VCE NETWORK HARDWARE BASE

DBMS ASSIGNMENT - 1

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ABSTRACT

VCE Network Hardware Base is a database that consists information about various Networking Hardware like Router, Switch, Hub, Bridge. The database contains both data (wired and wireless) in the College Campus. Network Hardware Base is important both in ensuring the correct operation of network devices and in maintaining the services that run on them. This project has total of 15 tables .It describes how the network is being connected in our college across the various blocks. When you enter the data it is stored in the data base and is displayed as of when it is needed.

REQUIREMENT ANALYSIS

List of Tables:

- INTERNET
- MODEM
- ROUTERS
- SERVER
- SWITCH
- COMPUTERS
- LABS
- BLOCK
- Connected
- Connected_to
- Rsconnection
- Attached_to
- ConnectedTO
- Consists
- HAS

List of Attributes with their Domain Types:

INTERNET:

ISP_name :- Varchar2(20)

website :- Varchar2(20)

MODEM:

Brand :- Varchar2(20)

Model :- Varchar2(20)

Speed :- Varchar2(10)

ROUTERS:

Router_id:-Number(10)

Brand :- Varchar2(20)

Model :- Varchar2(20)

IP Address :- Varchar2(20)

Speed :- Varchar2(10)

SWITCH:

Switch_id :- Number(10)

Switch_name :-Varchar2(20)

from_macAddress :- Varchar2(20)

to_macAddress :- Varchar2(20)

SERVER:

Server_id :- Number(10)

Storage :- Varchar2(10)

Processor :- Varchar2(20)

Ram :- Varchar2(10)

Model :- Varchar2(20)

COMPUTERS:

cid :- Number(10)

Manufacturer :-Varchar2(20)

MAC_ADDRESS :- Varchar2(20)

LABS:

Labname :- Varchar2(20)

Floor :-Number(10)

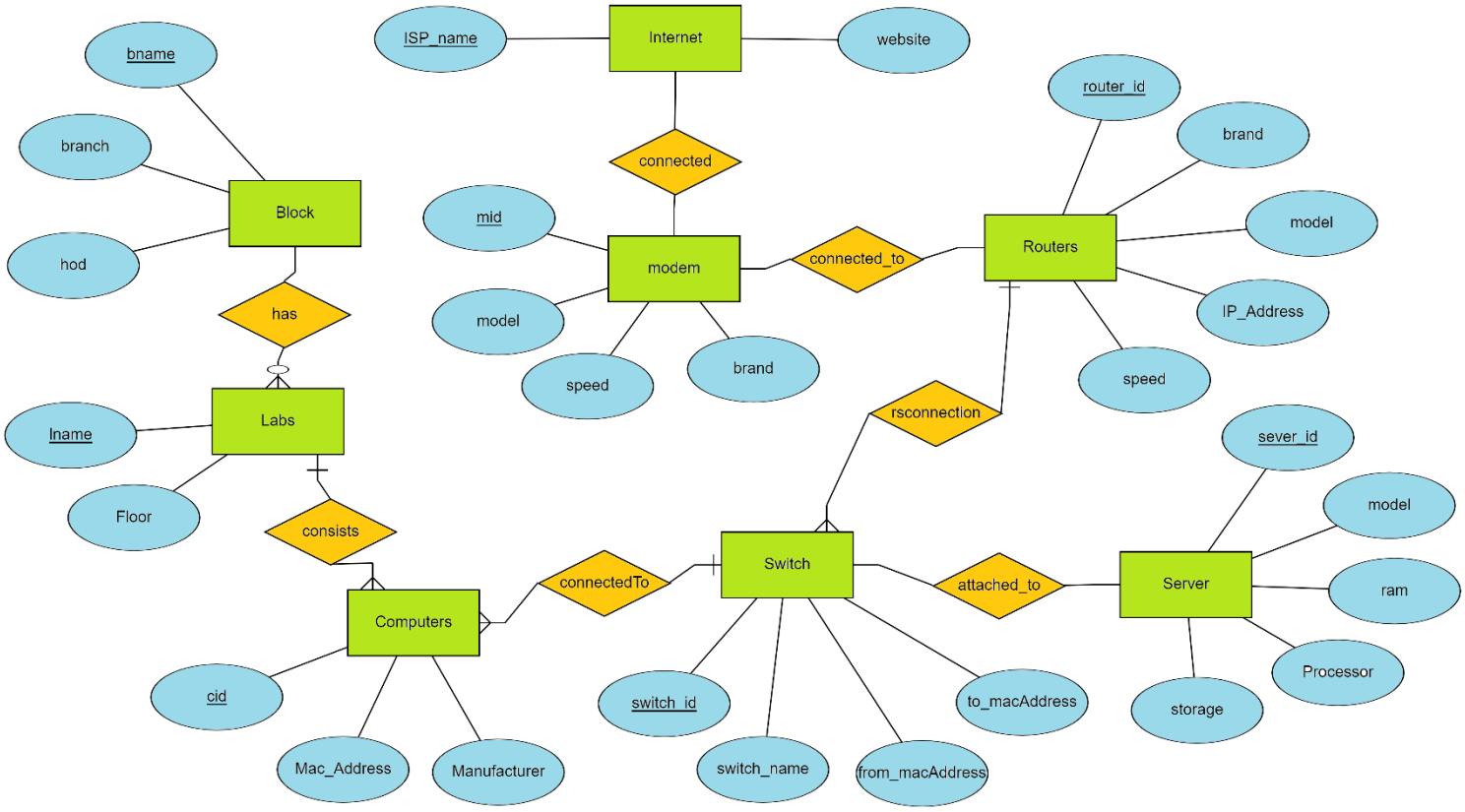
BLOCK:

Bname :- Varchar2(20)

Branch :- Varchar2(20)

Hod :- Varchar2(20)

