Creating Database—

```
mysql> create database assignment_system;
Query OK, 1 row affected (0.01 sec)

mysql> use assignment_system;
Database changed
```

Creating Tables—

```
mysql> CREATE TABLE users (
    ->     user_id INT PRIMARY KEY,
    ->     name VARCHAR(100),
    ->     email VARCHAR(100),
    ->     role ENUM('student', 'instructor') NOT NULL
    -> );
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> create table courses(
    -> course_id int primary key,
    -> course_name varchar(100),
    -> professor_id int,
    -> start_date date,
    -> foreign key (professor_id) references users(user_id)
    -> );
Query OK, 0 rows affected (0.04 sec)
```
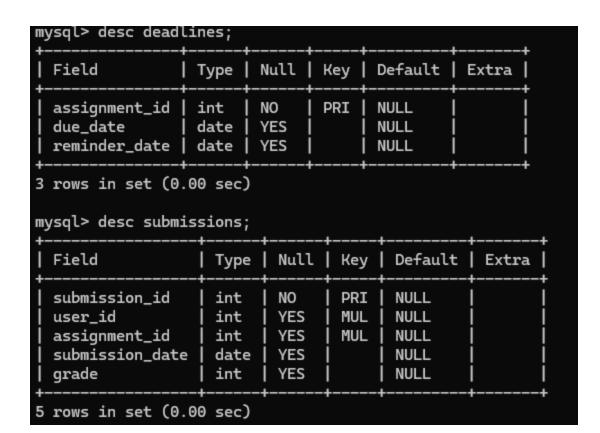
```
mysql> create table assignments(
    -> assignment_id int primary key,
    -> course_id int ,
    -> title varchar(255),
    -> due_date date,
    -> foreign key (course_id) references courses(course_id)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> |
```
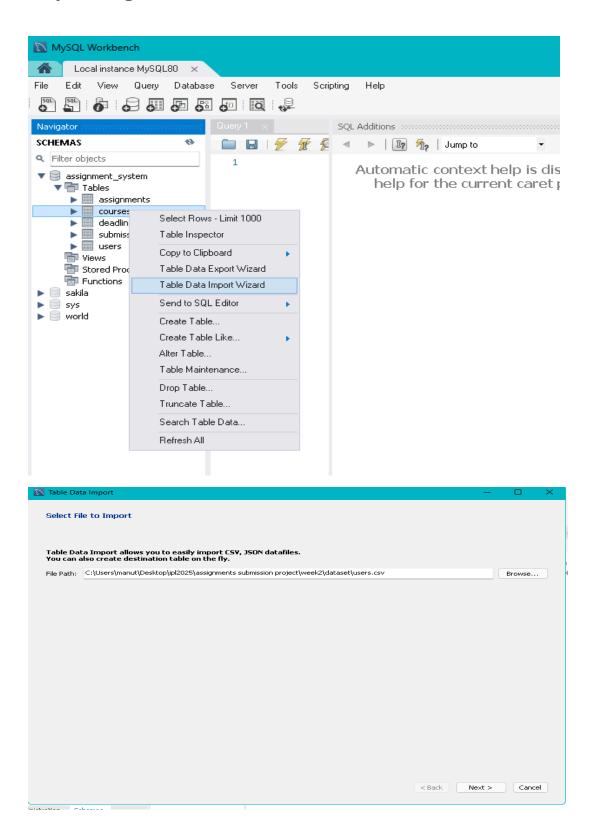
```
mysql> create table deadlines(
    -> assignment_id int primary key,
    -> due_date date,
    -> reminder_date date,
    -> foreign key (assignment_id) references assignments(assignment_id)
    -> );
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> create table submissions(
    -> submission_id int primary key,
    -> user_id int,
    -> assignment_id int ,
    -> submission_date date,
    -> grade int ,
    -> foreign key (user_id) references users(user_id),
    -> foreign key (assignment_id) references assignments (assignment_id)
    -> );
Query OK, 0 rows affected (0.04 sec)
```
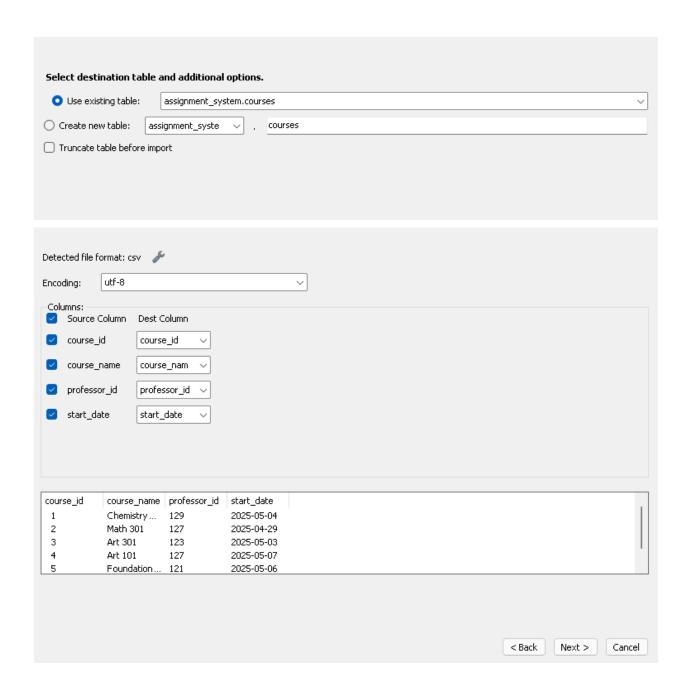
Describing Tables—

```
mysql> show tables;
+----------------------------+
| Tables_in_assignment_system |
+----------------------------+
| assignments                |
| courses                    |
| deadlines                  |
| submissions                |
| users                      |
+----------------------------+
5 rows in set (0.00 sec)

mysql> desc courses;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| course_id    | int          | NO   | PRI | NULL    |       |
| course_name  | varchar(100) | YES  |     | NULL    |       |
| professor_id | int          | YES  | MUL | NULL    |       |
| start_date   | date         | YES  |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> desc users;
+---------+-------------------------------+------+-----+---------+-------+
| Field   | Type                          | Null | Key | Default | Extra |
+---------+-------------------------------+------+-----+---------+-------+
| user_id | int                           | NO   | PRI | NULL    |       |
