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DDL and DML

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AIM:

To write SQL statements using Data Definition Language to create tables with constraints.

THEORY:

The SQL commands known as DDL, or Data Definition Language, are used to define and control the structure of databases. Database objects including tables, indexes, views, and constraints are created, modified, and deleted using DDL commands.

CREATE, ALTER, and DROP are a few examples of typical DDL commands.

- CREATE: Used to create a new database object, such as a table or view.
- ALTER: Used to modify the structure of an existing database object.
- DROP: Used to delete a database object.

Contrarily, DML stands for Data Manipulation Language. Data within a database can be changed using DML commands. From database tables, you can use them to insert, retrieve, update, and remove records. The most common DML commands are:

- SELECT: Used to retrieve data from one or more database tables.
- INSERT: Used to add new records into a table.
- UPDATE: Used to modify existing records in a table.
- DELETE: Used to remove records from a table.

SQL> create table harishstudent(s_name char(15),rno integer,mark1 integer,mark2 integer,mark3 integer);

Table created.

SQL> desc harishstudent;

```
SQL> alter table harishstudent add(total integer);
Table altered.
```

SQL> desc harishstudent;

```
SQL> ALTER TABLE STUDENT_21BLC1059 ADD(TOTAL INTEGER);

Table altered.

SQL> DESC STUDENT_21BLC1059

Null? Type

S_NAME CHAR(15)
RNO NUMBER(38)
MARK1 NUMBER(38)
MARK2 NUMBER(38)
MARK3 NUMBER(38)
TOTAL NUMBER(38)
```

SQL> alter table harishstudent modify(rno varchar2(4)); Table altered.

SQL> desc harishstudent;

SQL> alter table harishstudent drop(rno);

Table altered.

SQL> desc harishstudent;

```
SQL> insert into harishstudent values('Hari',78,89,90,257);

1 row created.

SQL> insert into harishstudent values('Jamaai',56,67,78,201);

1 row created.

SQL> insert into harishstudent values('Dober',65,54,43,162);

1 row created.

SQL> select*from harishstudent;
```

```
SQL> INSERT INTO STUDENT_21BLC1059 VALUES('Anurag',78,89,90,257);
1 row created.
SQL> INSERT INTO STUDENT 21BLC1059 VALUES('Hari',56,67,78,201);
1 row created.
SQL> INSERT INTO STUDENT_21BLC1059 VALUES('Dober',65,54,43,162);
1 row created.
SQL> SELECT*FROM STUDENT_21BLC1059;
S NAME
                                                     TOTAL
                    MARK1
                               MARK2
                                          MARK3
                                  89
                                             90
Anurag
                       78
                                                       257
                       56
                                                       201
Hari
                                  67
                                             78
Dober
                       65
                                  54
                                             43
                                                       162
```

```
SQL> delete from harishstudent;
3 rows deleted.

SQL> drop table harishstudent;

Table dropped.
```

```
SQL> DELETE FROM STUDENT_21BLC1059;
3 rows deleted.

SQL> DROP TABLE STUDENT_21BLC1059;

Table dropped.
```

SQL> create table harishbook(isbn number(6),title varchar2(10),author varchar2(10),qty number(4),price number(5,2));

Table created.

SQL> desc harishbook;

```
SQL> insert into harishbook values(1439, 'UNIX', 'Balaguru', 5, 189);
1 row created.
SQL> insert into harishbook values(1857, 'SEQA', 'Sommer', 8, 200);
1 row created.
SQL> insert into harishbook values(1264, 'JAVA', 'Ritche', 3, 200);
1 row created.
SQL> insert into harishbook values (1476, 'DBMS', 'Swamy', 7, 195);
1 row created.
SQL> insert into harishbook values(1643, 'MPMC', 'Krishna', 5, 125);
1 row created.
SQL> select*from harishbook;
SQL> INSERT INTO BOOK 21BLC1059 VALUES(1439, 'UNIX', 'Balaguru',5,189);
 row created.
SQL> INSERT INTO BOOK_21BLC1059 VALUES(1857, 'SEQA', 'Sommer',8,200);
1 row created.
SQL> INSERT INTO BOOK_21BLC1059 VALUES(1264, 'JAVA', 'Ritche', 3, 200);
1 row created.
SQL> INSERT INTO BOOK_21BLC1059 VALUES(1476,'DBMS','Swamy',7,195);
1 row created.
1 row created.
SQL> SELECT*FROM BOOK_21BLC1059;
     ISBN TITLE
                     AUTHOR
                                       OTY
                                                PRICE
     1439 UNIX
                     Balaguru
                                                  189
     1857 SEQA
                     Sommer
                                         8
                                                  200
     1264 JAVA
                     Ritche
                                                  200
     1476 DBMS
                                                  195
                     Swamy
                     Krishna
     1643 MPMC
                                                  125
```

