CSE2007 : Database Management Systems

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Lab Cycle-I (SQL)

(up to 10 questions)

Creation of General Hardware Database (GHD), Insertion of data into GHD and writing and executing queries for the questions.

I. General Hardware Database:

SalesPerson(SalesPersonNumber, SalesPersonName, CommPercentage, YearHire, OfficeNumber)

Customer (CustomerNumber, CustomerName, SalesPersonNumber, HeadQuarterCity)

CustomerEmployee (CustomerNumber, EmployeeNumber, EmployeeName, Title)

Product (ProductNumber, ProductName, UnitPrice)

Sales (SalesPersonNumber, ProductNumber, Quantity)

Office (OfficeNumber, Telephone, Size)

```
Run SQL Command Line

SQL> CREATE TABLE SalesPerson(SalesPersonNumber number(10) not null, SalesPersonName varchar2(15), CommPercentage number(5), YearHire n
umber(5), OfficeNumber number(10), PRIMARY KEY(SalesPersonNumber));

Table created.

SQL> CREATE TABLE Customer(CustomerNumber number(10) not null, CustomerName varchar2(15), SalesPersonNumber number(10), HeadQuaterCity
varchar2(15), PRIMARY KEY(CustomerNumber), FOREIGN KEY(SalesPersonNumber) REFERENCES SalesPerson);

Table created.

SQL> CREATE TABLE CustomerEmployee(CustomerNumber number(10), EmployeeNumber number(10) not null, EmployeeName varchar2(15), Title varc
har2(15), PRIMARY KEY(EmployeeNumber), FOREIGN KEY(CustomerNumber) REFERENCES Customer);

Table created.

SQL> CREATE TABLE Product(ProductNumber number(10) not null, ProductName varchar2(15), UnitPrice number(5), PRIMARY KEY(ProductNumber))
;

Table created.

SQL> CREATE TABLE Sales(SalesPersonNumber number(10), ProductNumber number(10), Quantity number(10), FOREIGN KEY(SalesPersonNumber) REF
ERENCES SalesPerson, FOREIGN KEY(ProductNumber) REFERENCES Product);

Table created.

SQL> CREATE TABLE Office(OfficeNumber number(10), Telephone number(10), officeSize number(10), FOREIGN KEY(OfficeNumber) REFERENCES Sal
esPerson);

Table created.

SQL> commit;

Commit complete.

SQL>
```

Tables Description :

> DESC SalesPerson;

> DESC Customer;

> DESC CustomerEmployee;

> DESC Product;

> DESC Sales;

> DESC Office;

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```
Run SQL Command Line

SQL> DESC SalesPerson;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SALESPERSONNUMBER                         NOT NULL NUMBER(10)
 SALESPERSONNAME                                    VARCHAR2(15)
 COMMPERCENTAGE                                     NUMBER(5)
 YEARHIRE                                           NUMBER(5)
 OFFICENUMBER                                       NUMBER(10)

SQL> DESC Customer;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMERNUMBER                            NOT NULL NUMBER(10)
 CUSTOMERNAME                                       VARCHAR2(15)
 SALESPERSONNUMBER                                  NUMBER(10)
 HEADQUATERCITY                                     VARCHAR2(15)

SQL> DESC CustomerEmployee;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMERNUMBER                                     NUMBER(10)
 EMPLOYEENUMBER                            NOT NULL NUMBER(10)
 EMPLOYEENAME                                       VARCHAR2(15)
 TITLE                                              VARCHAR2(15)

SQL> DESC Product;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PRODUCTNUMBER                             NOT NULL NUMBER(10)
 PRODUCTNAME                                        VARCHAR2(15)
 UNITPRICE                                          NUMBER(5)

SQL> DESC Sales;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SALESPERSONNUMBER                                  NUMBER(10)
 PRODUCTNUMBER                                      NUMBER(10)
 QUANTITY                                           NUMBER(10)

SQL> DESC Office;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 OFFICENUMBER                                       NUMBER(10)
 TELEPHONE                                          NUMBER(10)
 OFFICESIZE                                         NUMBER(10)

SQL>
```

Inserting Values :

SalesPerson Table

```
Run SQL Command Line

SQL> INSERT INTO SalesPerson VALUES(146,'gudi',10,2000,1);

1 row created.

SQL> INSERT INTO SalesPerson VALUES(186,'vara',7,2001,2);

1 row created.

SQL> INSERT INTO SalesPerson VALUES(176,'prasad',3,2002,3);

1 row created.

SQL> INSERT INTO SalesPerson VALUES(137,'prasad',14,2003,4);

1 row created.

SQL> INSERT INTO SalesPerson VALUES(203,'devgudi',10,2004,5);

1 row created.

SQL> INSERT INTO SalesPerson VALUES(227,'cryptokid',1,2005,6);

1 row created.

SQL> SELECT * FROM SalesPerson;

SALESPERSONNUMBER SALESPERSONNAME COMMPERCENTAGE   YEARHIRE OFFICENUMBER
----------------- --------------- -------------- ---------- ------------
              146 gudi                        10       2000            1
              186 vara                         7       2001            2
              176 prasad                       3       2002            3
              137 prasad                      14       2003            4
              203 devgudi                     10       2004            5
              227 cryptokid                    1       2005            6

6 rows selected.