ENTITY-RELATIONSHIP DIAGRAM:



Mapping Cardinalities and Participation Constraints:

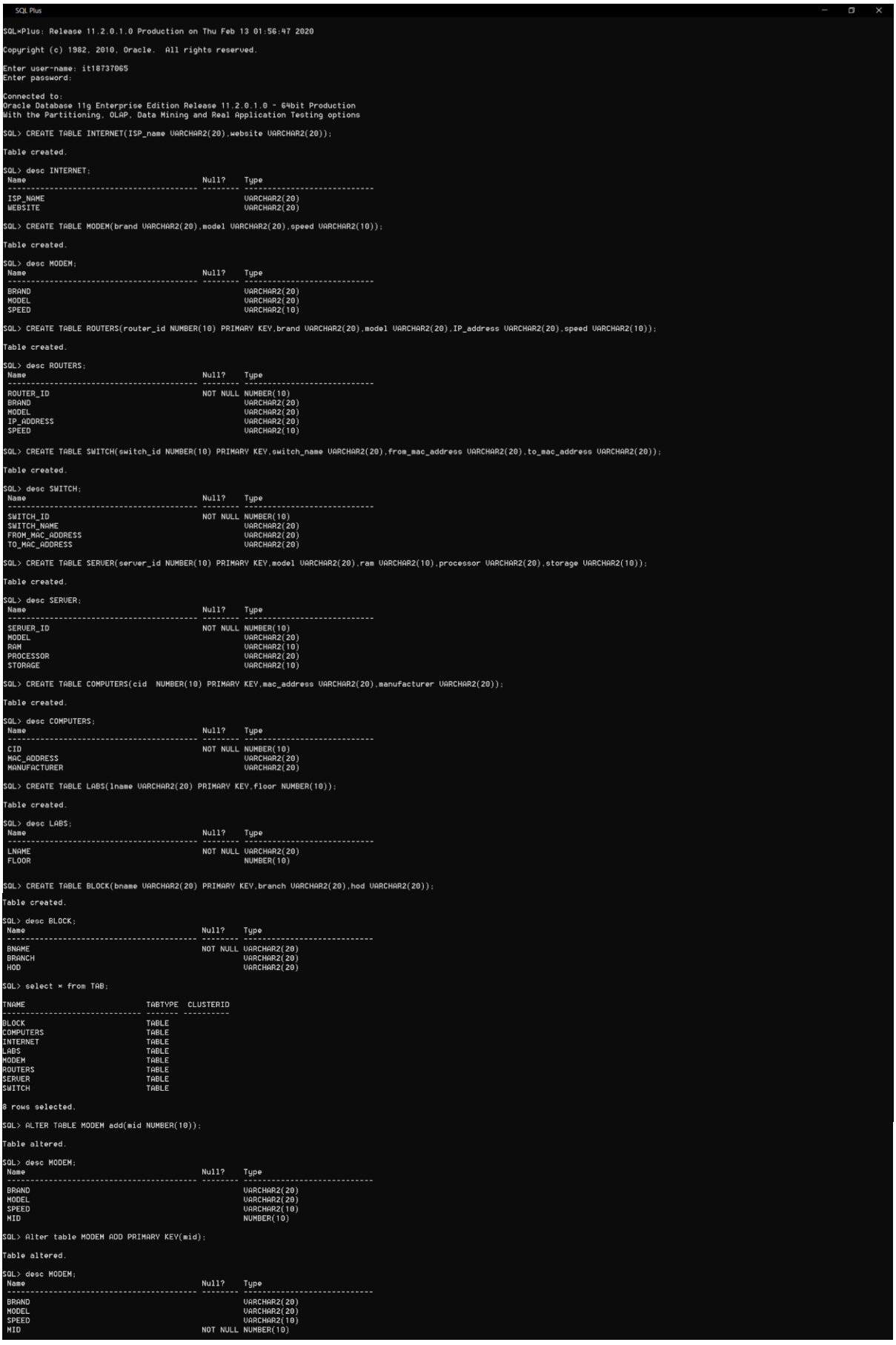
A Router is connected to many switches therefore one to many mapping cardinalities between a Router and a Switch.

A switch can send and receive data from many computers therefore one to many mapping cardinalities between a Switch and a Computer.

Computers are mandatory in LAB therefore many to one mapping cardinalities between a Computer and LAB.

There is no rule that a Block should have Labs Therfore one to many mapping cardinalities between Block and Lab.

