

DBMS LAB ASSIGNMENT

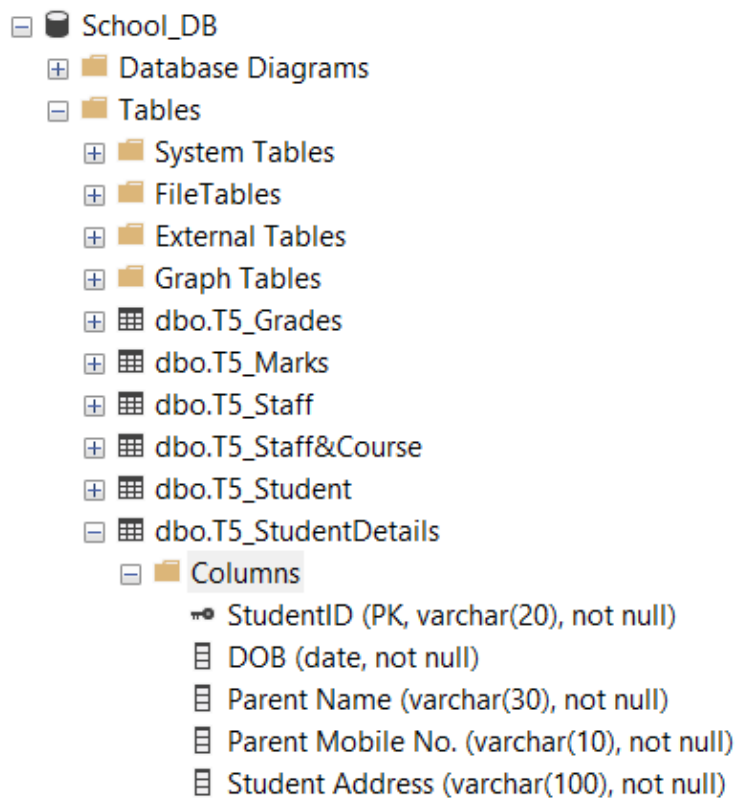
Name: M.Anupama

Roll No: 19BCS123

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

→Adding column:





















Before adding column(EmailID):



Query:

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

OUTPUT:

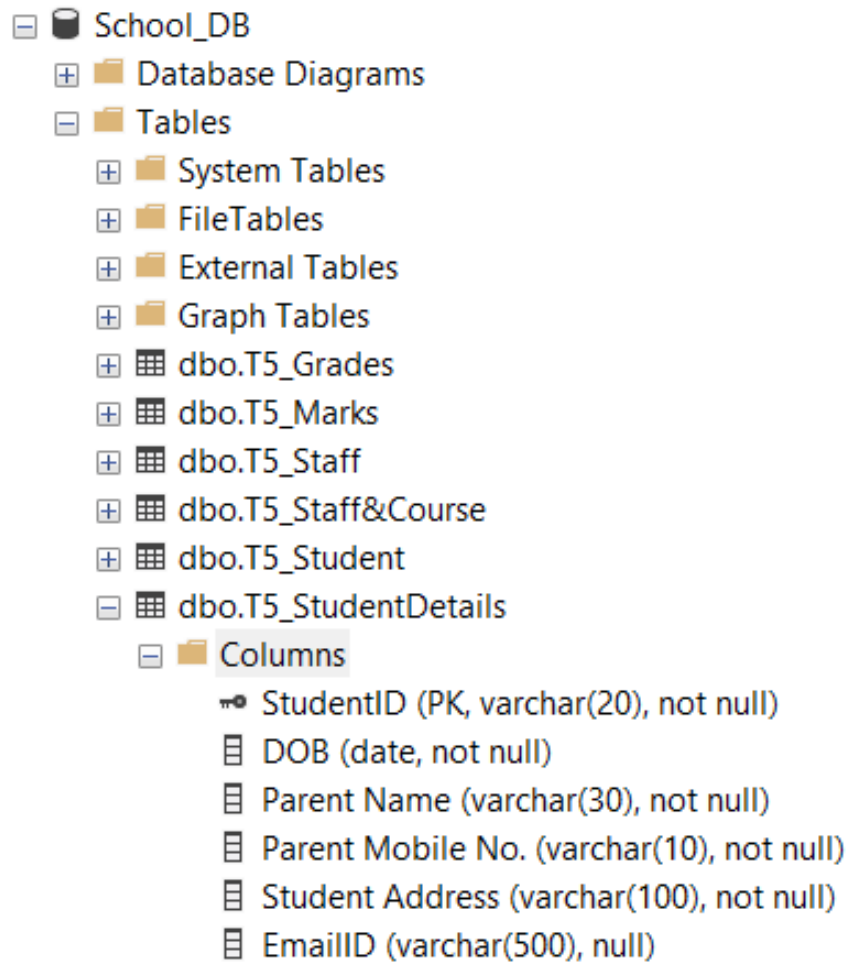
- [-]  School_DB
 - [+]  Database Diagrams
 - [-]  Tables
 - [+]  System Tables
 - [+]  FileTables
 - [+]  External Tables
 - [+]  Graph Tables
 - [+]  dbo.T5_Grades
 - [+]  dbo.T5_Marks
 - [+]  dbo.T5_Staff
 - [+]  dbo.T5_Staff&Course
 - [+]  dbo.T5_Student
 - [-]  dbo.T5_StudentDetails
 - [-]  Columns
 -  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(255), null)