| name    | varchar(100)                  | YES  |     | NULL    |       |
| email   | varchar(100)                  | YES  |     | NULL    |       |
| role    | enum('student','instructor')  | NO   |     | NULL    |       |
+---------+-------------------------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> desc assignments;
+---------------+--------------+------+-----+---------+-------+
| Field         | Type         | Null | Key | Default | Extra |
+---------------+--------------+------+-----+---------+-------+
| assignment_id | int          | NO   | PRI | NULL    |       |
| course_id     | int          | YES  | MUL | NULL    |       |
| title         | varchar(255) | YES  |     | NULL    |       |
| due_date      | date         | YES  |     | NULL    |       |
+---------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> desc deadlines;
+---------------+------+------+-----+---------+-------+
| Field         | Type | Null | Key | Default | Extra |
+---------------+------+------+-----+---------+-------+
| assignment_id | int  | NO   | PRI | NULL    |       |
| due_date      | date | YES  |     | NULL    |       |
| reminder_date | date | YES  |     | NULL    |       |
+---------------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> desc submissions;
+-----------------+------+------+-----+---------+-------+
| Field           | Type | Null | Key | Default | Extra |
+-----------------+------+------+-----+---------+-------+
| submission_id   | int  | NO   | PRI | NULL    |       |
| user_id         | int  | YES  | MUL | NULL    |       |
| assignment_id   | int  | YES  | MUL | NULL    |       |
| submission_date | date | YES  |     | NULL    |       |
| grade           | int  | YES  |     | NULL    |       |
+-----------------+------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

Importing data from CSV into tables—

Select destination table and additional options.

- ● Use existing table: `assignment_system.courses` ⌄
- ○ Create new table: `assignment_syste` ⌄ . `courses`
- ☐ Truncate table before import

Detected file format: csv 🔧

Encoding: `utf-8` ⌄

Columns:

☑	Source Column	Dest Column
☑	course_id	`course_id` ⌄
☑	course_name	`course_nam` ⌄
☑	professor_id	`professor_id` ⌄
☑	start_date	`start_date` ⌄

course_id	course_name	professor_id	start_date
1	Chemistry ...	129	2025-05-04
2	Math 301	127	2025-04-29
3	Art 301	123	2025-05-03
4	Art 101	127	2025-05-07
5	Foundation ...	121	2025-05-06

[< Back] [Next >] [Cancel]

The following tasks will now be performed. Please monitor the execution.

○ Prepare Import
○ Import data file

Click [Next >] to execute.

Show Logs   < Back   Next >   Cancel

CRUD operations