DDL COMMANDS(Screenshots):



```
SQL Plus

SQL*Plus: Release 11.2.0.1.0 Production on Thu Feb 13 01:56:47 2020

Copyright (c) 1982, 2010, Oracle.  All rights reserved.

Enter user-name: it18737065
Enter password:

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> CREATE TABLE INTERNET(ISP_name VARCHAR2(20),website VARCHAR2(20));

Table created.

SQL> desc INTERNET;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ISP_NAME                                           VARCHAR2(20)
 WEBSITE                                            VARCHAR2(20)

SQL> CREATE TABLE MODEM(brand VARCHAR2(20),model VARCHAR2(20),speed VARCHAR2(10));

Table created.

SQL> desc MODEM;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BRAND                                              VARCHAR2(20)
 MODEL                                              VARCHAR2(20)
 SPEED                                              VARCHAR2(10)

SQL> CREATE TABLE ROUTERS(router_id NUMBER(10) PRIMARY KEY,brand VARCHAR2(20),model VARCHAR2(20),IP_address VARCHAR2(20),speed VARCHAR2(10));

Table created.

SQL> desc ROUTERS;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ROUTER_ID                                 NOT NULL NUMBER(10)
 BRAND                                              VARCHAR2(20)
 MODEL                                              VARCHAR2(20)
 IP_ADDRESS                                         VARCHAR2(20)
 SPEED                                              VARCHAR2(10)

SQL> CREATE TABLE SWITCH(switch_id NUMBER(10) PRIMARY KEY,switch_name VARCHAR2(20),from_mac_address VARCHAR2(20),to_mac_address VARCHAR2(20));

Table created.

SQL> desc SWITCH;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SWITCH_ID                                 NOT NULL NUMBER(10)
 SWITCH_NAME                                        VARCHAR2(20)
 FROM_MAC_ADDRESS                                   VARCHAR2(20)
 TO_MAC_ADDRESS                                     VARCHAR2(20)

SQL> CREATE TABLE SERVER(server_id NUMBER(10) PRIMARY KEY,model VARCHAR2(20),ram VARCHAR2(10),processor VARCHAR2(20),storage VARCHAR2(10));

Table created.

SQL> desc SERVER;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SERVER_ID                                 NOT NULL NUMBER(10)
 MODEL                                              VARCHAR2(20)
 RAM                                                VARCHAR2(10)
 PROCESSOR                                          VARCHAR2(20)
 STORAGE                                            VARCHAR2(10)

SQL> CREATE TABLE COMPUTERS(cid  NUMBER(10) PRIMARY KEY,mac_address VARCHAR2(20),manufacturer VARCHAR2(20));

Table created.

SQL> desc COMPUTERS;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CID                                       NOT NULL NUMBER(10)
 MAC_ADDRESS                                        VARCHAR2(20)
 MANUFACTURER                                       VARCHAR2(20)

SQL> CREATE TABLE LABS(lname VARCHAR2(20) PRIMARY KEY,floor NUMBER(10));

Table created.

SQL> desc LABS;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 LNAME                                     NOT NULL VARCHAR2(20)
 FLOOR                                              NUMBER(10)

SQL> CREATE TABLE BLOCK(bname VARCHAR2(20) PRIMARY KEY,branch VARCHAR2(20),hod VARCHAR2(20));

Table created.

SQL> desc BLOCK;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BNAME                                     NOT NULL VARCHAR2(20)
 BRANCH                                             VARCHAR2(20)
 HOD                                                VARCHAR2(20)

SQL> select * from TAB;

TNAME                          TABTYPE  CLUSTERID
------------------------------ ------- ----------
BLOCK                          TABLE
COMPUTERS                      TABLE
INTERNET                       TABLE
LABS                           TABLE
MODEM                          TABLE
ROUTERS                        TABLE
SERVER                         TABLE
SWITCH                         TABLE

8 rows selected.

SQL> ALTER TABLE MODEM add(mid NUMBER(10));

Table altered.

SQL> desc MODEM;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BRAND                                              VARCHAR2(20)
 MODEL                                              VARCHAR2(20)
 SPEED                                              VARCHAR2(10)
 MID                                                NUMBER(10)

SQL> Alter table MODEM ADD PRIMARY KEY(mid);

Table altered.

SQL> desc MODEM;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BRAND                                              VARCHAR2(20)
 MODEL                                              VARCHAR2(20)
 SPEED                                              VARCHAR2(10)
 MID                                       NOT NULL NUMBER(10)
```

```
SQL> ALTER TABLE INTERNET ADD PRIMARY KEY(ISP_name);

Table altered.

SQL> desc INTERNET;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ISP_NAME                                  NOT NULL VARCHAR2(20)
 WEBSITE                                            VARCHAR2(20)

SQL> CREATE TABLE CONNECTED(mid NUMBER(10),ISP_name VARCHAR2(20),FOREIGN KEY(mid) REFERENCES MODEM,FOREIGN KEY(ISP_name) REFERENCES INTERNET);

Table created.

SQL> desc CONNECTED;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 MID                                                NUMBER(10)
 ISP_NAME                                           VARCHAR2(20)

SQL> CREATE TABLE CONNECTED_TO(mid NUMBER(10),router_id NUMBER(10),FOREIGN KEY(mid) REFERENCES MODEM,FOREIGN KEY(router_id) REFERENCES ROUTERS);

Table created.

SQL> desc CONNECTED_TO;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 MID                                                NUMBER(10)
 ROUTER_ID                                          NUMBER(10)

SQL> CREATE TABLE RSCONNECTION(switch_id NUMBER(10),router_id NUMBER(10),FOREIGN KEY(switch_id) REFERENCES SWITCH,FOREIGN KEY(router_id) REFERENCES ROUTERS);

Table created.

SQL> desc RSCONNECTION;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SWITCH_ID                                          NUMBER(10)
 ROUTER_ID                                          NUMBER(10)

SQL> CREATE TABLE ATTACHED_TO(switch_id NUMBER(10),server_id NUMBER(10),FOREIGN KEY(switch_id) REFERENCES SWITCH,FOREIGN KEY(server_id) REFERENCES SERVER);

Table created.

SQL> desc ATTACHED_TO;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SWITCH_ID                                          NUMBER(10)
 SERVER_ID                                          NUMBER(10)

SQL> CREATE TABLE connectedTO(switch_id NUMBER(10),cid NUMBER(10),FOREIGN KEY(switch_id) REFERENCES SWITCH,FOREIGN KEY(cid) REFERENCES COMPUTERS);

Table created.

SQL> desc connectedTO;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SWITCH_ID                                          NUMBER(10)
 CID                                                NUMBER(10)

SQL> CREATE TABLE consists(lname VARCHAR2(20),cid NUMBER(10),FOREIGN KEY(lname) REFERENCES LABS,FOREIGN KEY(cid) REFERENCES COMPUTERS);

Table created.

SQL> desc consists;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 LNAME                                              VARCHAR2(20)
 CID                                                NUMBER(10)

SQL> CREATE TABLE HAS(lname VARCHAR2(20),bname VARCHAR2(20),FOREIGN KEY(lname) REFERENCES LABS,FOREIGN KEY(bname) REFERENCES BLOCK);

Table created.

SQL> desc HAS;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 LNAME                                              VARCHAR2(20)
 BNAME                                              VARCHAR2(20)

SQL> select * from TAB;

TNAME                          TABTYPE  CLUSTERID
------------------------------ ------- ----------
ATTACHED_TO                    TABLE
BLOCK                          TABLE
COMPUTERS                      TABLE
CONNECTED                      TABLE
CONNECTEDTO                    TABLE
CONNECTED_TO                   TABLE
CONSISTS                       TABLE
HAS                            TABLE
INTERNET                       TABLE
LABS                           TABLE
MODEM                          TABLE

TNAME                          TABTYPE  CLUSTERID
------------------------------ ------- ----------
ROUTERS                        TABLE
RSCONNECTION                   TABLE
SERVER                         TABLE
SWITCH                         TABLE

15 rows selected.
```