SQL>
```

Customer Table

```
Run SQL Command Line

SQL> INSERT INTO Customer VALUES(1533, 'idug', 146, 'atlanta');

1 row created.

SQL> INSERT INTO Customer VALUES(1733, 'arav', 186, 'newyork');

1 row created.

SQL> INSERT INTO Customer VALUES(2131, 'dasarp', 176, 'arizona');

1 row created.

SQL> INSERT INTO Customer VALUES(1041, 'dasarpg', 137, 'mexico');

1 row created.

SQL> INSERT INTO Customer VALUES(1551, 'idugved', 203, 'dallas');

1 row created.

SQL> INSERT INTO Customer VALUES(1244, 'dikotpyrc', 227, 'washington');

1 row created.

SQL> SELECT * FROM Customer;

CUSTOMERNUMBER CUSTOMERNAME    SALESPERSONNUMBER HEADQUATERCITY
-------------- --------------- ----------------- ---------------
         1533 idug                          146 atlanta
         1733 arav                          186 newyork
         2131 dasarp                        176 arizona
         1041 dasarpg                       137 mexico
         1551 idugved                       203 dallas
         1244 dikotpyrc                     227 washington

6 rows selected.

SQL>
```

CustomerEmployee

```
Run SQL Command Line

SQL> INSERT INTO CustomerEmployee VALUES(1533, 7048, 'idug1', 'dbms');

1 row created.

SQL> INSERT INTO CustomerEmployee VALUES(1733, 7049, 'arav1', 'crypto');

1 row created.

SQL> INSERT INTO CustomerEmployee VALUES(2131, 7050, 'dasarp1', 'oops');

1 row created.

SQL> INSERT INTO CustomerEmployee VALUES(1041, 7051, 'dasarpg1', 'ececoa');

1 row created.

SQL> INSERT INTO CustomerEmployee VALUES(1551, 7052, 'idugved1', 'french');

1 row created.

SQL> INSERT INTO CustomerEmployee VALUES(1244, 7053, 'dikotpyrc1', 'softskills');

1 row created.

SQL> SELECT * FROM CustomerEmployee;

CUSTOMERNUMBER EMPLOYEENUMBER EMPLOYEENAME    TITLE
-------------- -------------- --------------- ---------------
         1533           7048 idug1           dbms
         1733           7049 arav1           crypto
         2131           7050 dasarp1         oops
         1041           7051 dasarpg1        ececoa
         1551           7052 idugved1        french
         1244           7053 dikotpyrc1      softskills

6 rows selected.

SQL>
```

Product Table

```
Run SQL Command Line

SQL> INSERT INTO Product VALUES(21765, 'gudi1', 40);

1 row created.

SQL> INSERT INTO Product VALUES(21565, 'vara1', 50);

1 row created.

SQL> INSERT INTO Product VALUES(21465, 'prasad1', 60);

1 row created.

SQL> INSERT INTO Product VALUES(21365, 'prasadg1', 70);

1 row created.

SQL> INSERT INTO Product VALUES(21665, 'devgudi1', 80);

1 row created.

SQL> INSERT INTO Product VALUES(21265, 'cryptokid1', 30);

1 row created.

SQL> SELECT * FROM Product;

PRODUCTNUMBER PRODUCTNAME      UNITPRICE
------------ --------------- ----------
       21765 gudi1                   40
       21565 vara1                   50
       21465 prasad1                 60
       21365 prasadg1                70
       21665 devgudi1                80
       21265 cryptokid1              30

6 rows selected.

SQL>
```

Sales Table

```
Run SQL Command Line

SQL> INSERT INTO Sales VALUES(146, 21765, 3261);

1 row created.

SQL> INSERT INTO Sales VALUES(186, 21565, 1869);

1 row created.

SQL> INSERT INTO Sales VALUES(176, 21465, 2332);

1 row created.

SQL> INSERT INTO Sales VALUES(176, 21365, 4500);

1 row created.

SQL> INSERT INTO Sales VALUES(203, 21665, 1600);

1 row created.

SQL> INSERT INTO Sales VALUES(176, 21265, 2500);

1 row created.

SQL> SELECT * FROM Sales;

SALESPERSONNUMBER PRODUCTNUMBER   QUANTITY
----------------- ------------- ----------
              146         21765       3261
              186         21565       1869
              176         21465       2332
              176         21365       4500
              203         21665       1600
              176         21265       2500

6 rows selected.

SQL>
```

Office Table

Answer the following queries :

1. Find the commission percentage and year of hire of salesperson number 186.

2. List the salesperson numbers and salesperson names of those salespersons who have a commission percentage of 10.

```
SQL> SELECT SALESPERSONNUMBER, SALESPERSONNAME FROM SalesPerson WHERE COMMPERCENTAGE = 10;

SALESPERSONNUMBER SALESPERSONNAME
---------------- ---------------
            146 gudi
            203 devgudi

SQL>
```

3. List the salesperson number and salesperson name of all of the salespersons.

