DBMS LAB ASSIGNMENT

Name: p.chittibabu

Roll No: 19BCS081

1)Add, Modify and Delete Column using Alter Command.

→ Adding column:

Before adding column(EmailID):

- ☐ School_DB

 - ☐ I Tables

 - ⊞ dbo.T5_Grades
 - ⊞ dbo.T5_Marks
 - ⊞ dbo.T5_Staff
 - ⊞ dbo.T5_Staff&Course
 - ⊞ dbo.T5_Student
 - ☐ Ⅲ dbo.T5_StudentDetails
 - ☐ I Columns
 - StudentID (PK, varchar(20), not null)
 - DOB (date, not null)
 - Parent Name (varchar(30), not null)
 - Parent Mobile No. (varchar(10), not null)
 - Student Address (varchar(100), not null)

Query:

USE School_DB; ALTER TABLE T5_StudentDetails ADD EmailID Varchar(255);

- ☐ School_DB

 - ☐ **I** Tables

 - ⊞ dbo.T5_Grades
 - ⊞ dbo.T5_Marks
 - ⊞ dbo.T5_Staff

 - ⊞ dbo.T5_Student
 - ☐ I dbo.T5_StudentDetails
 - □ □ Columns
 - StudentID (PK, varchar(20), not null)
 - DOB (date, not null)
 - Parent Name (varchar(30), not null)
 - Parent Mobile No. (varchar(10), not null)
 - Student Address (varchar(100), not null)
 - 目 EmailID (varchar(255), null)

→ Modifying column:

Query:

USE School DB;

ALTER TABLE T5 StudentDetails

ALTER COLUMN EmailID varchar(500);

☐ School_DB ☐ I Tables # Graph Tables ⊞ dbo.T5_Grades ⊞ dbo.T5_Marks ⊞ dbo.T5_Staff ⊞ dbo.T5_Student ☐ I dbo.T5_StudentDetails ☐ ☐ Columns StudentID (PK, varchar(20), not null) ■ DOB (date, not null) Parent Name (varchar(30), not null) Parent Mobile No. (varchar(10), not null)

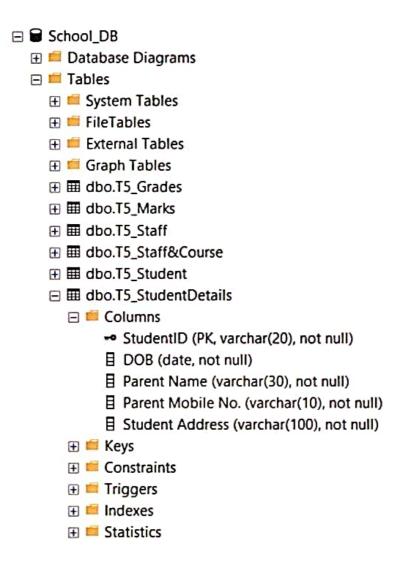
■ Student Address (varchar(100), not null)

■ EmailID (varchar(500), null)

→ Deleting column:

Query:

USE School_DB; ALTER TABLE T5_StudentDetails DROP COLUMN EmailID;



2) Insert 20 Employees Data into all the tables. Use all the 3 methods that I have showcased.