DML COMMANDS(Screenshots):

```
SQL> INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`);
Enter value for isp_name: HATHWAY
Enter value for website: www.hathway.com
old   1: INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`)
new   1: INSERT INTO INTERNET VALUES(`HATHWAY`,`www.hathway.com`)

1 row created.

SQL> INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`);
Enter value for isp_name: GTPL
Enter value for website: www.gtpl.net
old   1: INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`)
new   1: INSERT INTO INTERNET VALUES(`GTPL`,`www.gtpl.net`)

1 row created.

SQL> INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`);
Enter value for isp_name: TATA
Enter value for website: www.tatatelebroadband.com
old   1: INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`)
new   1: INSERT INTO INTERNET VALUES(`TATA`,`www.tatatelebroadband.com`)
INSERT INTO INTERNET VALUES(`TATA`,`www.tatatelebroadband.com`)
                            *
ERROR at line 1:
ORA-12899: value too large for column "IT18737065"."INTERNET"."WEBSITE"
(actual: 25, maximum: 20)


SQL> INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`);
Enter value for isp_name: MTNL
Enter value for website: www.mtnl.net.in
old   1: INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`)
new   1: INSERT INTO INTERNET VALUES(`MTNL`,`www.mtnl.net.in`)

1 row created.

SQL> INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`);
Enter value for isp_name: YOU
Enter value for website: www.youbroadband.in
old   1: INSERT INTO INTERNET VALUES(`&ISP_Name`,`&website`)
new   1: INSERT INTO INTERNET VALUES(`YOU`,`www.youbroadband.in`)

1 row created.

SQL> commit
  2  ;

Commit complete.

SQL> desc COMPUTERS;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CID                                       NOT NULL NUMBER(10)
 MAC_ADDRESS                                        VARCHAR2(20)
 MANUFACTURER                                       VARCHAR2(20)

SQL> INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`);
Enter value for cid: 1
Enter value for mac_address: 00-14-22-01-23-45
Enter value for manufacturer: DELL
old   1: INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`)
new   1: INSERT INTO COMPUTERS VALUES(1,`00-14-22-01-23-45`,`DELL`)

1 row created.

SQL> INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`);
Enter value for cid: 2
Enter value for mac_address: 14-CC-20-12-08-E1
Enter value for manufacturer: DELL
old   1: INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`)
new   1: INSERT INTO COMPUTERS VALUES(2,`14-CC-20-12-08-E1`,`DELL`)

1 row created.

SQL> INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`);
Enter value for cid: 3
Enter value for mac_address: 21-09-H1-25-01-E2
Enter value for manufacturer: DELL
old   1: INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`)
new   1: INSERT INTO COMPUTERS VALUES(3,`21-09-H1-25-01-E2`,`DELL`)

1 row created.

SQL> INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`);
Enter value for cid: 4
Enter value for mac_address: 34-15-Z2-13-25-Y2
Enter value for manufacturer: HP
old   1: INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`)
new   1: INSERT INTO COMPUTERS VALUES(4,`34-15-Z2-13-25-Y2`,`HP`)

1 row created.

SQL> INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`);
Enter value for cid: 5
Enter value for mac_address: 58-24-R3-PR-01-24
Enter value for manufacturer: HP
old   1: INSERT INTO COMPUTERS VALUES(&cid,`&mac_address`,`&manufacturer`)
new   1: INSERT INTO COMPUTERS VALUES(5,`58-24-R3-PR-01-24`,`HP`)

1 row created.

SQL> COMMIT;

Commit complete.

SQL> INSERT INTO MODEM VALUES(`&brand`,`&model`,`&speed`,&mid);
Enter value for brand: NETGEAR
Enter value for model: CM500
Enter value for speed: 1167Mbps
Enter value for mid: 101
old   1: INSERT INTO MODEM VALUES(`&brand`,`&model`,`&speed`,&mid)
new   1: INSERT INTO MODEM VALUES(`NETGEAR`,`CM500`,`1167Mbps`,101)

1 row created.

SQL> INSERT INTO MODEM VALUES(`&brand`,`&model`,`&speed`,&mid);
Enter value for brand: NETGEAR
Enter value for model: CM600
Enter value for speed: 1193Mbps
Enter value for mid: 102
old   1: INSERT INTO MODEM VALUES(`&brand`,`&model`,`&speed`,&mid)
new   1: INSERT INTO MODEM VALUES(`NETGEAR`,`CM600`,`1193Mbps`,102)

1 row created.

SQL> INSERT INTO MODEM VALUES(`&brand`,`&model`,`&speed`,&mid);
Enter value for brand: LINKSYS
Enter value for model: L3008
Enter value for speed: 545Mbps
Enter value for mid: 103
old   1: INSERT INTO MODEM VALUES(`&brand`,`&model`,`&speed`,&mid)
new   1: INSERT INTO MODEM VALUES(`LINKSYS`,`L3008`,`545Mbps`,103)

1 row created.
```

```
SQL> INSERT INTO MODEM VALUES('&brand','&model','&speed',&mid);
Enter value for brand: ARRIS
Enter value for model: SB690
Enter value for speed: 664Mbps
Enter value for mid: 104
old   1: INSERT INTO MODEM VALUES('&brand','&model','&speed',&mid)