→ Modifying column:

Query:

```
USE School_DB;  
ALTER TABLE T5_StudentDetails  
ALTER COLUMN EmailID varchar(500);
```

OUTPUT:

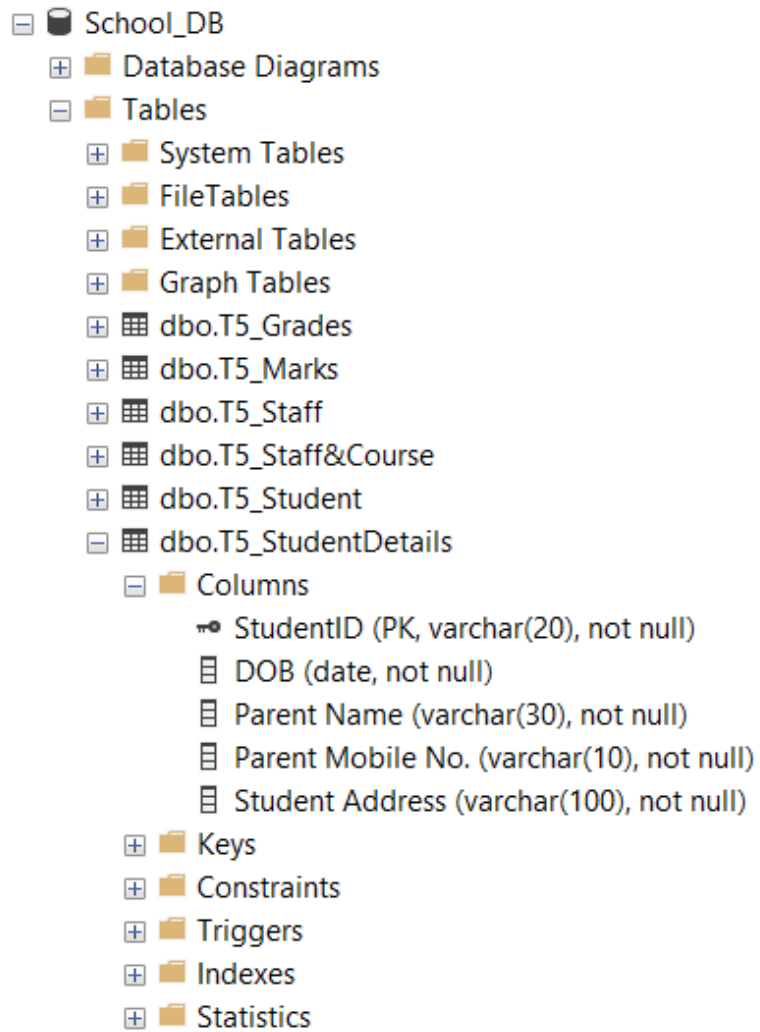


→ Deleting column:

Query:

```
USE School_DB;  
ALTER TABLE T5_StudentDetails  
DROP COLUMN EmailID;
```

OUTPUT:



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

Query:

```

INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS180','2000-03-12','PAUL','9087611121','KERALA');
INSERT INTO T5_StudentDetails
VALUES('19BCS181','2000-12-12','RAJ','9764210472','AP');
INSERT 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');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS182','2000-02-17','BELL','8907432713','MUMBAI');
INSERT INTO T5_StudentDetails
VALUES('19BCS183','2000-10-23','ABHIRAM','7629672355','AP');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS184','2001-03-21','SAMEER','9034218745','TELANGANA');
INSERT INTO T5_StudentDetails
VALUES('19BCS185','2000-04-09','COUP','7093218988','TAMILNADU');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS186','2000-05-12','RAM','9456723444','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS187','2001-03-02','JAGADISH','9056332187','TELANGANA');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS188','2002-08-14','JOHN','5903421786','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS189','2002-03-10','KRISHNA','9045117997','TELANGANA');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS190','2001-11-22','JACK','9876504441','KERALA');
INSERT INTO T5_StudentDetails
VALUES('19BCS191','2000-06-07','JENNIFER','8065554388','GUJARAT');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS192','2000-03-12','SEKHAR','7999065432','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS193','2000-03-12','SREE RAM','9045321238','TELANGANA');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS194','2000-03-12','JAI','1298765430','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS195','2000-03-12','ARJUN','9876543210','AP');
SELECT * FROM T5_StudentDetails;

```

OUTPUT:

Results		Messages			
	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:

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)

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');
```

OUTPUT:

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

100 %

Messages

(1 row affected)

Completion time: 2021-02-19T11:36:03.2540788+05:30

```
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');
```

100 %

Messages

Msg 2627, Level 14, State 1, Line 2
Violation of PRIMARY KEY constraint 'PK_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');
```

```
USE School_DB
```

```
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');
```

OUTPUT:

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

100 %

Messages

(1 row affected)

Completion time: 2021-02-19T14:41:19.0008897+05:30

```
USE School_DB
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');
```

100 %

Messages

Msg 2627, Level 14, State 1, Line 2
Violation of UNIQUE KEY constraint 'UQ_T5_Stude__906902965BFB3FE5'. Cannot insert duplicate key in object 'dbo.T5_StudentDetails'. The duplicate key value is (1234567890).
The statement has been terminated.

Completion time: 2021-02-19T14:45:08.2017489+05:30

→ Violation of NOT NULL constraint:

Query:

```
INSERT INTO T5_Marks([StudentID],[CourseID],[CourseMarks])
VALUES('19BCS123',NULL,'80');
```

OUTPUT:

```
/*Violation of NOT NULL constraint*/
INSERT INTO T5_Marks([StudentID],[CourseID],[CourseMarks])
VALUES('19BCS123',NULL,'80');
```

100 %

Messages

Msg 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

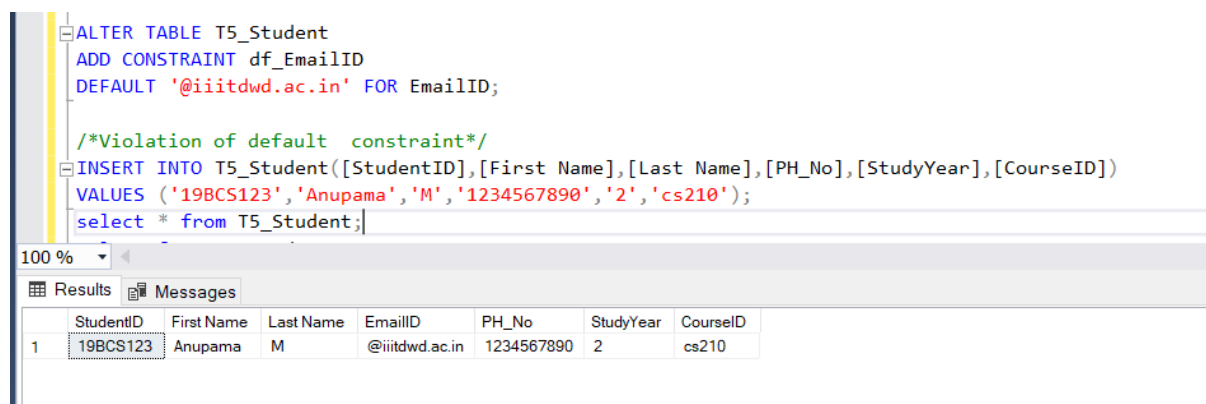
→ Violation of default key constraint:

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 ('19BCS123','Anupama','M','1234567890','2','cs210');
select * from T5_Student;
```

OUTPUT:



The screenshot shows a database query execution window. The SQL editor contains the following code:

```
ALTER TABLE T5_Student
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 ('19BCS123','Anupama','M','1234567890','2','cs210');
select * from T5_Student;
```

Below the editor, the 'Results' tab is active, displaying a table with 8 columns: StudentID, First Name, Last Name, EmailID, PH_No, StudyYear, and CourseID. The table contains one row of data.

	StudentID	First Name	Last Name	EmailID	PH_No	StudyYear	CourseID
1	19BCS123	Anupama	M	@iiitdwd.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.

[-]	[-]	dbo.T5_Student
	[-]	Columns
		StudentID (PK, FK, varchar(20), not null)
		First Name (varchar(20), not null)
		Last Name (varchar(20), not null)
		EmailID (varchar(50), not null)
		PH_No (varchar(10), not null)
		StudyYear (int, not null)
		CourseID (FK, varchar(20), not null)
	[+]	Keys
	[+]	Constraints
	[+]	Triggers
	[+]	Indexes
	[+]	Statistics
[+]	[-]	dbo.T5_StudentDetails
[+]	[-]	dbo.T5_studentInfo
[-]	[-]	dbo.T5_Subject
	[-]	Columns
		CourseID (PK, varchar(20), not null)
		CourseName (varchar(40), not null)
		CourseYear (int, not null)
		StudentID (FK, varchar(20), not null)
		EmailID (varchar(50), not null)
		PH_No (varchar(10), not null)

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');
```

OUTPUT:

Messages

Msg 547, Level 16, State 0, Line 2

The INSERT statement conflicted with the FOREIGN KEY constraint "FK_T5_Subject_T5_Student". The conflict occurred in database "School_DB", table "dbo.T5_Student", column 'StudentID'.

The statement has been terminated.

Completion time: 2021-02-18T23:01:31.1354551+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.

The screenshot displays the SQL Server Enterprise Manager interface for a database named 'School_DB'. The 'Tables' folder is expanded, showing several system tables and user tables. The 'dbo.T5_Grades' table is selected and expanded, revealing its columns: 'StudentID' (Primary Key, varchar(20), not null), 'CourseID' (varchar(20), not null), 'CourseMarks' (varchar(50), not null), and 'Grade' (char(2), null). The 'dbo.T5_Marks' table is also expanded, showing its columns: 'StudentID' (Foreign Key, varchar(20), not null), 'CourseID' (Foreign Key, varchar(20), not null), and 'CourseMarks' (varchar(50), not null). The 'StudentID' column in 'T5_Marks' is clearly marked as a foreign key to the 'StudentID' column in 'T5_Grades'.

