



# National University of Computer and Emerging Sciences



## In Lab 2

“DDL and DML”

## Database Systems

Course Instructor	
Lab Instructor (s)	
Section	
Semester	

Department of Computer Science  
FAST-NU, Lahore, Pakistan



## Exercise

### Task-I

Execute LabEx-0.sql and observe the errors encountered during execution. Write down the reasons of these errors.

Answer:

1) Msg 2627, Level 14, State 1, Line 24

Violation of PRIMARY KEY constraint 'PK\_Students\_\_7886D5A003C232AA'. Cannot insert duplicate key in object 'dbo.Students'. The duplicate key value is (8).

On Line 24 there is violation of primary key. Duplicate key is being violated by adding 8 when 8 is already present.

2) Msg 515, Level 16, State 2, Line 35

Cannot insert the value NULL into column 'CourseID', table 'Neo1.dbo.Courses'; column does not allow nulls. INSERT fails.

Cannot set a primary key as null. Course ID is primary key so attempting to insert null in the column gives error.

3) Msg 547, Level 16, State 0, Line 78

The INSERT statement conflicted with the FOREIGN KEY constraint "FK\_Courses\_S\_Instr\_\_173876EA". The conflict occurred in database "Neo1", table "dbo.Instructors", column 'InstructorID'.

Instructor Id 400 doesn't exist in referenced table it is foreign key hence cannot be inserted if it is not available.

4) Msg 547, Level 16, State 0, Line 82

The INSERT statement conflicted with the FOREIGN KEY constraint "FK\_Courses\_S\_Cours\_\_182C9B23". The conflict occurred in database "Neo1", table "dbo.Courses", column 'CourseID'.

Course Id 11 doesn't exist in referenced table it is foreign key hence cannot be inserted if it is not available.

5)

Msg 547, Level 16, State 0, Line 87

The DELETE statement conflicted with the REFERENCE constraint "FK\_Courses\_S\_Semes\_\_1920BF5C". The conflict occurred in database "Neo1", table "dbo.Courses\_Semester", column 'Semester'.

We are trying to delete parent when its child exists. Which gives error.

6) Msg 2627, Level 14, State 1, Line 121

Violation of PRIMARY KEY constraint 'PK\_Students\_\_7886D5A003C232AA'. Cannot insert duplicate key in object 'dbo.Students'. The duplicate key value is (5).

The roll number 5 already exist in referenced table. The foreign key is primary key in referenced table and hence can be duplicated.

**Task-II**

Create a database schema that contains following tables.

**Student:**

RollNum	Name	Gender	Phone
L164123	Ali Ahmad	Male	0333-3333333
L164124	Rafia Ahmed	Female	0333-3456789
L164125	Basit Junaid	Male	0345-3243567

**Attendance:**

RollNum	Date	Status	ClassVenue
L164123	2-22-2016	P	2
L164124	2-23-2016	A	1
L164125	3-4-2016	P	2

**ClassVenue:**

ID	Building	RoomNum	TeacherId
1	CS	2	1
2	Civil	7	2

**Teacher:**

Id	Name	Designation	Department
1	Sarim Baig	Assistant Prof.	Computer Science
2	Bismillah Jan	Lecturer	Civil Eng.
3	Kashif zafar	Professor	Electrical Eng.



### **Task-III**

**Q1:** After creating all the tables, add all the rows as shown above. (format for date **mm-dd-yy** e.g, '02-22-2017')

**Q2:** Identify one PK from each table and add the constraint.

**Q3:** Identify all the FK constraints, and add those constraints, such that:

- a) If the Student table or ClassVenue Table or Teacher table is updated the referencing columns should also reflect the changes.
- b) Student should not be deleted if the details of his Attendance are present.

**Q4:** Alter table Student by adding new column "warning count".

**Q5:** Perform the following DML actions on your database, identify whether these operations are **valid or not**, also state how can we make the invalid queries valid? (Your answers should be written in comments along with your queries).

- i. Add new row into Student table, values <L162334, Fozan Shahid, Male, 3.2 >  
Invalid because warning count is int not float and phone number is missing

Valid way:

<L162334, Fozan Shahid, Male, 0333-1234567, 3 >

- ii. Add new row into ClassVenue table, values <3, CS, 5, Ali>
- iii. Update Teacher table Change "Kashif zafar" name to "Dr. Kashif Zafar".
- iv. Delete Student with rollnum  
"L162334"
- v. Delete Student with rollnum  
"L164123"
- vi. Delete Attendance with rollnum  
"L164124", if his status is absent.



**Q6:**

- i. Alter table and Add CNIC in student table.
- ii. Alter table and drop phone column from student table.
- iii. Alter table and add unique constraint on teacher name.
- iv. Alter Student table and allow values only Female and Male for gender.
- v. Alter Attendance table and allow A and P as status values only.