new   1: INSERT INTO MODEM VALUES('ARRIS','SB690','664Mbps',104)

1 row created.

SQL> INSERT INTO MODEM VALUES('&brand','&model','&speed',&mid);
Enter value for brand: TP-LINK
Enter value for model: TC7610
Enter value for speed: 700Mbps
Enter value for mid: 105
old   1: INSERT INTO MODEM VALUES('&brand','&model','&speed',&mid)
new   1: INSERT INTO MODEM VALUES('TP-LINK','TC7610','700Mbps',105)

1 row created.

SQL> commit;

Commit complete.

SQL> INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed');
Enter value for router_id: 201
Enter value for brand: ASUS
Enter value for model: RT-AC5300
Enter value for ip_address: 192.168.1.0
Enter value for speed: 2000Mbps
old   1: INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed')
new   1: INSERT INTO ROUTERS VALUES(201,'ASUS','RT-AC5300','192.168.1.0','2000Mbps')

1 row created.

SQL> INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed');
Enter value for router_id: 202
Enter value for brand: TP-LINK
Enter value for model: ARCHER-AC5400
Enter value for ip_address: 192.168.1.1
Enter value for speed: 1800Mbps
old   1: INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed')
new   1: INSERT INTO ROUTERS VALUES(202,'TP-LINK','ARCHER-AC5400','192.168.1.1','1800Mbps')

1 row created.

SQL> INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed');
Enter value for router_id: 203
Enter value for brand: NETGEAR
Enter value for model: NIGHTHAWK
Enter value for ip_address: 192.168.2.1
Enter value for speed: 1625Mbps
old   1: INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed')
new   1: INSERT INTO ROUTERS VALUES(203,'NETGEAR','NIGHTHAWK','192.168.2.1','1625Mbps')

1 row created.

SQL> INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed');
Enter value for router_id: 204
Enter value for brand: D-LINK
Enter value for model: DSL-2750U
Enter value for ip_address: 192.168.3.0
Enter value for speed: 1500Mbps
old   1: INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed')
new   1: INSERT INTO ROUTERS VALUES(204,'D-LINK','DSL-2750U','192.168.3.0','1500Mbps')

1 row created.

SQL> INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed');
Enter value for router_id: 205
Enter value for brand: TENDA
Enter value for model: FH303
Enter value for ip_address: 192.168.1.5
Enter value for speed: 1420Mbps
old   1: INSERT INTO ROUTERS VALUES(&router_id,'&brand','&model','&ip_address','&speed')
new   1: INSERT INTO ROUTERS VALUES(205,'TENDA','FH303','192.168.1.5','1420Mbps')

1 row created.

SQL> commit;

Commit complete.

SQL> INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address');
Enter value for switch_id: 301
Enter value for switch_name: SWITCH1
Enter value for from_mac_address: 00-14-22-01-23-45
Enter value for to_mac_address: 14-CC-20-20-12-08-E1
old   1: INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address')
new   1: INSERT INTO SWITCH VALUES(301,'SWITCH1','00-14-22-01-23-45','14-CC-20-20-12-08-E1')

1 row created.

SQL> SELECT * FROM COMPUTERS;

       CID MAC_ADDRESS         MANUFACTURER
---------- ------------------- --------------------
         1 00-14-22-01-23-45   DELL
         2 14-CC-20-12-08-E1   DELL
         3 21-09-H1-25-01-E2   DELL
         4 34-15-Z2-13-25-Y2   HP
         5 58-24-R3-PR-01-24   HP

SQL> INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address');
Enter value for switch_id: 302
Enter value for switch_name: SWITCH2
Enter value for from_mac_address: 14-CC-20-20-12-08-E1
Enter value for to_mac_address: 21-09-H1-25-01-E2
old   1: INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address')
new   1: INSERT INTO SWITCH VALUES(302,'SWITCH2','14-CC-20-20-12-08-E1','21-09-H1-25-01-E2')

1 row created.

SQL> INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address');
Enter value for switch_id: 303
Enter value for switch_name: SWITCH3
Enter value for from_mac_address: 21-09-H1-25-01-E2
Enter value for to_mac_address: 34-15-Z2-13-25-Y2
old   1: INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address')
new   1: INSERT INTO SWITCH VALUES(303,'SWITCH3','21-09-H1-25-01-E2','34-15-Z2-13-25-Y2')

1 row created.

SQL> INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address');
Enter value for switch_id: 304
Enter value for switch_name: SWITCH4
Enter value for from_mac_address: 34-15-Z2-13-25-Y2
Enter value for to_mac_address: 58-24-R3-PR-01-24
old   1: INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address')
new   1: INSERT INTO SWITCH VALUES(304,'SWITCH4','34-15-Z2-13-25-Y2','58-24-R3-PR-01-24')

1 row created.

SQL> INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address');
Enter value for switch_id: 305
Enter value for switch_name: SWITCH5
Enter value for from_mac_address: 58-24-R3-PR-01-24
Enter value for to_mac_address: 00-14-22-01-23-45
