Experiment-4: To implement the restrictions on the table

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Branch:- CSE-IOT   **Section/Group:-** A

Semester:- 3rd   **Date of Performance:-** 9/09/2021

Subject Name:- DBMS LAB   **Subject Code:-** 20CSP-233

1. **Aim/Overview of the practical:** To implement the restrictions on the table.

2. **Task to be done:** Implementation of DDL and DML commands of SQL with proper Input queries syntax and the output.

3. **Theme/Interests definition(For creative domains):**

- **Adding A Not Null Contraint:-**

  Command:- Not Null

  Purpose of command:- If you want to ensure that a column must always have a value i.e., it should not be left blank, then define a not null constraint unit. Null value can be inserted into the columns of any data type. Not null constraint can only be applied at column level.

Syntax:-

- Define data column level: Column name data type (size) NOTNULL

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```
CREATE TABLE Persons (
    ID int NOT NULL,
    LastName varchar(255) NOT NULL,
    FirstName varchar(255) NOT NULL,
    Age int
);
```

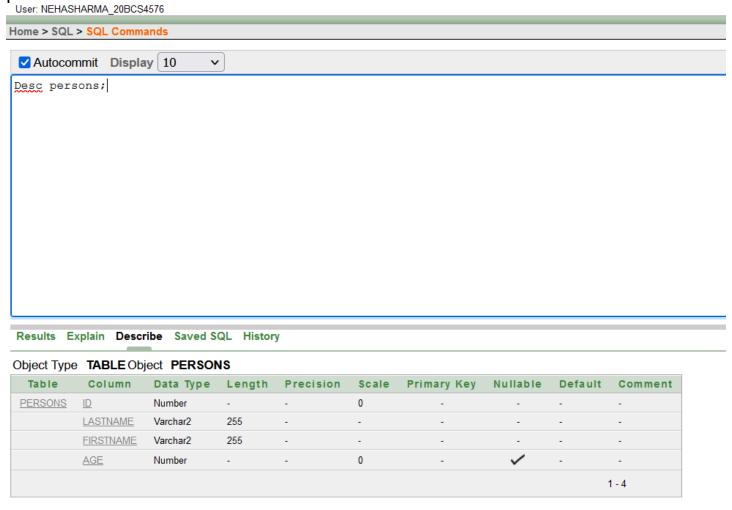**Results**   **Explain**   **Describe**   **Saved SQL**   **History**

0.01 seconds

Output:-

This was the output when a record with null value was tries to inserted in the person table. This verified the not null constraint.

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```
Desc persons;
```

Results   Explain   **Describe**   Saved SQL   History

Object Type **TABLE** Object **PERSONS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PERSONS	ID	Number	-	-	0	-	-	-	-
	LASTNAME	Varchar2	255	-	-	-	-	-	-
	FIRSTNAME	Varchar2	255	-	-	-	-	-	-
	AGE	Number	-	-	0	-	✓	-	-
									1 - 4

Language: en-us

- **Adding Unique Constraint**

  Command:- Unique

  Purpose of command:- The UNIQUE constraint ensures that all values in a column are different.
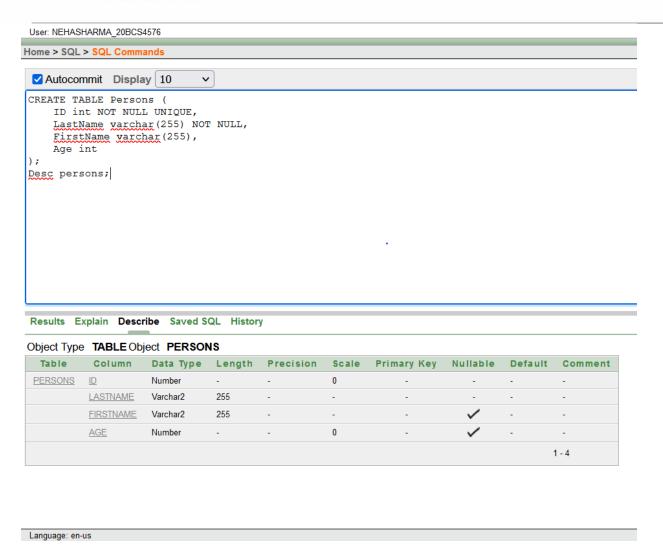
  Syntax:- Define at column level

    Column name data type (size) Unique

This output came when ID was same. It meant that you cannot enter duplicate values. This shows that unique key is verified.

