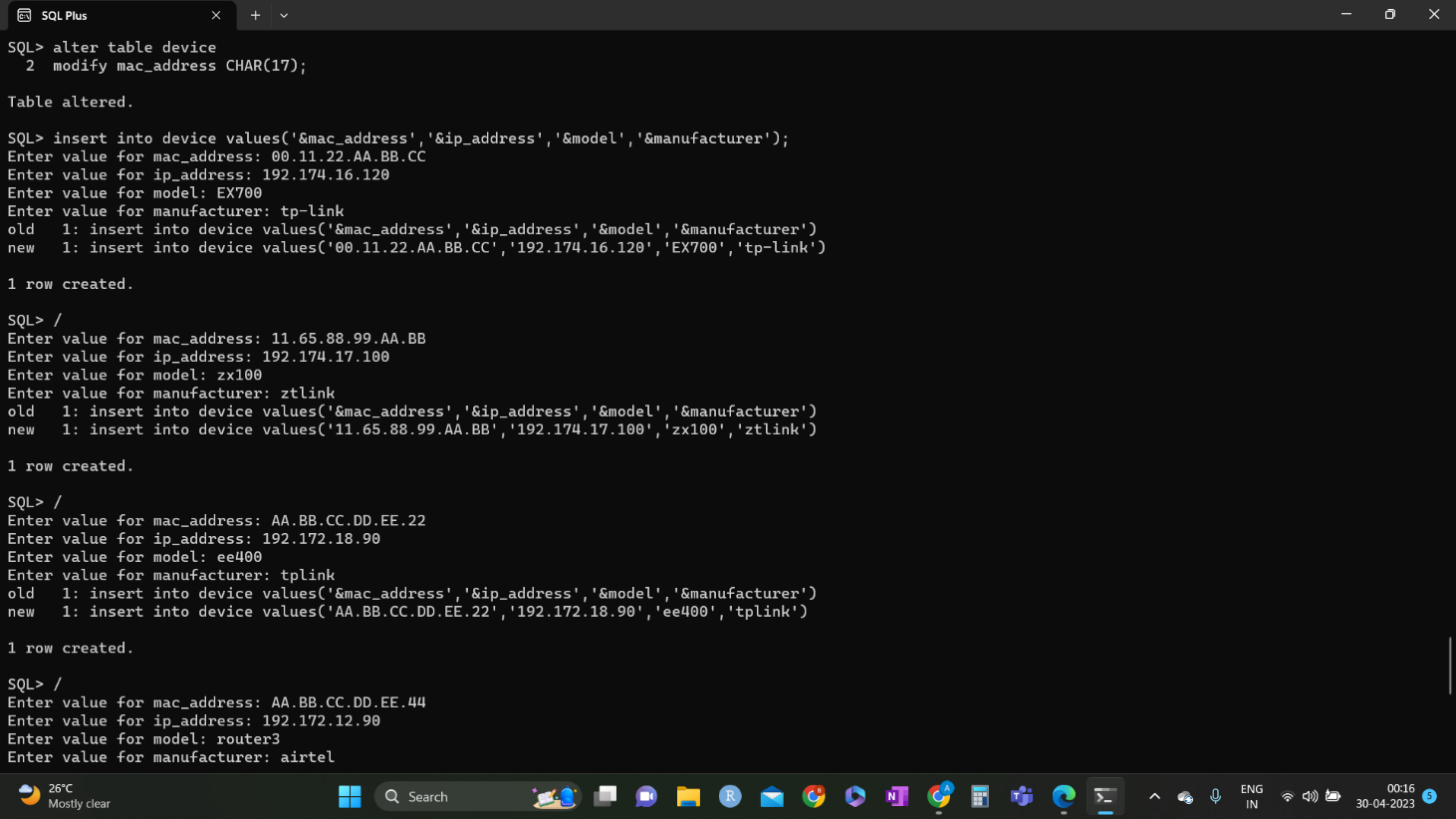
date\_of\_service DATE,

type\_of\_service VARCHAR(20),

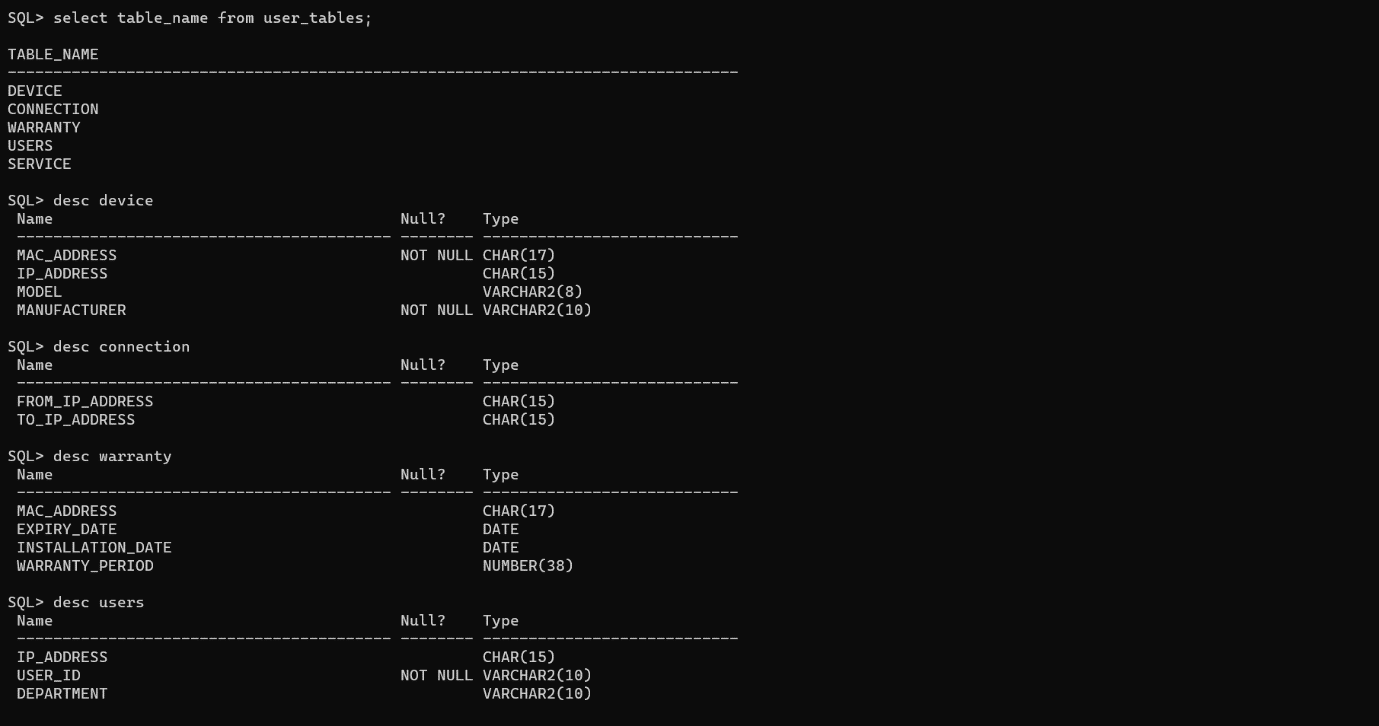
FOREIGN KEY(mac\_address) REFERENCES DEVICE(mac\_address));

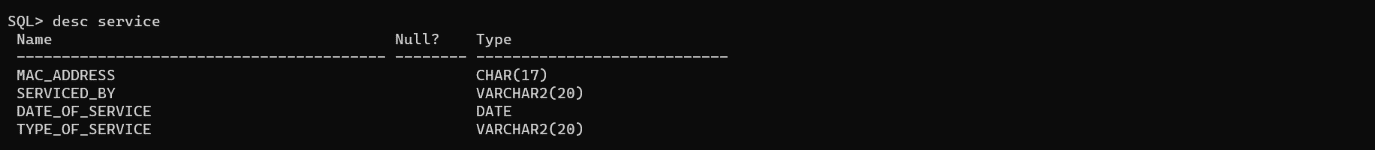
alter table service modify date\_of\_service date NOT NULL; alter table service modify serviced\_by varchar2(20) NOT NULL;