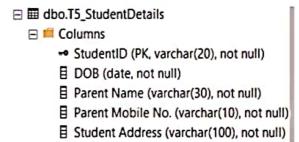
Query:

```
EINSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
 VALUES('198C5180','2000-03-12','PAUL','9087611121','KERALA');
EINSERT INTO T5 StudentDetails
 VALUES('198CS181','2000-12-12','RAJ','9764210472','AP');
EINSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
 (SELECT StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address] FROM School_DB.dbo.T5_STD_details WHERE [Student Address]='AP');
EINSERT INTO TS StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
 VALUES('198CS182','2000-02-17','BELL','8907432713','MUMBAI');
EINSERT INTO T5 StudentDetails
 VALUES('19BCS183','2000-10-23','ABHIRAM','7629672355','AP');
EINSERT INTO T5_StudentDetails(StudentID, DOB, [Parent Name], [Parent Mobile No.], [Student Address])
 VALUES ( '198CS184', '2001-03-21', 'SAMEER', '9034218745', 'TELANGANA');
EINSERT INTO T5 StudentDetails
 VALUES('198CS185','2000-04-09','COUP','7093218988','TAMILNADU');
EINSERT INTO TS StudentDetails(StudentID, DOB, [Parent Name], [Parent Mobile No.], [Student Address])
 VALUES ('198C$186', '2000-05-12', 'RAM', '9456723444', 'AP');
EINSERT INTO TS StudentDetails
 VALUES('198CS187','2001-03-02',')AGADISH','9056332187','TELANGANA');
EINSERT INTO TS_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
 VALUES ('198CS188', '2002-08-14', 'JOHN', '5903421786', 'AP');
∃INSERT INTO T5_StudentDetails
 VALUES('19BCS189','2002-03-10','KRISHNA','9045117997','TELANGANA');
EINSERT INTO TS StudentDetails(StudentID, DOB, [Parent Name], [Parent Mobile No.], [Student Address])
 VALUES('198CS190','2001-11-22','JACK','9876504441','KERALA');
EINSERT INTO TS StudentDetails
 VALUES('198CS191','2000-06-07','JENNIFER','8065554388','GUJARAT');
EINSERT INTO TS StudentDetails (StudentID, DOB, [Parent Name], [Parent Mobile No.], [Student Address])
 VALUES('198CS192','2000-03-12','SEKHAR','7999065432','AP');
EINSERT INTO TS StudentDetails
 VALUES('19BCS193','2000-03-12','SREE RAM','9045321238','TELANGANA');
EINSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
 VALUES('198CS194','2000-03-12','JAI','1298765430','AP');
EINSERT INTO T5 StudentDetails
 VALUES('198CS195','2000-03-12','ARJUN','9876543210','AP');
 SELECT * FROM T5 StudentDetails:
```

	StudentID	DOB	Parent Name	Parent Mobile No.	Student Address
1	19BCS141	2000-11-10	HARISH	9984322804	AP
2	19BCS144	2000-12-19	NARENDRA	7984439102	AP
3	19BCS146	2000-01-20	RAM	9773290135	AP
4	19BCS148	2000-02-12	RAGHUVARAN	8832194339	AP
5	19BCS180	2000-03-12	PAUL	9087611121	KERALA
6	19BCS181	2000-12-12	RAJ	9764210472	AP
7	19BCS182	2000-02-17	BELL	8907432713	MUMBAI
8	19BCS183	2000-10-23	ABHIRAM	7629672355	AP
9	19BCS184	2001-03-21	SAMEER	9034218745	TELANGANA
10	19BCS185	2000-04-09	COUP	7093218988	TAMILNADU
11	19BCS186	2000-05-12	RAM	9456723444	AP
12	19BCS187	2001-03-02	JAGADISH	9056332187	TELANGANA
13	19BCS188	2002-08-14	JOHN	5903421786	AP
14	19BCS189	2002-03-10	KRISHNA	9045117997	TELANGANA
15	19BCS190	2001-11-22	JACK	9876504441	KERALA
16	19BCS191	2000-06-07	JENNIFER	8065554388	GUJARAT
17	19BCS192	2000-03-12	SEKHAR	7999065432	AP
18	19BCS193	2000-03-12	SREE RAM	9045321238	TELANGANA
19	19BCS194	2000-03-12	JAI	1298765430	AP
20	19BCS195	2000-03-12	ARJUN	9876543210	AP

3) Show Violation of Primary Key, Unique Not Null and default key constraints through insertion.

→ Violation of Primary key constraint:



In Table *T5_StudentDetails*, *StudentID* is primary key.

Query:

USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])

```
VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');

USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile
No.],[Student Address])
/*VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');*/
VALUES ('19BCS123','2002-03-21','Venkateswarlu','1234567890','AP');
```

```
EUSE School_DB

INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])

VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');

100 96 

Messages

(1 row affected)

Completion time: 2021-02-19T11:36:03.2540789+05:30
```

```
EUSE School_DB

EINSERT INTO T5_StudentDetails([StudentID],[D0B],[Parent Name],[Parent Mobile No.],[Student Address])

/*VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');*/

VALUES ('19BCS123','2002-03-21','Venkateswarlu','1234567890','AP');

100 % 

Messages

Meg 2627, level 14, State 1, line 2

Violation of FRIMARY MIY constraint 'PM_T5_StudentDetails'. Cannot insert duplicate key in object 'dbo.T5_StudentDetails'. The duplicate key value is (19BCS123). The statement has been terminated.

Completion time: 2021-02-19T11:41:42.0685350+05:30
```

