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
- LAN
- WAN
- COMPUTERS
- LABS
- BLOCK
- ConnectedTo
- Consists_of
- Connected_to
- consists
- has

List of Attributes with their Domain Types:

INTERNET:

ISP :- Varchar2(20)

website :- Varchar2(20)

LAN:

l_device_id :-Number(10)

l_device_name:-Varchar2(20)

l_speed:-Varchar2(10)

l_ip_address:-Varchar2(20)

WAN:

w_device_id :-Number(10)

w_device_name:-Varchar2(20)

w_speed:-Varchar2(10)

w_ip_address:-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)

connectedTo:

ISP :- Varchar2(20)

l_device_id :-Number(10)

consists_of:

l_device_id :-Number(10)

w_device_id :-Number(10)

consists_of:

l_device_id:-Number(10)

w_device_id :-Number(10)

connected_to:

l_device_id :-Number(10)

cid :- Number(10)

consists:

cid :- Number(10)

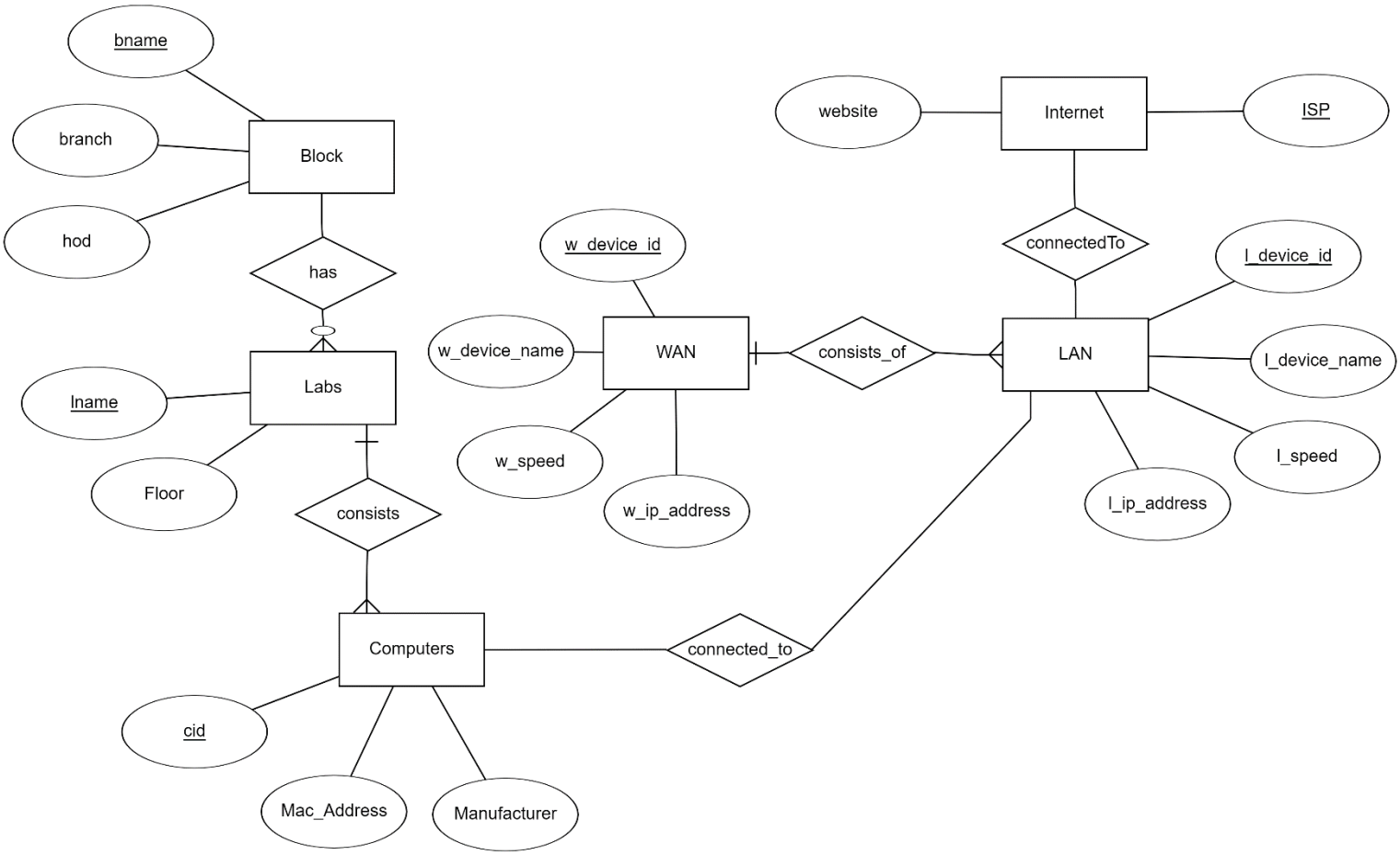
Labname :- Varchar2(20)