SQL> select*from harishbook where price=200;

SQL>	SELECT	「*FROM BOOK	_21BLC1059	WHERE	PRICE=200	;
	ISBN	TITLE	AUTHOR		QTY	PRICE
		SEQA JAVA	Sommer Ritche		8 3	200 200

SQL> select*from harishbook where price between 175 and 250;

SQL> SELECT	*FROM BOOK_	_21BLC1059	WHERE	PRICE	BETWEEN	175	AND	250;
ISBN	TITLE	AUTHOR		QTY	PR	CE		
1439 1857		Balaguru Sommer		5		189 200		
1264 1476	JAVA	Ritche Swamy		3 7	2	200 195		

SQL> select*from harishbook where author like 'K%';

```
SQL> SELECT*FROM BOOK_21BLC1059 WHERE AUTHOR LIKE 'K%';

ISBN TITLE AUTHOR QTY PRICE

1643 MPMC Krishna 5 125
```

SQL> select*from harishbook where author like '%y';

TODA TITLE AUTHOR OTAL BOTTO	;
ISBN TITLE AUTHOR QTY PRICE	
1476 DBMS Swamy 7 195	

SQL> update harishbook set price=price+2;

5 rows updated.

SQL> select*from harishbook;

5 marin rendeted	
5 rows updated.	
SQL> SELECT*FROM BOOK_21BLC1059;	
ISBN TITLE AUTHOR QTY PRICE	
1439 UNIX Balaguru 5 191	
1857 SEQA Sommer 8 202	
1264 JAVA Ritche 3 202	
1476 DBMS Swamy 7 197	
1643 MPMC Krishna 5 127	

SQL> update harishbook set qty=qty*2;

5 rows updated.

SQL> select*from harishbook;

```
SQL> UPDATE BOOK_21BLC1059 SET QTY=QTY*2;
5 rows updated.
SQL> SELECT*FROM BOOK 21BLC1059;
      ISBN TITLE
                      AUTHOR
                                         QTY
                                                  PRICE
      1439 UNIX
                      Balaguru
                                                    191
                                         10
                                         16
      1857 SEQA
                      Sommer
                                                    202
      1264 JAVA
                      Ritche
                                          6
                                                    202
      1476 DBMS
                                                    197
                      Swamy
                                          14
      1643 MPMC
                      Krishna
                                          10
                                                    127
```

SQL> select sqrt(price) from harishbook;

```
SQL> SELECT SQRT(PRICE)FROM BOOK_21BLC1059;

SQRT(PRICE)

13.820275

14.2126704

14.2126704

14.0356688

11.2694277
```

SQL> select floor(sqrt(price)) from harishbook;

```
SQL> SELECT FLOOR(SQRT(PRICE)) FROM BOOK_21BLC1059;
FLOOR(SQRT(PRICE))
------
13
14
14
14
14
11
```

SQL> select ceil(qty) from harishbook;

```
SQL> SELECT CEIL(QTY) FROM BOOK_21BLC1059;

CEIL(QTY)

10
16
6
14
10
```

```
SQL> select sum(price) from harishbook;
_....
SQL> SELECT SUM(PRICE) FROM BOOK_21BLC1059;
SUM(PRICE)
       919
SQL> select avg(price) from harishbook;
SQL> SELECT AVG(PRICE) FROM BOOK_21BLC1059;
AVG(PRICE)
    183.8
SQL> select min(qty) from harishbook;
SQL> SELECT MIN(QTY) FROM BOOK_21BLC1059;
 MIN(QTY)
 SQL> select max(price) from harishbook;
SQL> SELECT MAX(PRICE) FROM BOOK_21BLC1059;
MAX(PRICE)
       202
```

SQL> create table harishclient_21blc1059(c_no varchar2(3),c_name varchar2(10), address varchar2(20),city varchar2(15),state varchar2(5),bal_due number(10,2));

Table created.

SQL> desc harishclient_21blc1059;



SQL> insert into harishclient_21blc1059 values('101','Hari','5roads','salem','tn',2500);

1 row(s) inserted.

SQL> insert into harishclient_21blc1059 values('102','Harish','bazaar st','chsm','tn',1000);

1 row(s) inserted.

SQL> insert into harishclient_21blc1059 values('103','Jamaai','deevattipatty','salem','tn',0);

1 row(s) inserted.

SQL> insert into harishclient_21blc1059 values('104','Dober','leebazaar','salem','tn',400);

1 row(s) inserted.