→ Violation of Unique key constraint:

In Table **T5_StudentDetails**, I have converted **Parent Mobile No.** key into unique by using the following query:

```
ALTER TABLE T5_StudentDetails
ADD UNIQUE ([Parent Mobile No.]);
```

Query:

```
USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile
No.],[Student Address])
VALUES ('19BCS130','2002-03-01','Prasad','1234567890','TamilNadu');
```

```
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
/*VALUES ('19BCS130','2002-03-01','Prasad','1234567890','TamilNadu');*/
VALUES ('19BCS123','2002-03-21','Venkateswarlu','1234567890','AP');
```

```
∃USE School DB
   INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address]
    VALUES ('198CS130','2002-03-01','Prasad','1234567890','TamilNadu');
100 % - 4
Messages
   (1 row affected)
   Completion time: 2021-02-19T14:41:19.0008897+05:30
   ∃USE School_DB
   EINSERT INTO T5 StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
    /*VALUES ('198CS130','2002-03-01','Prasad','1234567890','TamilNadu');*/
    VALUES ('198CS123','2002-03-21','Venkateswarlu','1234567890','AP');
100 % • 4
Messages
  Msg 2627, Level 14, State 1, Line 2
  Violation of UNIQUE KEY constraint 'UQ_T5_Stude_9069029658F83FES'. Cannot insert duplicate key in object 'dbo.T5_StudentDetails'. The duplicate key value is (1234567890).
  The statement has been terminated.
  Completion time: 2021-02-19714:45:08.2017483+05:30
```

→ Violation of NOT NULL constraint:

Query:

```
INSERT INTO T5_Marks([StudentiD],[CourseID],[CourseMarks])
VALUES('19BCS081',NULL,'80');
```

```
/*Violation of NOT NULL constraint*/

INSERT INTO T5_Marks([StudentID],[CourseID],[CourseMarks])

VALUES('198CSO81',NULL,'80');

Messages

Mag 515, Level 16, State 2, Line 12

Cannot insert the value NULL into column 'CourseID', table 'School_DB.dbo.T5_Marks'; column does not allow nulls. INSERT fails.

The statement has been terminated.

Completion time: 2021-02-19T14:59:06.3326961+05:30
```

→ Violation of default key constraint:

Query:

```
ALTER TABLE T5_Student
ADD CONSTRAINT df_EmailID
DEFAULT '@iiitdwd.ac.in' FOR EmailID;
```

```
INSERT INTO T5_Student([StudentID],[First Name],[Last Name],[PH_No],[StudyYear],[CourseID])

VALUES ('19BCS.081','chittibabu','P','1234567890','2','cs210');

select * from T5_Student;
```

OUTPUT:

```
ADD CONSTRAINT df_EmailID

DEFAULT '@iiitdwd.ac.in' FOR EmailID;

/*Violation of default constraint*/

= INSERT INTO T5_Student([StudentID],[First Name],[Last Name],[PH_No],[StudyYear],[CourseID])

VALUES ('19BCSO8','Chillibab','p','1234567890','2','cs210');

select * from T5_Student;

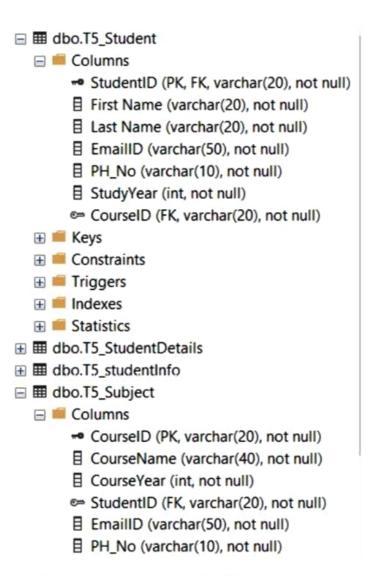
100 % - 

## Results ## Messages

StudentD First Name Last Name EmailID PH_No StudyYear CourseID

1 19BCSO81 Chittibab P @iitdwd.ac.in 1234567890 2 cs210
```

4) Insert tuples into the table and see how foreign key constraint works if you try to insert into dependent table first.