Has:

Bname :- Varchar2(20)

Labname :- Varchar2(20)

ENTITY-RELATIONSHIP DIAGRAM:



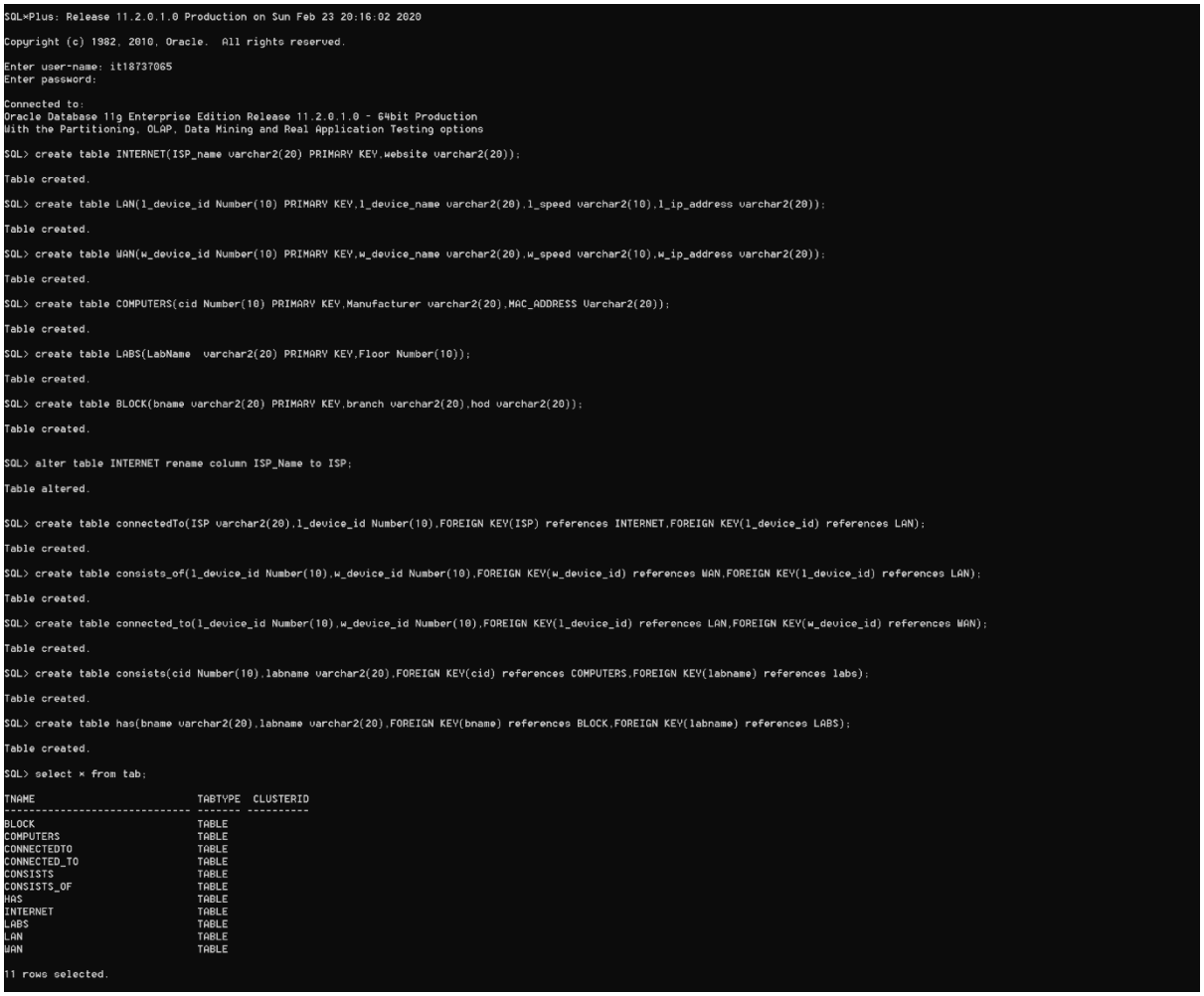
Mapping Cardinalities and Participation Constraints:

WAN is interconnection of LANs therefore one to many cardinalities between WAN and LAN.