SQL> insert into harishclient_21blc1059 values('105','Mathan','deevattipatty','hosur','tn',4000);

1 row(s) inserted.

SQL> select*from harishclient_21blc1059;

C_NO	C_NAME	ADDRESS	CITY	STATE	BAL_DUE
101	Hari	5roads	salem	tn	2500
102	Harish	bazaar st	chsm	tn	1000
103	Jamaai	deevattipatty	salem	tn	0
104	Dober	leebazaar	salem	tn	400
105	Mathan	deevattipatty	hosur	tn	4000

SQL> create table harishproduct_21blc1059(pr_no varchar2(3),description varchar2(15),qty_bal number(8),profit number(4,2),pur_Rs number(8,2),sell_Rs number(8,2));



SQL> desc harishproduct_21blc1059

1 desc harish	product_	21blc1059
TABLE HARISHPRO	ODUCT_21	BLC1059
Column	Null?	Туре
PR_NO		VARCHAR2(3)
DESCRIPTION		VARCHAR2(15)
QTY_BAL		NUMBER(8,0)
PROFIT		NUMBER(4,2)
PUR_RS		NUMBER(8,2)
SELL_RS		NUMBER(8,2)

SQL> insert into harishproduct_21blc1059 values('551','JamaailceCream',1000,50.8,5.25,12.5);

1 row(s) inserted.

SQL> delete from harishproduct_21blc1059 where description='JamaailceCream';

```
delete from harishproduct_21blc1059 where description='JamaaiIceCream';

and the second of the
```

SQL> insert into harishproduct_21blc1059 values('551','chocobar',1000,50.8,5.25,12.5);

```
1 row(s) inserted.
```

SQL> insert into harishproduct_21blc1059 values('551','vennila',250,28.9,2.12,5.0);

```
1 row(s) inserted.
```

SQL> insert into harishproduct_21blc1059 values('553','cone',1000,50.8,5.25,12.5);

```
1 row(s) inserted.
```

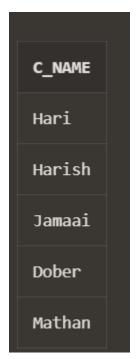
SQL> insert into harishproduct_21blc1059 values('554','mango',590,45,5.65,10);

```
1 row(s) inserted.
```

SQL> select*from harishproduct_21blc1059;

PR_NO	DESCRIPTION	QTY_BAL	PROFIT	PUR_RS	SELL_RS
551	chocobar	1000	50.8	5.25	12.5
551	vennila	250	28.9	2.12	5
553	cone	1000	50.8	5.25	12.5
554	mango	590	45	5.65	10

SQL> select c_name from harishclient_21blc1059;



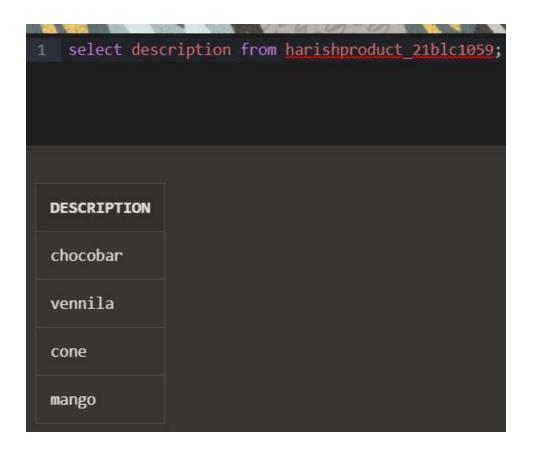
SQL> select*from harishclient_21blc1059 where city='salem';



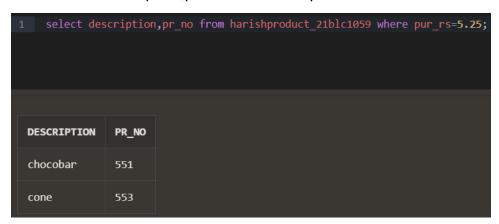
SQL> select c_name,city from harishclient_21blc1059 where bal_due>=500;



SQL> select description from harishproduct_21blc1059;



SQL> select description,pr_no from harishproduct_21blc1059 where pur_rs=5.25;



SQL> select pr_no,qty_bal,profit,pur_rs,sell_rs from harishproduct_21blc1059;



SQL> update harishclient_21blc1059 set bal_due=0 where city='salem';

SQL> select*from harishclient_21blc1059;



SQL> update harishproduct_21blc1059 set sell_rs=2000,pur_rs=2000;

4 row(s) updated.