Here, **StudentID** column in **T5_Subject** table is dependent on **StudentID** column in **T5_Student** table.

Query:

```
USE School_DB
INSERT INTO
T5_Subject([CourseID],[CourseName],[CourseYear],[StudentID],[EmailID],[PH_No])
VALUES ('CS210','DBMS','2','19bcs123','19bcs123@iiitdwd.ac.in','9876543210');
```

```
Mag 547, Level 16, State 0, Line 2

The INSERT statement conflicted with the FOREIGN KEY constraint "FK_TS_Subject_TS_Student". The conflict occurred in database "School_DB", table "dbo.TS_Student", column "StudentID".

The statement has been terminated.

Completion time: 2021-02-18723:01:31,1354551+05:30
```

5) Show Violation of Foreign Key Constraint when you try to delete from a base table. If you get an error explain why deletion gives an error.



Here, **StudentID** column in **T5_Marks** table is dependent on **StudentID** column in **T5_Grades** table.

Query to delete column:

```
USE School_DB
ALTER TABLE T5_Grades
DROP COLUMN StudentID;
```

```
USE School_DB
ALTER TABLE T5_Grades
DROP COLUMN StudentID;

100 % 

Messages

Mag 5074, Level 16, State 1, Line 16
The object 'PK_T5_Grades' is dependent on column 'StudentID'.

Mag 5074, Level 16, State 1, Line 16
The object 'FK_T5_Marks_T5_Grades' is dependent on column 'StudentID'.

Mag 4922, Level 16, State 9, Line 16
ALTER TABLE DROP COLUMN StudentID failed because one or more objects access this column.

Completion time: 2021-02-19T22:05:21.8771510+05:30
```

Try to update a non-existing entity data and check for error.

Query:

```
USE School_DB

UPDATE T5_StudentDetails

SET [Student Address] = 'Telagana'

WHERE StudentID = '19CS200'
```

OUTPUT:

```
USE School_DB
UPDATE T5_StudentDetails

SET [Student Address] = 'Telagana'
WHERE StudentID = '19BCS200'

100 % 
Messages

(0 rows affected)

Completion time: 2021-02-19T22:01:50.9838049+05:30
```

7) Add a column which has default value.

Query:

```
ALTER TABLE T5_Student
```

```
ADD CONSTRAINT dft_EmailID

DEFAULT '@iiitdwd.ac.in' FOR EmailID;
```

```
INSERT INTO T5_Subject(StudentID,CourseID,CourseName,CourseYear,PH_No)
VALUES('19BCS195','CS211','DBMS','2','9876543210');
select * from T5_Subject;
```

```
ALTER TABLE T5_Subject

ADD CONSTRAINT dft_EmailID

DEFAULT '@iiitdwd.ac.in' FOR EmailID;

INSERT INTO T5_Subject(StudentID,CourseID,CourseName,CourseYear,PH_No)

VALUES('19BCS195','CS211','DBMS','2','9876543210');

select * from T5_Subject;

100 % 

Results Messages

CourseID CourseName CourseYear StudentID EmailID PH_No

1 CS211 DBMS 2 19BCS195 @iiitdwd.ac.in 9876543210
```

8) 5 Simple Select queries to retrieve data from your database.

Query:

i)

```
USE School_DB

SELECT StudentID FROM T5_StudentDetails

WHERE[Student Address] = 'AP';
```

```
USE School_DB
    SELECT StudentID FROM T5_StudentDetails
    WHERE[Student Address] = 'AP';
100 % - 4
StudentID
    19BCS141
2
     19BCS144
    19BCS146
3
    19BCS148
4
5
    19BCS181
6
   19BCS183
7
    19BCS186
   19BCS188
8
9
    19BCS192
     19BCS194
10
     10000106
```