old   1: INSERT INTO SWITCH VALUES(&switch_id,'&switch_name','&from_mac_address','&to_mac_address')
new   1: INSERT INTO SWITCH VALUES(305,'SWITCH5','58-24-R3-PR-01-24','00-14-22-01-23-45')

1 row created.

SQL> COMMIT;

Commit complete.
```

```
SQL> INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage');
Enter value for server_id: 401
Enter value for model: XEON
Enter value for ram: 12GB
Enter value for processor: INTEL
Enter value for storage: 1.5TB
old   1: INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage')
new   1: INSERT INTO SERVER VALUES(401,'XEON','12GB','INTEL','1.5TB')

1 row created.

SQL> INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage');
Enter value for server_id: 402
Enter value for model: PHENOM
Enter value for ram: 8GB
Enter value for processor: AMD
Enter value for storage: 2TB
old   1: INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage')
new   1: INSERT INTO SERVER VALUES(402,'PHENOM','8GB','AMD','2TB')

1 row created.

SQL> INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage');
Enter value for server_id: 403
Enter value for model: ITANIUM
Enter value for ram: 16GB
Enter value for processor: INTEL
Enter value for storage: 2TB
old   1: INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage')
new   1: INSERT INTO SERVER VALUES(403,'ITANIUM','16GB','INTEL','2TB')

1 row created.

new   1: INSERT INTO SERVER VALUES(404,'OPTERON','8GB','AMD','2TB')

1 row created.

SQL> INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage');
Enter value for server_id: 405
Enter value for model: CORE2QUAD
Enter value for ram: 16GB
Enter value for processor: INTEL
Enter value for storage: 500GB
old   1: INSERT INTO SERVER VALUES(&server_id,'&model','&ram','&processor','&storage')
new   1: INSERT INTO SERVER VALUES(405,'CORE2QUAD','16GB','INTEL','500GB')

1 row created.

SQL> COMMIT;

Commit complete.

SQL> DESC LABS
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 LNAME                                     NOT NULL VARCHAR2(20)
 FLOOR                                              NUMBER(10)

SQL> INSERT INTO LABS VALUES('&lname',&floor);
Enter value for lname: IT-LAB-1
Enter value for floor: 0
old   1: INSERT INTO LABS VALUES('&lname',&floor)
new   1: INSERT INTO LABS VALUES('IT-LAB-1',0)

1 row created.

SQL> INSERT INTO LABS VALUES('&lname',&floor);
Enter value for lname: IT-LAB-2
Enter value for floor: 0
old   1: INSERT INTO LABS VALUES('&lname',&floor)
new   1: INSERT INTO LABS VALUES('IT-LAB-2',0)

1 row created.

SQL> INSERT INTO LABS VALUES('&lname',&floor);
Enter value for lname: PROJECT-LAB
Enter value for floor: 1
old   1: INSERT INTO LABS VALUES('&lname',&floor)
new   1: INSERT INTO LABS VALUES('PROJECT-LAB',1)

1 row created.


SQL> INSERT INTO CONNECTED VALUES(&MID,'&ISP_NAME');
Enter value for mid: 101
Enter value for isp_name: ACT
old   1: INSERT INTO CONNECTED VALUES(&MID,'&ISP_NAME')
new   1: INSERT INTO CONNECTED VALUES(101,'ACT')

1 row created.

SQL> /
Enter value for mid: 102
Enter value for isp_name: HATHWAY
old   1: INSERT INTO CONNECTED VALUES(&MID,'&ISP_NAME')
new   1: INSERT INTO CONNECTED VALUES(102,'HATHWAY')

1 row created.

SQL> /
Enter value for mid: 103
Enter value for isp_name: TATA
old   1: INSERT INTO CONNECTED VALUES(&MID,'&ISP_NAME')
new   1: INSERT INTO CONNECTED VALUES(103,'TATA')
INSERT INTO CONNECTED VALUES(103,'TATA')
*
ERROR at line 1:
ORA-02291: integrity constraint (IT18737065.SYS_C0011238) violated - parent key
not found


SQL> /
Enter value for mid: 104
Enter value for isp_name: MTNL
old   1: INSERT INTO CONNECTED VALUES(&MID,'&ISP_NAME')
new   1: INSERT INTO CONNECTED VALUES(104,'MTNL')

1 row created.

SQL> /
Enter value for mid: 105
Enter value for isp_name: YOU
old   1: INSERT INTO CONNECTED VALUES(&MID,'&ISP_NAME')
new   1: INSERT INTO CONNECTED VALUES(105,'YOU')

1 row created.
```

```
SQL> COMMIT;

Commit complete.

SQL> INSERT INTO CONNECTED_TO VALUES(&mid,&ROUTER_ID);
Enter value for mid: 101
Enter value for router_id: 201
old   1: INSERT INTO CONNECTED_TO VALUES(&mid,&ROUTER_ID)
new   1: INSERT INTO CONNECTED_TO VALUES(101,201)

1 row created.

SQL> /
Enter value for mid: 102
Enter value for router_id: 202
old   1: INSERT INTO CONNECTED_TO VALUES(&mid,&ROUTER_ID)
new   1: INSERT INTO CONNECTED_TO VALUES(102,202)

1 row created.

SQL> /
Enter value for mid: 103
Enter value for router_id: 203
old   1: INSERT INTO CONNECTED_TO VALUES(&mid,&ROUTER_ID)
new   1: INSERT INTO CONNECTED_TO VALUES(103,203)

1 row created.

SQL> /
Enter value for mid: 104
Enter value for router_id: 204
old   1: INSERT INTO CONNECTED_TO VALUES(&mid,&ROUTER_ID)
new   1: INSERT INTO CONNECTED_TO VALUES(104,204)

1 row created.

SQL> /
Enter value for mid: 105
Enter value for router_id: 205
old   1: INSERT INTO CONNECTED_TO VALUES(&mid,&ROUTER_ID)
new   1: INSERT INTO CONNECTED_TO VALUES(105,205)