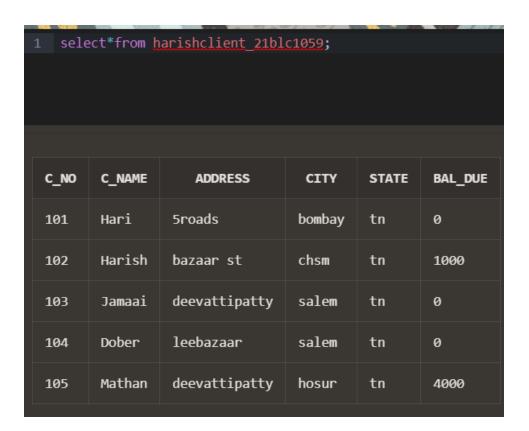
SQL> select*from harishproduct_21blc1059;



SQL> update harishclient_21blc1059 set city='bombay' where c_no='101';

1 row(s) updated.

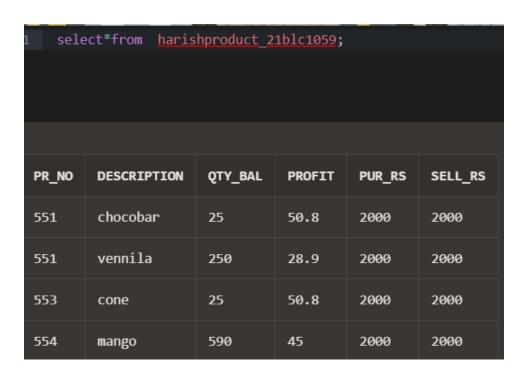
SQL> select*from harishclient_21blc1059;



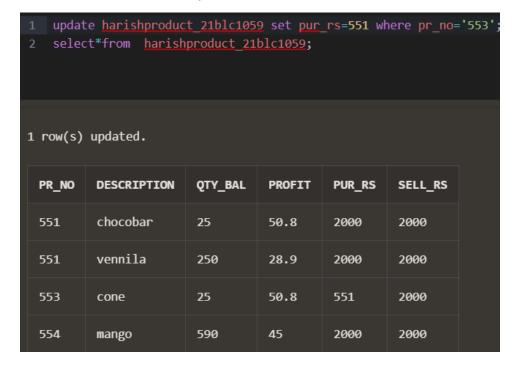
SQL> update harishproduct_21blc1059 set QTY_BAL=25 where PROFIT>50;

2 row(s) updated.

SQL> select*from harishproduct_21blc1059;



SQL> update harishproduct_21blc1059 set pur_rs=551 where pr_no='553'; SQL> select*from harishproduct_21blc1059;

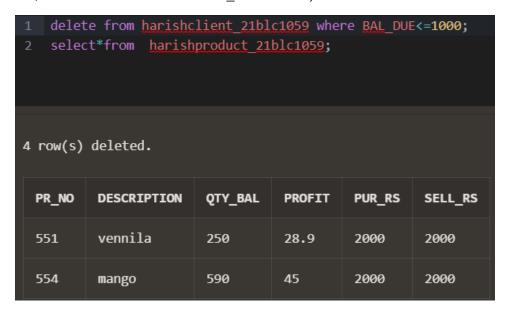


SQL> delete from harishproduct_21blc1059 where QTY_BAL=25;

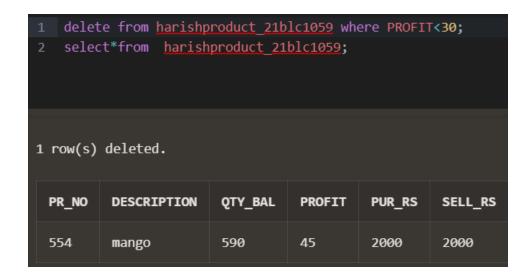
SQL> select*from harishproduct_21blc1059;

1	dele	te from <u>har</u>	ishproduct_2	1blc1059 w	here QTY_E	BAL= 25 ;
2	selec	t*from <u>har</u>	ishproduct_2	1blc1059;		
2 r	ากพ(ร)	deleted.				
~ 1	OW(3)	uciccu.				
Р	R_NO	DESCRIPTIO	ON QTY_BAL	PROFIT	PUR_RS	SELL_RS
Н	_				_	
Н	PR_NO	DESCRIPTIC vennila	ON QTY_BAL 250	PROFIT	PUR_RS 2000	SELL_RS
5	_				_	

SQL> delete from harishclient_21blc1059 where BAL_DUE<=1000; SQL> select*from harishclient_21blc1059;



SQL> delete from harishproduct_21blc1059 where PROFIT<30; SQL> select*from harishproduct_21blc1059;



RESULT

Thus the SQL statements using data definition language(DDL) and data manipulation language (DML) to create table with constraints is successfully implemented