EXP:1
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Data Definition Language: Table Creation, Constraints

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21BLC1059

AIM:

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

THEORY:

A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system.

Some usage of Data Definition Language is creating a table altering table structure by adding, deleting or modifying columns and deleting database and database objects.

- Create
  Creating a table
  CREATE command is used to Create tables that will contain data.
  Eg: CREATE TABLE [table name]([column definitions]);
- Alter
  Altering table structure by adding, deleting or modifying columns
  Eg: ALTER TABLE student ADD branch varchar2(3);
- Drop
  Destroy database and Database objects
  Eg: DROP TABLE student;

These commands will primarily be used by database administration during the setup and removal phases of a database project.

1. Create a table named BRANCH with following Structure

Data	Field Name		Data Type	Constraint
Branch Number	branchno	number(1)	Primary Key	
Branch	branchname	varchar2(30)	Not Null	

```
SQL> CREATE TABLE BRANCH_21BLC1059 (branchno number(1) primary key,branchname varchar2(30) not null);

Table created.

SQL> describe BRANCH_21BLC1059
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 BRANCHNO                                  NOT NULL NUMBER(1)
 BRANCHNAME                                NOT NULL VARCHAR2(30)
```

2 Create a table named STUDENT with following Structure

Data	Field Name	Data Type	Constraint
Student Name	name	varchar2(30)	Not Null
Student Number	registerno	number(11)	Primary Key
Branch Number	branchno	number(1)	Foreign Key
Section	sec	varchar2(1)	Not Null
Joined Date	joindate	date	Not Null
Mark	mark	number(5,2)	Not Null

```
SQL> DROP TABLE student_21BLC1059;

Table dropped.

SQL> CREATE TABLE student_21BLC1059 (name varchar2(30) not null,registerno number(11) primary key,section varchar2(1) not null,joindate date not null,mark number(5,2) not null);

Table created.

SQL> DESC STUDENT_21BLC1059
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 NAME                                      NOT NULL VARCHAR2(30)
 REGISTERNO                                NOT NULL NUMBER(11)
 SECTION                                   NOT NULL VARCHAR2(1)
 JOINDATE                                  NOT NULL DATE
 MARK                                      NOT NULL NUMBER(5,2)
```

Foreign key:

```
SQL> CREATE TABLE student_21BLC1059 (name varchar2(30) not null,registerno number(11) primary key,BRANCHNO INT,FOREIGN KEY(BRANCHNO)
 REFERENCES BRANCH_21BLC1059(BRANCHNO),section varchar2(1) not null,joindate date not null,mark number(5,2) not null);

Table created.

SQL> DESC STUDENT_21BLC1059
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 NAME                                      NOT NULL VARCHAR2(30)
 REGISTERNO                                NOT NULL NUMBER(11)
 BRANCHNO                                           NUMBER(38)
 SECTION                                   NOT NULL VARCHAR2(1)
 JOINDATE                                  NOT NULL DATE
 MARK                                      NOT NULL NUMBER(5,2)
```

3. Add the column emailid to table student with Constraint UNIQUE.

```
SQL> ALTER TABLE STUDENT_21BLC1059 ADD emailid varchar2(30);

Table altered.

SQL> DESC STUDENT_21BLC1059
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 NAME                                      NOT NULL VARCHAR2(30)
 REGISTERNO                                NOT NULL NUMBER(11)
 SECTION                                   NOT NULL VARCHAR2(1)
 JOINDATE                                  NOT NULL DATE
 MARK                                      NOT NULL NUMBER(5,2)
 EMAILID                                            VARCHAR2(30)
```

4. Create a table named MARKGRADE with following Structure

Data	Field Name	Data Type	Constraint
Grade	grade	varchar2(1)	Not Null
Lowest Mark	lowmark	number(5,2)	Not Null
Highest Mark	highmark	number(5,2)	Not Null

```
SQL> CREATE TABLE MARKGRADE_21BLC1059 (GRADE VARCHAR2(1) NOT NULL,LOWMARK NUMBER(5,2) NOT NULL, HIGHMARK NUMBER(5,2)NOT NULL);

Table created.

SQL> desc MARKGRADE_21BLC1059
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 GRADE                                     NOT NULL VARCHAR2(1)
 LOWMARK                                   NOT NULL NUMBER(5,2)
 HIGHMARK                                  NOT NULL NUMBER(5,2)
```

5. Create a table named PROJECT with following Structure

Data	Field Name	Data Type	Constraint
Project Number	pno	number(3)	Primary Key
Project Name	pname	varchar2(60)	
Project Manager	pmgr	number(4)	Not Null
Persons	persons	number(3)	
Budjet	budjet	number(8,2)	
Project Start date	pstart	date	Not Null
Project End Date	pend	date	

```
SQL> CREATE TABLE PROJECT_21BLC1059 (PNO NUMBER(3) PRIMARY KEY,PNAME VARCHAR2(2),PMGR NUMBER(4) NOT NULL,PERSONS NUMBER(3),BUDJET NUMBER(8,2),PSTART DATE NOT NULL,PEND DATE);

Table created.

SQL> desc PROJECT_21BLC1059
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PNO                                       NOT NULL NUMBER(3)
 PNAME                                              VARCHAR2(2)
 PMGR                                      NOT NULL NUMBER(4)
 PERSONS                                            NUMBER(3)
 BUDJET                                             NUMBER(8,2)
 PSTART                                    NOT NULL DATE
 PEND                                               DATE
```

RESULT

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