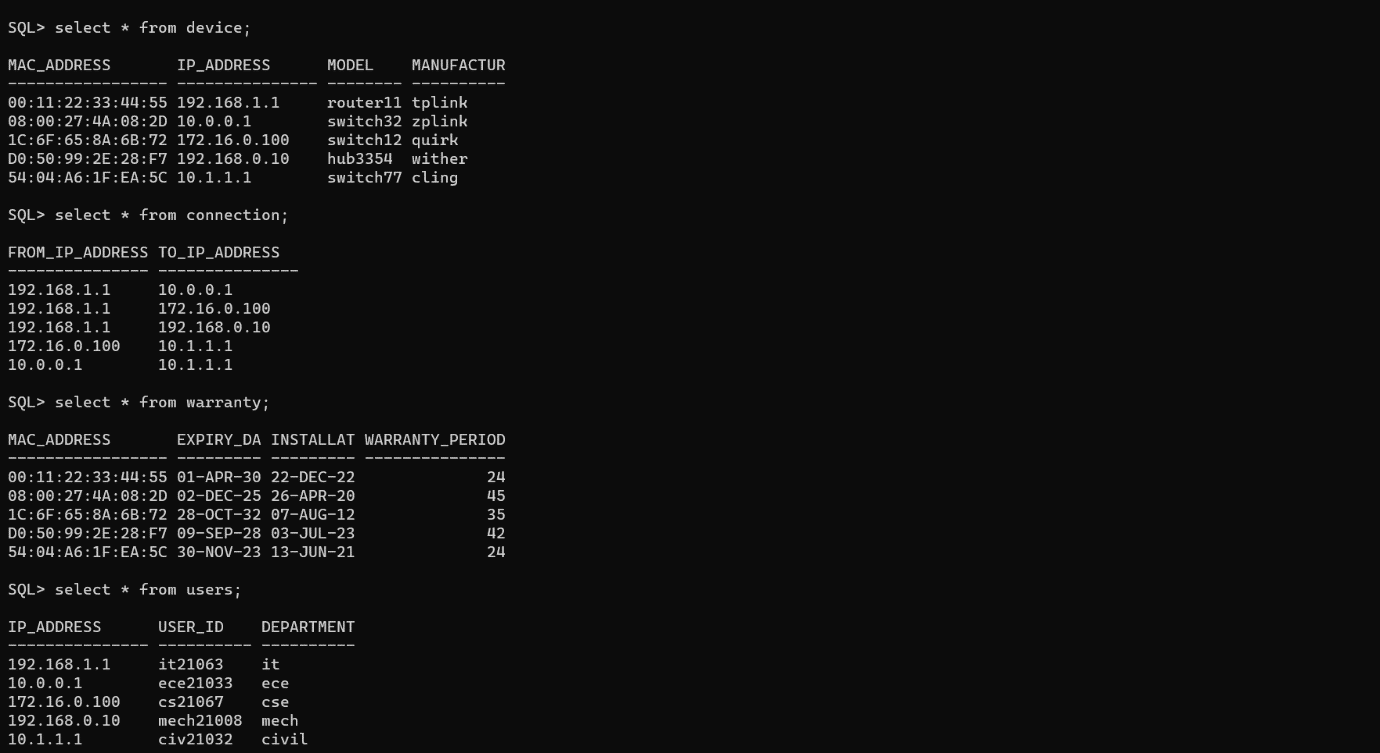
**DML OPERATIONS:**

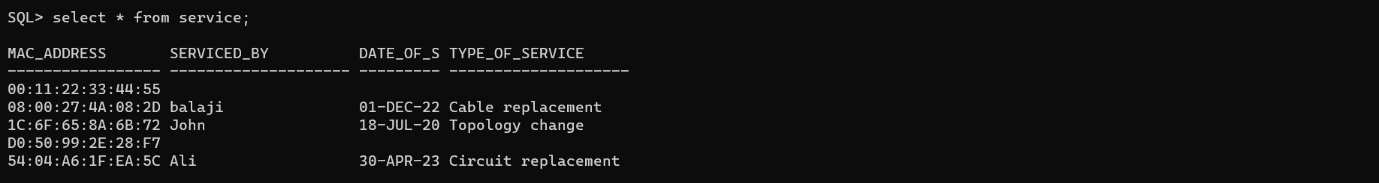


**OUTPUTS:**

****

****

****

****