1 row created.

SQL> COMMIT;

Commit complete.

SQL> DESC RSCONNECTION
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SWITCH_ID                                          NUMBER(10)
 ROUTER_ID                                          NUMBER(10)

SQL> INSERT INTO RSCONNECTION VALUES(&SWITCH_ID,&ROUTER_ID);
Enter value for switch_id: 301
Enter value for router_id: 201
old   1: INSERT INTO RSCONNECTION VALUES(&SWITCH_ID,&ROUTER_ID)
new   1: INSERT INTO RSCONNECTION VALUES(301,201)

1 row created.

SQL> /
Enter value for switch_id: 302
Enter value for router_id: 202
old   1: INSERT INTO RSCONNECTION VALUES(&SWITCH_ID,&ROUTER_ID)
new   1: INSERT INTO RSCONNECTION VALUES(302,202)

1 row created.

SQL> /
Enter value for switch_id: 303
Enter value for router_id: 203
old   1: INSERT INTO RSCONNECTION VALUES(&SWITCH_ID,&ROUTER_ID)
new   1: INSERT INTO RSCONNECTION VALUES(303,203)

1 row created.

SQL> /
Enter value for switch_id: 304
Enter value for router_id: 204
old   1: INSERT INTO RSCONNECTION VALUES(&SWITCH_ID,&ROUTER_ID)
new   1: INSERT INTO RSCONNECTION VALUES(304,204)

1 row created.

SQL> /
Enter value for switch_id: 305
Enter value for router_id: 205
old   1: INSERT INTO RSCONNECTION VALUES(&SWITCH_ID,&ROUTER_ID)
new   1: INSERT INTO RSCONNECTION VALUES(305,205)

1 row created.

SQL> COMMIT;

Commit complete.

SQL> INSERT INTO ATTACHED_TO VALUES(&SWITCH_ID,&SERVER_ID);
Enter value for switch_id: 301
Enter value for server_id: 401
old   1: INSERT INTO ATTACHED_TO VALUES(&SWITCH_ID,&SERVER_ID)
new   1: INSERT INTO ATTACHED_TO VALUES(301,401)

1 row created.

SQL> /
Enter value for switch_id: 302
Enter value for server_id: 402
old   1: INSERT INTO ATTACHED_TO VALUES(&SWITCH_ID,&SERVER_ID)
new   1: INSERT INTO ATTACHED_TO VALUES(302,402)

1 row created.

SQL> /
Enter value for switch_id: 303
Enter value for server_id: 403
old   1: INSERT INTO ATTACHED_TO VALUES(&SWITCH_ID,&SERVER_ID)
new   1: INSERT INTO ATTACHED_TO VALUES(303,403)

1 row created.

SQL> /
Enter value for switch_id: 304
Enter value for server_id: 404
old   1: INSERT INTO ATTACHED_TO VALUES(&SWITCH_ID,&SERVER_ID)
new   1: INSERT INTO ATTACHED_TO VALUES(304,404)

1 row created.

SQL> /
Enter value for switch_id: 305
Enter value for server_id: 405
old   1: INSERT INTO ATTACHED_TO VALUES(&SWITCH_ID,&SERVER_ID)
new   1: INSERT INTO ATTACHED_TO VALUES(305,405)

1 row created.

SQL> COMMIT;

Commit complete.
```

```
SQL> INSERT INTO CONNECTEDTO VALUES(&SWITCH_ID,&CID);
Enter value for switch_id: 301
Enter value for cid: 1
old   1: INSERT INTO CONNECTEDTO VALUES(&SWITCH_ID,&CID)
new   1: INSERT INTO CONNECTEDTO VALUES(301,1)

1 row created.

SQL> /
Enter value for switch_id: 302
Enter value for cid: 2
old   1: INSERT INTO CONNECTEDTO VALUES(&SWITCH_ID,&CID)
new   1: INSERT INTO CONNECTEDTO VALUES(302,2)

1 row created.

SQL> /
Enter value for switch_id: 303
Enter value for cid: 3
old   1: INSERT INTO CONNECTEDTO VALUES(&SWITCH_ID,&CID)
new   1: INSERT INTO CONNECTEDTO VALUES(303,3)

1 row created.

SQL> /
Enter value for switch_id: 304
Enter value for cid: 4
old   1: INSERT INTO CONNECTEDTO VALUES(&SWITCH_ID,&CID)
new   1: INSERT INTO CONNECTEDTO VALUES(304,4)

1 row created.

SQL> /
Enter value for switch_id: 305
Enter value for cid: 5
old   1: INSERT INTO CONNECTEDTO VALUES(&SWITCH_ID,&CID)
new   1: INSERT INTO CONNECTEDTO VALUES(305,5)

1 row created.

SQL> COMMIT;

Commit complete.

SQL> INSERT INTO CONSISTS VALUES('&LNAME',&CID);
Enter value for lname: IT-LAB-1
Enter value for cid: 1
old   1: INSERT INTO CONSISTS VALUES('&LNAME',&CID)
new   1: INSERT INTO CONSISTS VALUES('IT-LAB-1',1)

1 row created.

SQL> /
Enter value for lname: IT-LAB-1
Enter value for cid: 2
old   1: INSERT INTO CONSISTS VALUES('&LNAME',&CID)
new   1: INSERT INTO CONSISTS VALUES('IT-LAB-1',2)

1 row created.

SQL> /
Enter value for lname: IT-LAB-2
Enter value for cid: 3
old   1: INSERT INTO CONSISTS VALUES('&LNAME',&CID)
new   1: INSERT INTO CONSISTS VALUES('IT-LAB-2',3)

1 row created.

SQL> /
Enter value for lname: PROJECT-LAB
Enter value for cid: 4
old   1: INSERT INTO CONSISTS VALUES('&LNAME',&CID)
new   1: INSERT INTO CONSISTS VALUES('PROJECT-LAB',4)

1 row created.

SQL> /
Enter value for lname: PROJECT-LAB
Enter value for cid: 5
old   1: INSERT INTO CONSISTS VALUES('&LNAME',&CID)
new   1: INSERT INTO CONSISTS VALUES('PROJECT-LAB',5)

1 row created.

SQL> COMMIT;

Commit complete.

SQL> INSERT INTO HAS VALUES('&LNAME','&BNAME');
Enter value for lname: PROJECT-LAB
Enter value for bname: RAMANUJAN
old   1: INSERT INTO HAS VALUES('&LNAME','&BNAME')
new   1: INSERT INTO HAS VALUES('PROJECT-LAB','RAMANUJAN')

1 row created.

SQL> INSERT INTO HAS VALUES('&LNAME','&BNAME');
Enter value for lname: IT-LAB-1
Enter value for bname: RAMANUJAN
old   1: INSERT INTO HAS VALUES('&LNAME','&BNAME')