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 therefore one to many mapping cardinalities between Block and Lab.

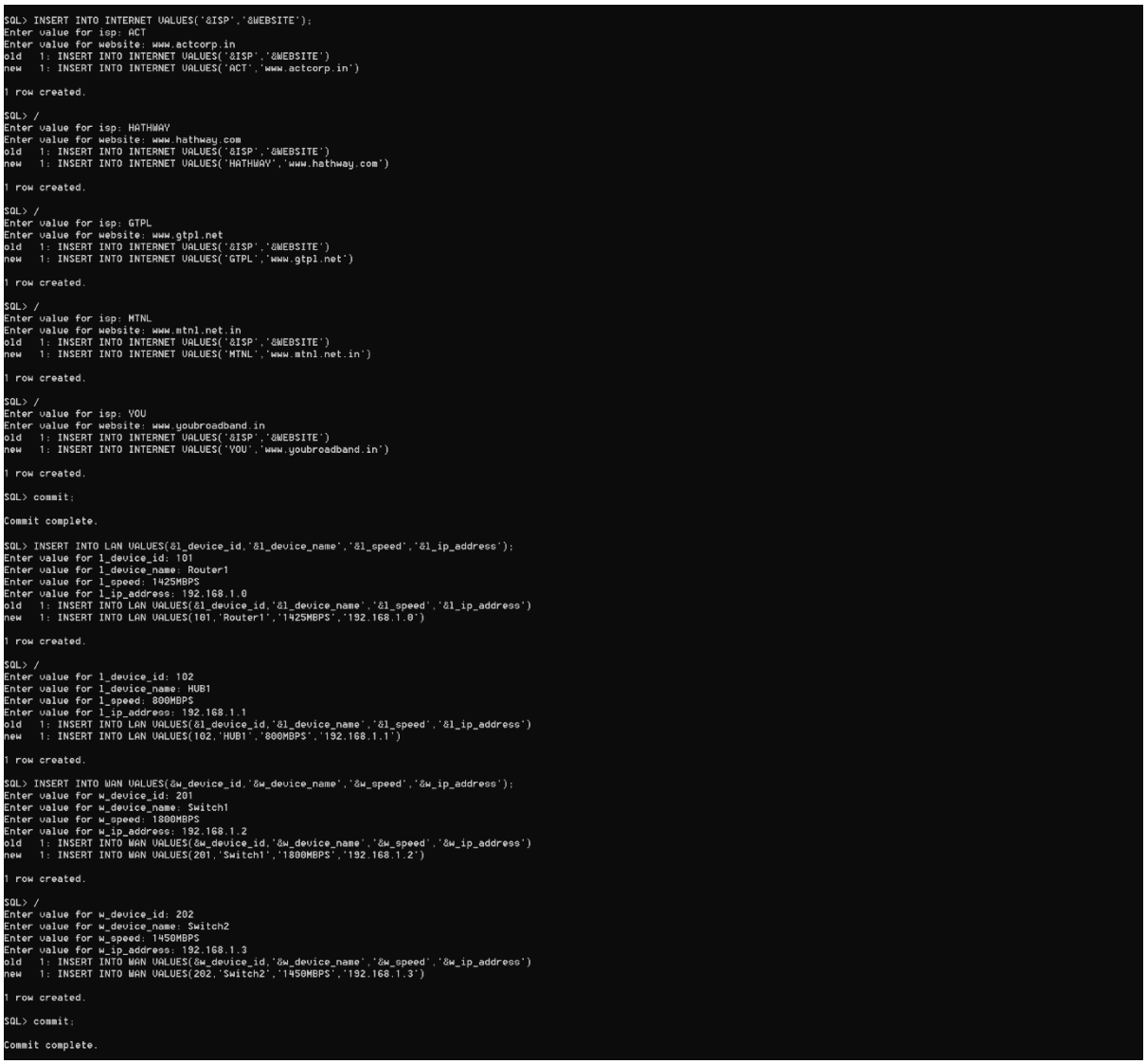
DDL COMMANDS(Screenshots):



```
SQL*Plus: Release 11.2.0.1.0 Production on Sun Feb 23 20:16:02 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) PRIMARY KEY,website varchar2(20));

Table created.

SQL> create table LAN(l_device_id Number(10) PRIMARY KEY,l_device_name varchar2(20),l_speed varchar2(10),l_ip_address varchar2(20));

Table created.

SQL> create table WAN(w_device_id Number(10) PRIMARY KEY,w_device_name varchar2(20),w_speed varchar2(10),w_ip_address varchar2(20));

Table created.

SQL> create table COMPUTERS(cid Number(10) PRIMARY KEY,Manufacturer varchar2(20),MAC_ADDRESS Varchar2(20));

Table created.

SQL> create table LABS(LabName  varchar2(20) PRIMARY KEY,Floor Number(10));

Table created.

SQL> create table BLOCK(bname varchar2(20) PRIMARY KEY,branch varchar2(20),hod varchar2(20));

Table created.


SQL> alter table INTERNET rename column ISP_Name to ISP;

Table altered.


SQL> create table connectedTo(ISP varchar2(20),l_device_id Number(10),FOREIGN KEY(ISP) references INTERNET,FOREIGN KEY(l_device_id) references LAN);

Table created.

SQL> create table consists_of(l_device_id Number(10),w_device_id Number(10),FOREIGN KEY(w_device_id) references WAN,FOREIGN KEY(l_device_id) references LAN);

Table created.

SQL> create table connected_to(l_device_id Number(10),w_device_id Number(10),FOREIGN KEY(l_device_id) references LAN,FOREIGN KEY(w_device_id) references WAN);

Table created.

SQL> create table consists(cid Number(10),labname varchar2(20),FOREIGN KEY(cid) references COMPUTERS,FOREIGN KEY(labname) references labs);

Table created.

SQL> create table has(bname varchar2(20),labname varchar2(20),FOREIGN KEY(bname) references BLOCK,FOREIGN KEY(labname) references LABS);

Table created.

SQL> select * from tab;

TNAME                          TABTYPE  CLUSTERID
------------------------------ ------- ----------
BLOCK                          TABLE
COMPUTERS                      TABLE
CONNECTEDTO                    TABLE
CONNECTED_TO                   TABLE
CONSISTS                       TABLE
CONSISTS_OF                    TABLE
HAS                            TABLE
INTERNET                       TABLE
LABS                           TABLE
LAN                            TABLE
WAN                            TABLE

11 rows selected.
```