```
mysql> desc submissions;
+-----------------+------+------+-----+---------+-------+
| Field           | Type | Null | Key | Default | Extra |
+-----------------+------+------+-----+---------+-------+
| submission_id   | int  | NO   | PRI | NULL    |       |
| user_id         | int  | YES  | MUL | NULL    |       |
| assignment_id   | int  | YES  | MUL | NULL    |       |
| submission_date | date | YES  |     | NULL    |       |
| grade           | int  | YES  |     | NULL    |       |
+-----------------+------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> insert into submissions values(801,102,3,'2025-08-23',0);
Query OK, 1 row affected (0.01 sec)

mysql>
```

```
mysql> select submission_id,user_id,submission_date,grade,name,due_date_x,due_date_y from combined_data where submission_date>due_date_x
+---------------+---------+---------------------+-------+--------------------+---------------------+---------------------+
| submission_id | user_id | submission_date     | grade | name               | due_date_x          | due_date_y          |
+---------------+---------+---------------------+-------+--------------------+---------------------+---------------------+
|             3 |      25 | 2025-07-29 00:00:00 |    83 | Dustin Lopez       | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|             8 |      92 | 2025-08-01 00:00:00 |     0 | Jake Fisher        | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            10 |      20 | 2025-08-01 00:00:00 |     0 | Melanie Romero     | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            14 |      40 | 2025-08-05 00:00:00 |    51 | Paula Mcclain      | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 |
|            16 |       6 | 2025-08-05 00:00:00 |    61 | Linda Morris       | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 |
|            19 |      75 | 2025-08-06 00:00:00 |    51 | Deborah Vasquez    | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 |
|            20 |      82 | 2025-08-06 00:00:00 |    77 | Natalie Henderson  | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 |
|            21 |      93 | 2025-08-04 00:00:00 |    53 | John Suarez        | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 |
|            23 |     103 | 2025-08-04 00:00:00 |    30 | Maria Mejia        | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 |
|            25 |      99 | 2025-08-03 00:00:00 |    93 | Tracy Kramer       | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 |
|            26 |       7 | 2025-08-08 00:00:00 |    37 | Scott Warren       | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 |
|            28 |      50 | 2025-08-06 00:00:00 |    68 | Gary Bruce         | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 |
|            30 |      56 | 2025-08-06 00:00:00 |    59 | Karen Daniels      | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 |
|            33 |      55 | 2025-08-06 00:00:00 |    83 | Geoffrey Rogers    | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 |
|            34 |     105 | 2025-08-05 00:00:00 |    56 | Amanda Castillo    | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 |
|            35 |      36 | 2025-08-07 00:00:00 |    33 | Brett Nixon        | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 |
|            36 |      66 | 2025-08-08 00:00:00 |    20 | Jennifer Valdez    | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 |
|            39 |     120 | 2025-08-03 00:00:00 |    24 | Laura Lee          | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 |
|            43 |      80 | 2025-08-03 00:00:00 |    43 | Michael Hays       | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 |
|            44 |      68 | 2025-07-31 00:00:00 |    67 | Dana Ewing         | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 |
|            46 |      17 | 2025-08-03 00:00:00 |    61 | Thomas Ramirez     | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 |
|            47 |      65 | 2025-08-01 00:00:00 |    43 | Ricky Smith        | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 |
|            49 |      21 | 2025-08-02 00:00:00 |    60 | Joshua Smith       | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 |
|            51 |      36 | 2025-08-04 00:00:00 |    57 | Brett Nixon        | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 |
|            61 |       6 | 2025-07-29 00:00:00 |    79 | Linda Morris       | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            63 |     109 | 2025-07-28 00:00:00 |    73 | Megan Berry        | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            65 |      66 | 2025-08-01 00:00:00 |     0 | Jennifer Valdez    | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            67 |      89 | 2025-07-27 00:00:00 |    92 | Kelly Le           | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            68 |      31 | 2025-07-31 00:00:00 |    30 | Kimberly Singleton | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            69 |      13 | 2025-07-31 00:00:00 |    43 | James Porter       | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            75 |      99 | 2025-07-27 00:00:00 |    74 | Tracy Kramer       | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            77 |      59 | 2025-07-30 00:00:00 |    71 | Amy Ortiz          | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            78 |      24 | 2025-08-01 00:00:00 |     0 | Gloria Ryan        | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            80 |      37 | 2025-07-27 00:00:00 |    81 | Paul Jones         | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            81 |      30 | 2025-08-01 00:00:00 |     0 | Parker Wiley       | 2025-07-26 00:00:00 | 2025-07-26 00:00:00 |
|            84 |      30 | 2025-07-26 00:00:00 |    62 | Parker Wiley       | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            86 |     107 | 2025-07-25 00:00:00 |    79 | Mia Boyd           | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            87 |      89 | 2025-07-28 00:00:00 |    47 | Kelly Le           | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            89 |      96 | 2025-07-27 00:00:00 |    58 | Dr. Shawn Benson   | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            91 |      98 | 2025-07-26 00:00:00 |    58 | Joshua Nguyen      | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            94 |      41 | 2025-07-26 00:00:00 |    79 | Tina Miller        | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            95 |      31 | 2025-07-25 00:00:00 |    95 | Kimberly Singleton | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            96 |      15 | 2025-07-26 00:00:00 |    60 | Jasmine Campbell   | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
|            97 |      67 | 2025-07-30 00:00:00 |     0 | Donna Pittman      | 2025-07-24 00:00:00 | 2025-07-24 00:00:00 |
```