```
SQL> SELECT SALESPERSONNUMBER, SALESPERSONNAME FROM SalesPerson;

SALESPERSONNUMBER SALESPERSONNAME
---------------- ---------------
            146 gudi
            186 vara
            176 prasad
            137 prasad
            203 devgudi
            227 cryptokid

6 rows selected.
```

4. List the salesperson numbers, salesperson names, and commission percentages of the salespersons whose commission percentage is less than 12.

```
SQL> SELECT SALESPERSONNUMBER, SALESPERSONNAME, COMMPERCENTAGE FROM SalesPerson WHERE COMMPERCENTAGE < 12;

SALESPERSONNUMBER SALESPERSONNAME COMMPERCENTAGE
---------------- --------------- --------------
            146 gudi                       10
            186 vara                        7
            176 prasad                      3
            203 devgudi                    10
            227 cryptokid                   1
```

5. List the customer numbers and headquarters cities of the customers that have a customer number of at least 1700.

```
SQL> SELECT * FROM Customer;

CUSTOMERNUMBER CUSTOMERNAME    SALESPERSONNUMBER HEADQUATERCITY
------------- --------------- ---------------- ---------------
         1533 idug                         146 atlanta
         1733 arav                         186 newyork
         2131 dasarp                       176 arizona
         1041 dasarpg                      137 mexico
         1551 idugved                      203 dallas
         1244 dikotpyrc                    227 washington

6 rows selected.

SQL> SELECT CUSTOMERNUMBER, HEADQUATERCITY FROM Customer WHERE CUSTOMERNUMBER > 1700;

CUSTOMERNUMBER HEADQUATERCITY
------------- ---------------
         1733 newyork
         2131 arizona
```

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6. List the customer numbers, customer names, and headquarters cities of the customers that are headquartered in New York and that have a customer number higher than 1500.

```
SQL> SELECT CUSTOMERNUMBER, CUSTOMERNAME, HEADQUATERCITY FROM Customer WHERE HEADQUATERCITY = 'newyork' AND CUSTOMERNUMBER> 1500;

CUSTOMERNUMBER CUSTOMERNAME    HEADQUATERCITY
-------------- --------------- ---------------
          1733 arav            newyork
```

7. List the customer numbers, customer names, and headquarters cities of the customers that are headquartered in New York or that have a customer number higher than 1500.

```
SQL> SELECT CUSTOMERNUMBER, CUSTOMERNAME, HEADQUATERCITY FROM Customer WHERE HEADQUATERCITY = 'newyork' OR CUSTOMERNUMBER> 1500;

CUSTOMERNUMBER CUSTOMERNAME    HEADQUATERCITY
-------------- --------------- ---------------
          1533 idug            atlanta
          1733 arav            newyork
          2131 dasarp          arizona
          1551 idugved         dallas
```

8. List the customer numbers, customer names, and headquarters cities of the customers that are headquartered in New York or that satisfy the two conditions of having a customer number higher than 1500 and being headquartered in Atlanta.

```
SQL> SELECT CUSTOMERNUMBER, CUSTOMERNAME, HEADQUATERCITY FROM Customer WHERE HEADQUATERCITY = 'newyork' OR CUSTOMERNUMBER> 1500 AND HEADQUATERCITY = 'atlanta';

CUSTOMERNUMBER CUSTOMERNAME    HEADQUATERCITY
-------------- -------------- ---------------
          1533 idug            atlanta
          1733 arav            newyork
```

9. Which cities serve as headquarters cities for General Hardware customers ?

```
SQL> SELECT HEADQUATERCITY FROM Customer;

HEADQUATERCITY
---------------
atlanta
newyork
arizona
mexico
dallas
washington

6 rows selected.
```

10. Find the customer numbers, customer names, and headquarters cities of those customers with customer numbers greater than 1000. List the results in alphabetic order by headquarters cities.

```
Run SQL Command Line

SQL> SELECT CUSTOMERNUMBER, CUSTOMERNAME, HEADQUATERCITY FROM Customer WHERE CUSTOMERNUMBER > 1000 ORDER BY HEADQUATERCITY ASC;

CUSTOMERNUMBER CUSTOMERNAME    HEADQUATERCITY
-------------- --------------- ---------------
          2131 dasarp          arizona
          1533 idug            atlanta
          1551 idugved         dallas
          1041 dasarpg         mexico
          1733 arav            newyork
          1244 dikotpyrc       washington

6 rows selected.
```

```
Run SQL Command Line

SQL> SELECT CUSTOMERNUMBER, CUSTOMERNAME, HEADQUATERCITY FROM Customer WHERE CUSTOMERNUMBER > 1000 ORDER BY HEADQUATERCITY ASC;

CUSTOMERNUMBER CUSTOMERNAME    HEADQUATERCITY
-------------- --------------- ---------------
          2131 dasarp          arizona
          1533 idug            atlanta
          1551 idugved         dallas
```

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