new   1: INSERT INTO HAS VALUES('IT-LAB-1','RAMANUJAN')

1 row created.

SQL> /
Enter value for lname: IT-LAB-2
Enter value for bname: RAMANUJAN
old   1: INSERT INTO HAS VALUES('&LNAME','&BNAME')
new   1: INSERT INTO HAS VALUES('IT-LAB-2','RAMANUJAN')

1 row created.

SQL> COMMIT;

Commit complete.
```

```
SQL> select * from INTERNET;

ISP_NAME            WEBSITE
------------------- -------------------
ACT                 www.actcorp.in
HATHWAY             www.hathway.com
GTPL                www.gtpl.net
MTNL                www.mtnl.net.in
YOU                 www.youbroadband.in

SQL> select * from MODEM;

BRAND               MODEL               SPEED             MID
------------------- ------------------- ---------- ----------
NETGEAR             CM500               1167Mbps          101
NETGEAR             CM600               1193Mbps          102
LINKSYS             L3008               545Mbps           103
ARRIS               SB690               664Mbps           104
TP-LINK             TC7610              700Mbps           105

SQL> select * from routers;

 ROUTER_ID BRAND               MODEL               IP_ADDRESS
---------- ------------------- ------------------- --------------------
SPEED
----------
       201 ASUS                RT-AC5300           192.168.1.0
2000Mbps

       202 TP-LINK             ARCHER-AC5400       192.168.1.1
1800Mbps

       203 NETGEAR             NIGHTHAWK           192.168.2.1
1625Mbps


 ROUTER_ID BRAND               MODEL               IP_ADDRESS
---------- ------------------- ------------------- --------------------
SPEED
----------
       204 D-LINK              DSL-2750U           192.168.3.0
1500Mbps

       205 TENDA               FH303               192.168.1.5
1420Mbps


SQL> select * from switch;

 SWITCH_ID SWITCH_NAME         FROM_MAC_ADDRESS    TO_MAC_ADDRESS
---------- ------------------- ------------------- -------------------
       301 SWITCH1             00-14-22-01-23-45   14-CC-20-20-12-08-E1
       302 SWITCH2             14-CC-20-20-12-08-E1 21-09-H1-25-01-E2
       303 SWITCH3             21-09-H1-25-01-E2   34-15-Z2-13-25-Y2
       304 SWITCH4             34-15-Z2-13-25-Y2   58-24-R3-PR-01-24
       305 SWITCH5             58-24-R3-PR-01-24   00-14-22-01-23-45

SQL> select * from server;

 SERVER_ID MODEL               RAM        PROCESSOR           STORAGE
---------- ------------------- ---------- ------------------- ----------
       401 XEON                12GB       INTEL               1.5TB
       402 PHENOM              8GB        AMD                 2TB
       403 ITANIUM             16GB       INTEL               2TB
       404 OPTERON             8GB        AMD                 2TB
       405 CORE2QUAD           16GB       INTEL               500GB

SQL> select * from computers;

       CID MAC_ADDRESS         MANUFACTURER
---------- ------------------- --------------------
         1 00-14-22-01-23-45   DELL
         2 14-CC-20-12-08-E1   DELL
         3 21-09-H1-25-01-E2   DELL
         4 34-15-Z2-13-25-Y2   HP
         5 58-24-R3-PR-01-24   HP

SQL> select * from labs;

LNAME                     FLOOR
-------------------- ----------
IT-LAB-1                     0
IT-LAB-2                     0
PROJECT-LAB                  1

SQL> select * from block;

BNAME               BRANCH              HOD
------------------- ------------------- --------------------
RAMANUJAN           IT                  RamMohanRao
VISVESVARAYA        CIVIL               XYZ

SQL> select * from connected;

       MID ISP_NAME
---------- --------------------
       101 ACT
       102 HATHWAY
       103 GTPL
       104 MTNL
       105 YOU

SQL> select * from connected_to;

       MID  ROUTER_ID
---------- ----------
       101        201
       102        202
       103        203
       104        204
       105        205

SQL> select * from rsconnection;

 SWITCH_ID  ROUTER_ID
---------- ----------
       301        201
       302        202
       303        203
       304        204
       305        205

SQL> select * from attached_to;

 SWITCH_ID  SERVER_ID
---------- ----------
       301        401
       302        402
       303        403
       304        404
       305        405

SQL> select * from connectedto;

 SWITCH_ID        CID
---------- ----------
       301          1
       302          2
       303          3
       304          4
       305          5

SQL> select * from consists;

LNAME                      CID
-------------------- ----------
IT-LAB-1                     1
IT-LAB-1                     2
IT-LAB-2                     3
PROJECT-LAB                  4
PROJECT-LAB                  5

SQL> select * from has;

LNAME               BNAME
------------------- --------------------
PROJECT-LAB         RAMANUJAN
IT-LAB-1            RAMANUJAN
IT-LAB-2            RAMANUJAN
```