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

SQL> desc LAN;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 L_DEVICE_ID                               NOT NULL NUMBER(10)
 L_DEVICE_NAME                                      VARCHAR2(20)
 L_SPEED                                            VARCHAR2(10)
 L_IP_ADDRES$                                       VARCHAR2(20)

SQL> desc WAN;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 W_DEVICE_ID                               NOT NULL NUMBER(10)
 W_DEVICE_NAME                                      VARCHAR2(20)
 W_SPEED                                            VARCHAR2(10)
 W_IP_ADDRES$                                       VARCHAR2(20)

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

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

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

SQL> desc connectedTo;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ISP                                                VARCHAR2(20)
 L_DEVICE_ID                                        NUMBER(10)

SQL> desc consists_of;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 L_DEVICE_ID                                        NUMBER(10)
 W_DEVICE_ID                                        NUMBER(10)

SQL> desc connected_to;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 L_DEVICE_ID                                        NUMBER(10)
 W_DEVICE_ID                                        NUMBER(10)

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

SQL> desc has;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BNAME                                              VARCHAR2(20)
 LABNAME                                            VARCHAR2(20)

SQL> alter table connected_to rename column W_DEVICE_ID to cid;

Table altered.

SQL> desc connected_to;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 L_DEVICE_ID                                        NUMBER(10)
 CID                                                NUMBER(10)
```

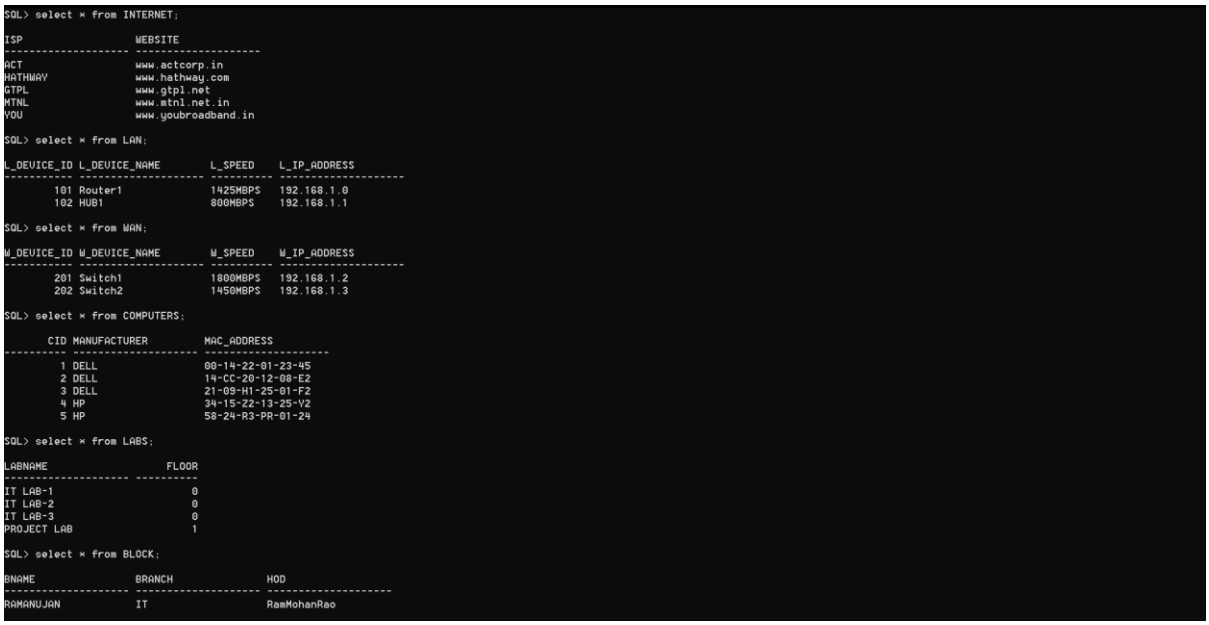
DML COMMANDS(Screenshots):



```
SQL> INSERT INTO INTERNET VALUES('&ISP','&WEBSITE');
Enter value for isp: ACT