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```
CREATE TABLE Persons (
    ID int NOT NULL UNIQUE,
    LastName varchar(255) NOT NULL,
    FirstName varchar(255),
    Age int
);
Desc persons;
```

Results   Explain   **Describe**   Saved SQL   History

Object Type **TABLE** Object **PERSONS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PERSONS	ID	Number	-	-	0	-	-	-	-
	LASTNAME	Varchar2	255	-	-	-	-	-	-
	FIRSTNAME	Varchar2	255	-	-	-	✓	-	-
	AGE	Number	-	-	0	-	✓	-	-
									1 - 4

Language: en-us

- **Adding A Unique Constraint:-**

  Command: - Unique

  Syntax:- Defined at table level:

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Unique (column name1, column name2,....., column name n)

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```
CREATE TABLE Persons (
    ID int NOT NULL,
    LastName varchar(255) NOT NULL,
    FirstName varchar(255),
    Age int,
    CONSTRAINT UC_Person UNIQUE (ID,LastName)
);
Desc persons;
```

Results   Explain   **Describe**   Saved SQL   History

Object Type **TABLE** Object **PERSONS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PERSONS	ID	Number	-	-	0	-	-	-	-
	LASTNAME	Varchar2	255	-	-	-	-	-	-
	FIRSTNAME	Varchar2	255	-	-	-	✓	-	-
	AGE	Number	-	-	0	-	✓	-	-
									1 - 4

- **Adding A Primary Key:-**

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Command: - Primary Key

Purpose of command:- The `PRIMARY KEY` constraint uniquely identifies each record in a table. Primary keys must contain UNIQUE values, and cannot contain NULL values.

Syntax:- • Defined at column level:

Column name data type (size) Primary Key

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Home > SQL > SQL Commands

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```
CREATE TABLE PERSONS
(
 ID NUMBER(10) PRIMARY KEY,
 FIRSTNAME VARCHAR2(20),
 LASTNAME VARCHAR2(20),
 PHNO NUMBER(10),
 UNIQUE (ID, PHNO)
);
```

Results   Explain   Describe   Saved SQL   History

Table created.

0.29 seconds

Language: en-us

This output was recorded when duplicate value was tried to enter into the PERSONS table, which shows that primary key is applied accurately.

☑ **Autocommit**   **Display** | 10 ⌄ |

```
DESCRIBE PERSONS;
INSERT INTO PERSONS VALUES (4576,'NEHA','SHARMA', 9199924678);
INSERT INTO PERSONS VALUES (60,'UNKNOWN','UNKNOWN', 9999999999);
INSERT INTO PERSONS VALUES(103,'MISTHI','SHARMA',9835290152);
SELECT * FROM PERSONS;
```

Results   Explain   Describe   Saved SQL   History

ID	FIRSTNAME	LASTNAME	PHNO
4576	NEHA	SHARMA	9199924678
60	UNKNOWN	UNKNOWN	9999999999
103	MISTHI	SHARMA	9835290152

3 rows returned in 0.05 seconds   CSV Export

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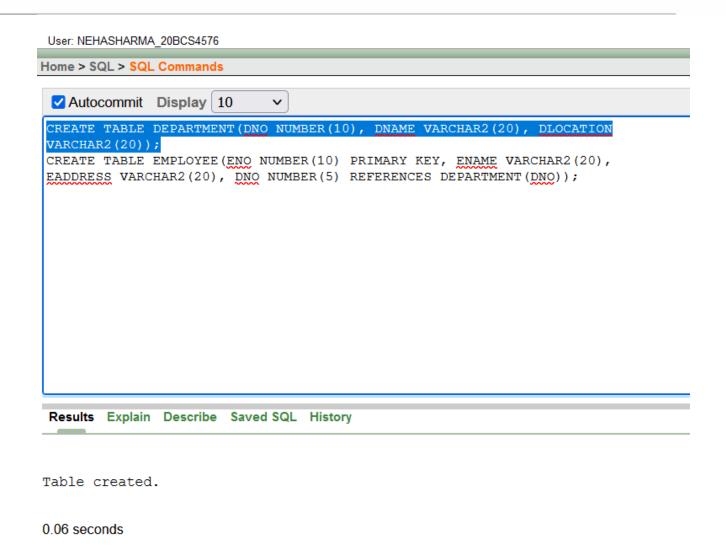- **Adding A Foreign Key:-**

Command: - Foreign Key

Purpose of command:- A foreign key is a column or group of columns whose values are derived from the primary key or unique key of some other table.

Syntax:- • Defined at column level: Column name data type(size) References table name [(column name)] [On Delete Cascade]

☑ Autocommit Display [10 ▾]