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;
```

OUTPUT:

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

100 %

Messages

Msg 5074, Level 16, State 1, Line 16
The object 'PK_T5_Grades' is dependent on column 'StudentID'.
Msg 5074, Level 16, State 1, Line 16
The object 'FK_T5_Marks_T5_Grades' is dependent on column 'StudentID'.
Msg 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

6) 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.

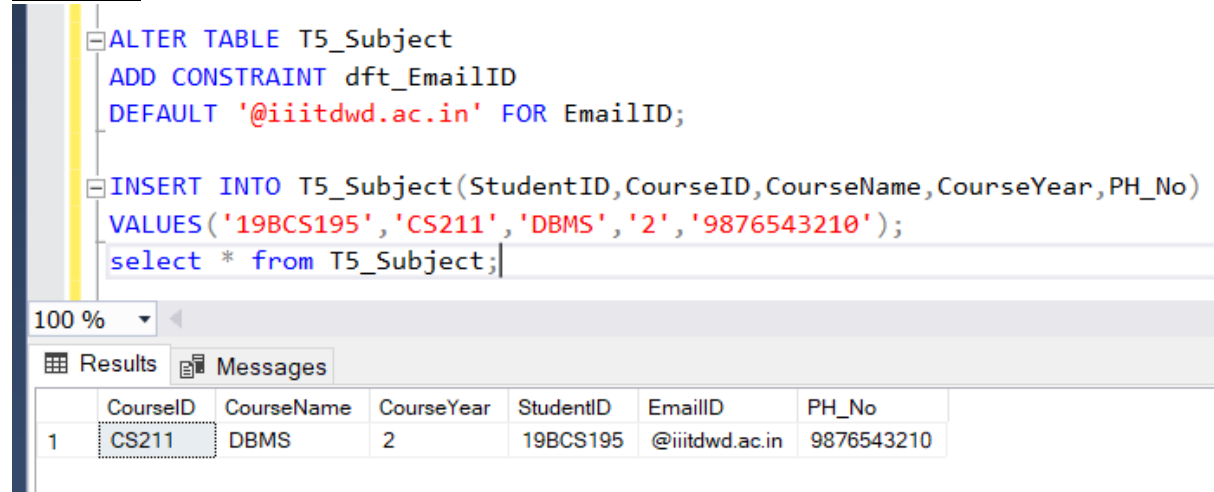
Query:

```
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;
```

OUTPUT:



The screenshot shows a SQL Server interface with a query window containing the following commands:

```
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;
```

Below the query window, the 'Results' tab is active, displaying a table with the following data:

	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';
```

OUTPUT:

USE School_DB	
SELECT StudentID FROM T5_StudentDetails	
WHERE [Student Address] = 'AP';	
100 %	
Results Messages	
	StudentID
1	19BCS141
2	19BCS144
3	19BCS146
4	19BCS148
5	19BCS181
6	19BCS183
7	19BCS186
8	19BCS188
9	19BCS192
10	19BCS194
11	19BCS195

ii)

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

OUTPUT:

SELECT TOP 10 * FROM T5_StudentDetails;					
100 %					
Results Messages					
	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

iii)

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

OUTPUT:

USE School_DB	
SELECT [Parent Mobile No.] FROM T5_StudentDetails	
WHERE[Student Address] = 'AP';	
100 %	
Results Messages	
	Parent Mobile No.
1	9984322804
2	7984439102
3	9773290135
4	8832194339
5	9764210472
6	7629672355
7	9456723444
8	5903421786
9	7999065432
10	1298765430
11	9876543210

iv)

```
SELECT * FROM T5_StudentDetails;
```

OUTPUT:

SELECT * FROM T5_StudentDetails;					
100 %					
Results Messages					
	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

v)

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

OUTPUT:

<pre> SELECT * FROM T5_StudentDetails WHERE [Student Address] = 'AP' ORDER BY StudentID; </pre>					
100 %					
Results Messages					
	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	19BCS181	2000-12-12	RAJ	9764210472	AP
6	19BCS183	2000-10-23	ABHIRAM	7629672355	AP
7	19BCS186	2000-05-12	RAM	9456723444	AP
8	19BCS188	2002-08-14	JOHN	5903421786	AP
9	19BCS192	2000-03-12	SEKHAR	7999065432	AP
10	19BCS194	2000-03-12	JAI	1298765430	AP
11	19BCS195	2000-03-12	ARJUN	9876543210	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)*/

```

OUTPUT:

```
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)*/
```

100 %

Messages

Msg 547, Level 16, State 0, Line 49

The UPDATE statement conflicted with the FOREIGN KEY constraint "FK_T5_Subject_T5_StudentDetails". The conflict occurred in database "School_DB", table "dbo.T5_StudentDetails", column 'StudentID'.
The statement has been terminated.

Completion time: 2021-02-20T00:21:14.1038475+05:30