Enter value for website: www.actcorp.in
old   1: INSERT INTO INTERNET VALUES('&ISP','&WEBSITE')
new   1: INSERT INTO INTERNET VALUES('ACT','www.actcorp.in')

1 row created.

SQL> /
Enter value for isp: HATHWAY
Enter value for website: www.hathway.com
old   1: INSERT INTO INTERNET VALUES('&ISP','&WEBSITE')
new   1: INSERT INTO INTERNET VALUES('HATHWAY','www.hathway.com')

1 row created.

SQL> /
Enter value for isp: GTPL
Enter value for website: www.gtpl.net
old   1: INSERT INTO INTERNET VALUES('&ISP','&WEBSITE')
new   1: INSERT INTO INTERNET VALUES('GTPL','www.gtpl.net')

1 row created.

SQL> /
Enter value for isp: MTNL
Enter value for website: www.mtnl.net.in
old   1: INSERT INTO INTERNET VALUES('&ISP','&WEBSITE')
new   1: INSERT INTO INTERNET VALUES('MTNL','www.mtnl.net.in')

1 row created.

SQL> /
Enter value for isp: YOU
Enter value for website: www.youbroadband.in
old   1: INSERT INTO INTERNET VALUES('&ISP','&WEBSITE')
new   1: INSERT INTO INTERNET VALUES('YOU','www.youbroadband.in')

1 row created.

SQL> commit;

Commit complete.

SQL> INSERT INTO LAN VALUES(&l_device_id,'&l_device_name','&l_speed','&l_ip_address');
Enter value for l_device_id: 101
Enter value for l_device_name: Router1
Enter value for l_speed: 1425MBPS
Enter value for l_ip_address: 192.168.1.0
old   1: INSERT INTO LAN VALUES(&l_device_id,'&l_device_name','&l_speed','&l_ip_address')
new   1: INSERT INTO LAN VALUES(101,'Router1','1425MBPS','192.168.1.0')

1 row created.

SQL> /
Enter value for l_device_id: 102
Enter value for l_device_name: HUB1
Enter value for l_speed: 800MBPS
Enter value for l_ip_address: 192.168.1.1
old   1: INSERT INTO LAN VALUES(&l_device_id,'&l_device_name','&l_speed','&l_ip_address')
new   1: INSERT INTO LAN VALUES(102,'HUB1','800MBPS','192.168.1.1')

1 row created.

SQL> INSERT INTO WAN VALUES(&w_device_id,'&w_device_name','&w_speed','&w_ip_address');
Enter value for w_device_id: 201
Enter value for w_device_name: Switch1
Enter value for w_speed: 1800MBPS
Enter value for w_ip_address: 192.168.1.2
old   1: INSERT INTO WAN VALUES(&w_device_id,'&w_device_name','&w_speed','&w_ip_address')
new   1: INSERT INTO WAN VALUES(201,'Switch1','1800MBPS','192.168.1.2')

1 row created.