```
CREATE TABLE DEPARTMENT(DNO NUMBER(10), DNAME VARCHAR2(20), DLOCATION
VARCHAR2(20));
CREATE TABLE EMPLOYEE(ENO NUMBER(10) PRIMARY KEY, ENAME VARCHAR2(20),
EADDRESS VARCHAR2(20), DNO NUMBER(5) REFERENCES DEPARTMENT(DNO));
```

Results Explain Describe Saved SQL History

Table created.

0.06 seconds

OUTPUT-Both level of definition of foreign key has the same output.

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```
INSERT INTO DEPARTMENT VALUES(1,'SALES','PATIALA');
INSERT INTO EMPLOYEE VALUES(213,'ABC','CHANDIGARH',1);
INSERT INTO EMPLOYEE VALUES(214,'DEF','SIRHIND',2);
```

Results   Explain   Describe   Saved SQL   History

ORA-00942: table or view does not exist

0.00 seconds

- **Adding A Check Constraint:-**

  Command:-Check

  Purpose of command:- The CHECK constraint is used to limit the value range that can be placed in a column.

  Syntax:- • Define data column level:

  Column name data type (size) CHECK(logical expression)

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```
CREATE TABLE PERSONS(
ENO NUMBER(10)PRIMARY KEY,
ENAME VARCHAR2(20),
 EADDRESS VARCHAR2(20),
DNO NUMBER(5),
AGE NUMBER(5) CHECK (AGE>18));
INSERT INTO PERSONS VALUES(101,'DEF','CHANDIGARH',1,23);
INSERT INTO PERSONS VALUES(104,'ABC','CHANDIGARH',1,17);
```

Results   Explain   Describe   Saved SQL   History

Table created.

0.55 seconds

☑ Autocommit   Display   10   ▾

```
CREATE TABLE PERSONS(
ENO NUMBER(10)PRIMARY KEY,
ENAME VARCHAR2(20),
 EADDRESS VARCHAR2(20),
DNO NUMBER(5),
AGE NUMBER(5) CHECK (AGE>18));
INSERT INTO PERSONS VALUES(101,'DEF','CHANDIGARH',1,23);
INSERT INTO PERSONS VALUES(104,'ABC','CHANDIGARH',1,17);
```

Results   Explain   Describe   Saved SQL   History

1 row(s) inserted.

0.01 seconds

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```
CREATE TABLE PERSONS(
ENO NUMBER(10)PRIMARY KEY,
ENAME VARCHAR2(20),
 EADDRESS VARCHAR2(20),
DNO NUMBER(5),
AGE NUMBER(5) CHECK (AGE>18));
INSERT INTO PERSONS VALUES(101,'DEF','CHANDIGARH',1,23);
INSERT INTO PERSONS VALUES(104,'ABC','CHANDIGARH',1,17);
```

Results Explain Describe Saved SQL History

ORA-02290: check constraint (NEHASHARMA_20BCS4576.SYS_C004346) violated
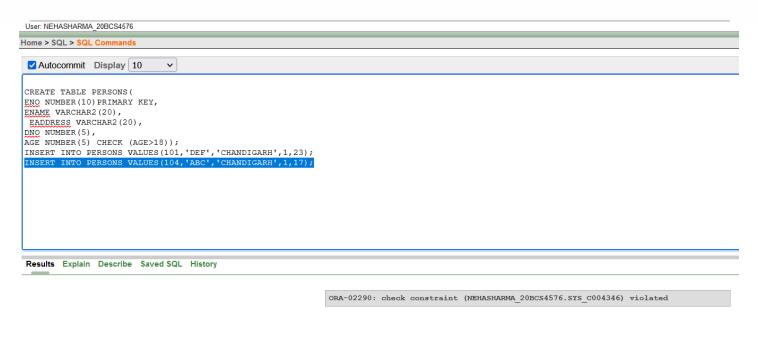
0.00 seconds

4. Observations/Discussions(For applied/experimental sciences/materials based labs):

We observed the different syntax in SQL and their implementations.

Learning outcomes (What I have learnt):

1. Learned about different SQL commands
2. Various new querying methods.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			