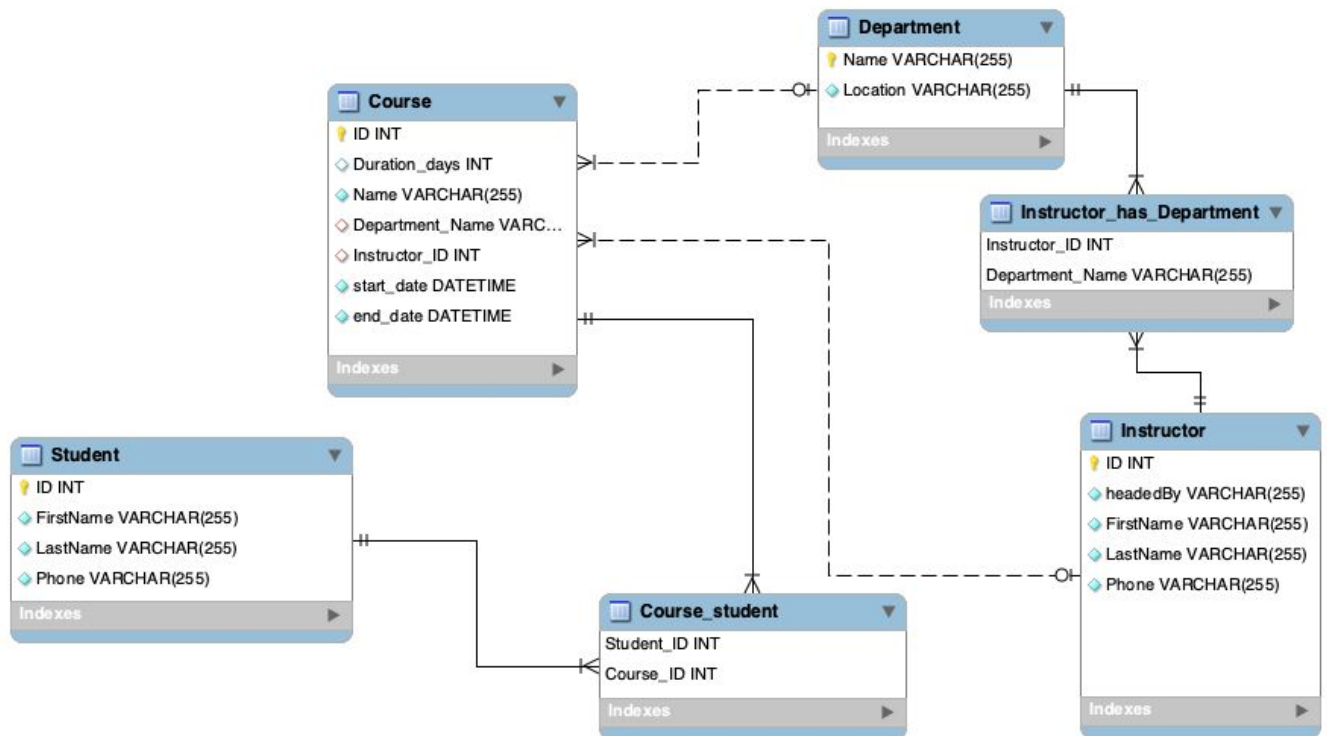


# Assignment 2

1. Showcase one Many-Many relation.



Here Instructor and Department, Student and Course have a many-many relation.

2. Represent Composite key and Weak Entity in your Database

In the table `Course_student` (`Student_ID`, `Course_ID`) is a composite key. The table is also a weak entity.

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

Primary Key violation: Same ID is entered twice. Uniqueness constraint violated.

The screenshot shows a SQL editor with the following code:

```
1 INSERT INTO `mydb`.`Student`  
2 (`ID`,  
3 `FirstName`,  
4 `LastName`,  
5 `Phone`)  
6 VALUES  
7 (11,  
8 "Two",  
9 "Student",  
10 9998877665);  
11
```

The "Action Output" table at the bottom shows two rows:

|   | Time     | Action  | Response  | Duration / Fetch Time |
|---|----------|---|---|-----------------------|
| 1 | 22:50:40 | INSERT INTO `mydb`.`Student` (`ID`, `FirstName`, `LastName`, `Phone`) VALUES (... | 1 row(s) affected                                       | 0.0037 sec            |
| 2 | 22:51:13 | INSERT INTO `mydb`.`Student` (`ID`, `FirstName`, `LastName`, `Phone`) VALUES (... | Error Code: 1062. Duplicate entry '11' for key 'stud... | 0.00054 sec           |

Not Null violation: LastName is left empty.