SQL> /
Enter value for w_device_id: 202
Enter value for w_device_name: Switch2
Enter value for w_speed: 1450MBPS
Enter value for w_ip_address: 192.168.1.3
old   1: INSERT INTO WAN VALUES(&w_device_id,'&w_device_name','&w_speed','&w_ip_address')
new   1: INSERT INTO WAN VALUES(202,'Switch2','1450MBPS','192.168.1.3')

1 row created.

SQL> commit;

Commit complete.
```

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

1 row created.

SQL> /
Enter value for cid: 2
Enter value for manufacturer: DELL
Enter value for mac_address: 14-CC-20-12-08-E2
old   1: INSERT INTO COMPUTERS VALUES(&cid,'&Manufacturer','&mac_address')
new   1: INSERT INTO COMPUTERS VALUES(2,'DELL','14-CC-20-12-08-E2')

1 row created.

SQL> /
Enter value for cid: 3
Enter value for manufacturer: DELL
Enter value for mac_address: 21-09-H1-25-01-F2
old   1: INSERT INTO COMPUTERS VALUES(&cid,'&Manufacturer','&mac_address')
new   1: INSERT INTO COMPUTERS VALUES(3,'DELL','21-09-H1-25-01-F2')

1 row created.

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

1 row created.

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

1 row created.

SQL> commit;

Commit complete.

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

1 row created.

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

1 row created.

SQL> /
Enter value for labname: IT LAB-3
Enter value for floor: 0
old   1: INSERT INTO LABS VALUES('&LabName',&FLOOR)
new   1: INSERT INTO LABS VALUES('IT LAB-3',0)

1 row created.

SQL> /
Enter value for labname: PROJECT LAB
Enter value for floor: 1
old   1: INSERT INTO LABS VALUES('&LabName',&FLOOR)
new   1: INSERT INTO LABS VALUES('PROJECT LAB',1)

1 row created.

SQL> commit
  2  ;

Commit complete.

SQL> INSERT INTO BLOCK VALUES('&bname','&branch','&hod');
Enter value for bname: RAMANUJAN
Enter value for branch: IT
Enter value for hod: RamMohanRao
old   1: INSERT INTO BLOCK VALUES('&bname','&branch','&hod')
new   1: INSERT INTO BLOCK VALUES('RAMANUJAN','IT','RamMohanRao')

1 row created.

SQL> commit;

Commit complete.

SQL> INSERT INTO connectedTo VALUES('&ISP',&l_device_id);
Enter value for isp: ACT
Enter value for l_device_id: 101
old   1: INSERT INTO connectedTo VALUES('&ISP',&l_device_id)
new   1: INSERT INTO connectedTo VALUES('ACT',101)

1 row created.

SQL> /
Enter value for isp: ACT
Enter value for l_device_id: 102
old   1: INSERT INTO connectedTo VALUES('&ISP',&l_device_id)
new   1: INSERT INTO connectedTo VALUES('ACT',102)

1 row created.

SQL> commit;

Commit complete.
```

TABLES(Screenshots):



```
SQL> select * from INTERNET;

ISP                  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 LAN;

L_DEVICE_ID L_DEVICE_NAME        L_SPEED    L_IP_ADDRESS
----------- -------------------- ---------- --------------------
        101 Router1              1425MBPS   192.168.1.0
        102 HUB1                 800MBPS    192.168.1.1

SQL> select * from WAN;

W_DEVICE_ID W_DEVICE_NAME        W_SPEED    W_IP_ADDRESS
----------- -------------------- ---------- --------------------
        201 Switch1              1800MBPS   192.168.1.2
        202 Switch2              1450MBPS   192.168.1.3

SQL> select * from COMPUTERS;

       CID MANUFACTURER         MAC_ADDRESS
---------- -------------------- --------------------
         1 DELL                 00-14-22-01-23-45
         2 DELL                 14-CC-20-12-08-E2
         3 DELL                 21-09-H1-25-01-F2
         4 HP                   34-15-22-13-25-V2
         5 HP                   58-24-R3-PR-01-24

SQL> select * from LABS;

LABNAME                   FLOOR
-------------------- ----------
IT LAB-1                      0
IT LAB-2                      0
IT LAB-3                      0
PROJECT LAB                   1

SQL> select * from BLOCK;

BNAME                BRANCH               HOD
-------------------- -------------------- --------------------
RAMANUJAN            IT                   RamMohanRao
```