ii)

```
SELECT TOP 10 * FROM T5_StudentDetails;
```

OUTPUT:

```
SELECT TOP 10 * FROM T5_StudentDetails;
100 %
Results Messages
               DOB
     StudentID
                                                     Student Address
                         Parent Name
                                      Parent Mobile No.
                                                     AP
    19BCS141 2000-11-10 HARISH
                                      9984322804
2
     19BCS144 2000-12-19 NARENDRA
                                      7984439102
                                                     AP
     19BCS146 2000-01-20 RAM
                                      9773290135
                                                     AP
3
     19BCS148 2000-02-12 RAGHUVARAN 8832194339
                                                     AP
     19BCS180 2000-03-12 PAUL
                                      9087611121
                                                     KERALA
5
     19BCS181 2000-12-12 RAJ
                                      9764210472
                                                     AP
     19BCS182 2000-02-17 BELL
7
                                      8907432713
                                                     MUMBAI
     19BCS183 2000-10-23 ABHIRAM
                                      7629672355
8
     19BCS184 2001-03-21 SAMEER
                                      9034218745
9
                                                     TELANGANA
     19BCS185 2000-04-09 COUP
                                      7093218988
                                                     TAMILNADU
```

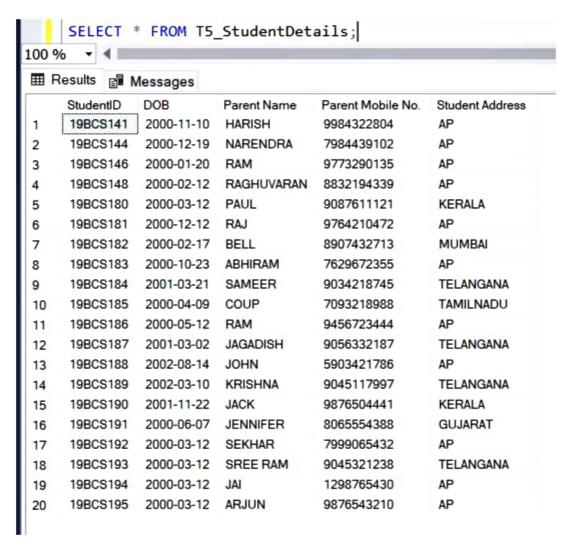
iii)

```
SELECT [Parent Mobile No.] FROM T5_StudentDetails
WHERE[Student Address] = 'AP';
```

```
USE School_DB
   SELECT [Parent Mobile No.] FROM T5_StudentDetails
     WHERE[Student Address] = 'AP';
100 % - 4

    ■ Results    ■ Messages
     Parent Mobile No.
     9984322804
 1
     7984439102
 2
    9773290135
 4 8832194339
    9764210472
     7629672355
   9456723444
 7
     5903421786
     7999065432
 10 1298765430
      9876543210
iv)
```

SELECT * FROM T5_StudentDetails;



v)

SELECT * FROM T5_StudentDetails WHERE [Student Address] = 'AP' ORDER BY StudentID;

```
WHERE [Student Address] = 'AP'
    ORDER BY StudentID;
100 % - 4
StudentID
             DOB
                       Parent Name
                                  Parent Mobile No.
                                                Student Address
    19BCS141 2000-11-10 HARISH
                                   9984322804
                                                AP
1
     19BCS144 2000-12-19 NARENDRA
                                  7984439102
                                                AP
2
     19BCS146 2000-01-20 RAM
                                                AP
                                   9773290135
     19BCS148 2000-02-12 RAGHUVARAN 8832194339
                                                AP
     19BCS181 2000-12-12 RAJ
                                   9764210472
                                                AP
5
     19BCS183 2000-10-23 ABHIRAM
                                                AP
                                   7629672355
     19BCS186 2000-05-12 RAM
                                                AP
7
                                   9456723444
                                                AP
     19BCS188 2002-08-14 JOHN
                                   5903421786
     19BCS192 2000-03-12 SEKHAR
                                   7999065432
                                                AP
     19BCS194 2000-03-12 JAI
                                  1298765430
                                                AP
10
                                   9876543210
     19BCS195 2000-03-12 ARJUN
                                                AP
```

9) Show how Foreign key constraint effects Updating a dependent table when value is not existing and in Base table where the value is referred and you want to update it.

Query:

```
UPDATE T5_Subject

SET StudentID='19BCS200'/*exist in both tables T5_StudentDetails And T5_Subject*/
WHERE CourseName='DBMS';/*exists only in T5_Subject(Child table)*/
```