The screenshot shows a SQL editor with the following code:

```
1 INSERT INTO `mydb`.`Student`  
2 (`ID`,  
3 `FirstName`,  
4 `Phone`)  
5 VALUES  
6 (12,  
7 "Two",  
8 9998877665);  
9
```

The "Action Output" table at the bottom shows one row with an error:

|   | Time     | Action   | Response  | Duration / Fetch Time |
|---|----------|--|---|-----------------------|
| 1 | 22:55:50 | INSERT INTO `mydb`.`Student` (`ID`, `FirstName`, `Phone`) VAL... | Error Code: 1364. Field 'LastName' doesn't have a default value | 0.00060 sec           |

Default Constraint violation: Duration is a generated field that has a default value inserting the explicit value gives error.

```
1 INSERT INTO `mydb`.`Course`
2   (`ID`,
3    `Duration_days`,
4    `Name`,
5    `start_date`,
6    `end_date`)
7   VALUES
8   (111,
9    200,
10   "Rot",
11   "2020/07/08",
12   "2020/09/08");
13
```

Limit to 1000 rows

14:5

|     | Time     | Action                    | Response   | Duration / Fetch Time |
|-----|----------|---------------------------|--|-----------------------|
| ✖ 1 | 23:18:01 | INSERT INTO `mydb`.`Co... | Error Code: 3105. The value specified for generated column 'Duration_days' in table 'course' is not allowed. | 0.00041 sec           |

4. One Derived attribute should be added to the Database design.

| Column          | Datatype     | PK                                  | NN                                  | UQ                       | BIN                      | UN                       | ZF                       | AI                       | G                                   | Default / Expression           |
|-----------------|--------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------------|
| ID              | INT          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                |
| Duration_days   | INT          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | DATEDIFF(end_date, start_date) |
| Name            | VARCHAR(255) | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                |
| Department...   | VARCHAR(255) | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                |
| Instructor_ID   | INT          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                |
| start_date      | DATETIME     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                |
| end_date        | DATETIME     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                |
| <click to edit> |              | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                |

Column details 'Duration\_days'

Column Name:

Datatype:

Charset/Collation:

Expression:

Storage: ☒ VIRTUAL ☐ STORED

☐ Primary Key ☐ Not NULL ☐ Unique

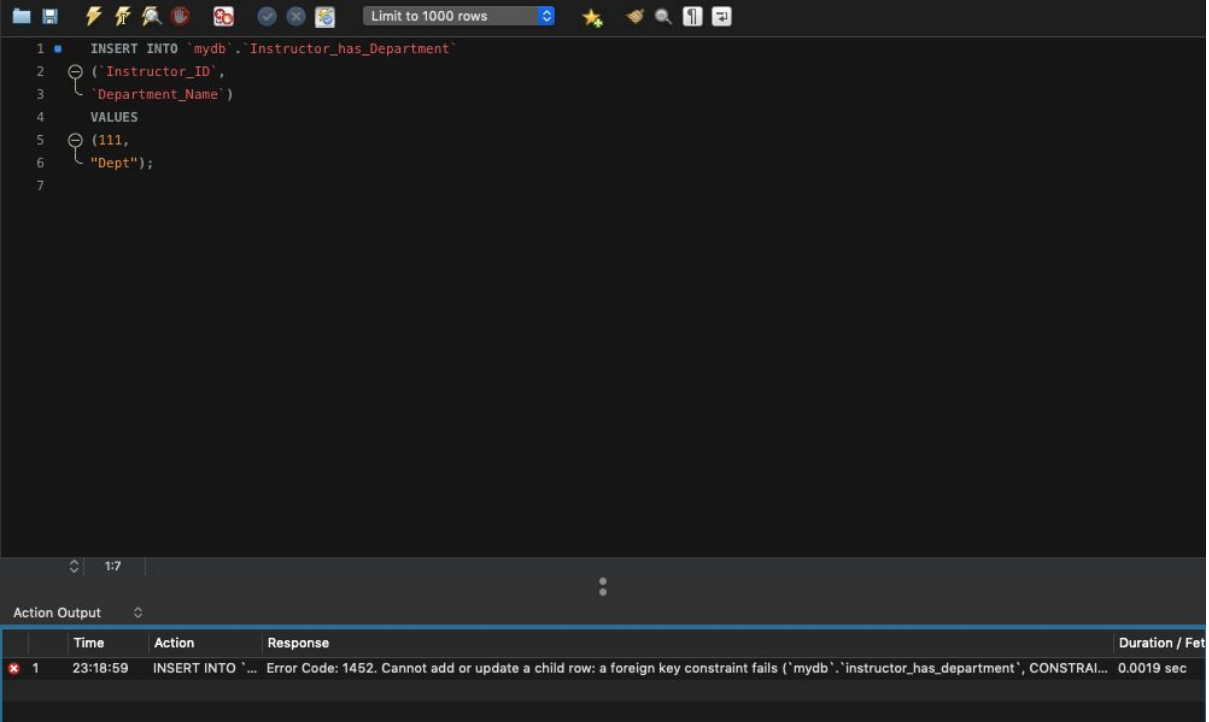
☐ Binary ☐ Unsigned ☐ ZeroFill

☐ Auto Increment ☒ Generated

Comments:

Columns | Indexes | Foreign Keys | Triggers | Partitioning | Options | Inserts | Privileges

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



The screenshot shows a database IDE with a dark theme. At the top, there's a toolbar with various icons and a 'Limit to 1000 rows' button. The main editor area contains an SQL insert statement:

```
1 INSERT INTO `mydb`.`Instructor_has_Department`  
2   (`Instructor_ID`,  
3    `Department_Name`)  
4   VALUES  
5   (  
6     111,  
7     "Dept");
```

Below the editor, there's a section labeled 'Action Output' with a dropdown arrow. Below that is a table with the following data:

|     | Time     | Action            | Response  | Duration / Fet |
|-----|----------|-------------------|---|----------------|
| ✖ 1 | 23:18:59 | INSERT INTO `...` | Error Code: 1452. Cannot add or update a child row: a foreign key constraint fails (`mydb`.`Instructor_has_Department`, CONSTRAINT... | 0.0019 sec     |