```
mysql> select * from submissions where submission_id=800;
+---------------+---------+---------------+-----------------+-------+
| submission_id | user_id | assignment_id | submission_date | grade |
+---------------+---------+---------------+-----------------+-------+
|           800 |     102 |             3 | 2025-08-23      |     0 |
+---------------+---------+---------------+-----------------+-------+
1 row in set (0.00 sec)
```

```
mysql> update submissions set grade=40 where submission_id=800;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from submissions where submission_id=800;
+---------------+---------+---------------+-----------------+-------+
| submission_id | user_id | assignment_id | submission_date | grade |
+---------------+---------+---------------+-----------------+-------+
|           800 |     102 |             3 | 2025-08-23      |    40 |
+---------------+---------+---------------+-----------------+-------+
1 row in set (0.00 sec)
```

```
mysql> select * from submissions where submission_id=800;
+---------------+---------+---------------+-----------------+-------+
| submission_id | user_id | assignment_id | submission_date | grade |
+---------------+---------+---------------+-----------------+-------+
|           800 |     102 |             3 | 2025-08-23      |    40 |
+---------------+---------+---------------+-----------------+-------+
1 row in set (0.00 sec)

mysql> delete from submissions where submission_id>=800;
Query OK, 2 rows affected (0.01 sec)

mysql> select * from submissions where submission_id>400;
Empty set (0.00 sec)

mysql> select * from submissions where submission_id>=400;
+---------------+---------+---------------+-----------------+-------+
| submission_id | user_id | assignment_id | submission_date | grade |
+---------------+---------+---------------+-----------------+-------+
|           400 |     102 |             3 | 2025-08-23      |     0 |
+---------------+---------+---------------+-----------------+-------+
1 row in set (0.00 sec)
```

Constraint checking

```
mysql> select submission_id,name,title,submission_date,due_date_x,
    -> case
    -> when submission_date<=due_date_x then 'on-time' else 'late' end as status from combined_data;
+---------------+-------------------+-------------+---------------------+---------------------+---------+
| submission_id | name              | title       | submission_date     | due_date_x          | status  |
+---------------+-------------------+-------------+---------------------+---------------------+---------+
|             1 | Jessica Coleman   | Assignment1 | 2025-07-21 00:00:00 | 2025-07-26 00:00:00 | on-time |
|             2 | Sonya Mcgee       | Assignment1 | 2025-07-20 00:00:00 | 2025-07-26 00:00:00 | on-time |
|             3 | Dustin Lopez      | Assignment1 | 2025-07-29 00:00:00 | 2025-07-26 00:00:00 | late    |
|             4 | Justin Gomez      | Assignment1 | 2025-07-25 00:00:00 | 2025-07-26 00:00:00 | on-time |
|             5 | Sarah Carpenter   | Assignment1 | 2025-07-23 00:00:00 | 2025-07-26 00:00:00 | on-time |
|             6 | Heather Dunn      | Assignment1 | 2025-07-21 00:00:00 | 2025-07-26 00:00:00 | on-time |
|             7 | Gabriel Brandt    | Assignment1 | 2025-07-22 00:00:00 | 2025-07-26 00:00:00 | on-time |
|             8 | Jake Fisher       | Assignment1 | 2025-08-01 00:00:00 | 2025-07-26 00:00:00 | late    |
|             9 | Kimberly Freeman  | Assignment1 | 2025-07-24 00:00:00 | 2025-07-26 00:00:00 | on-time |
|            10 | Melanie Romero    | Assignment1 | 2025-08-01 00:00:00 | 2025-07-26 00:00:00 | late    |
|            11 | Gary Bruce        | Assignment1 | 2025-07-22 00:00:00 | 2025-07-26 00:00:00 | on-time |
|            12 | Kenneth Garcia    | Assignment2 | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 | on-time |
|            13 | Joshua Nguyen     | Assignment2 | 2025-07-30 00:00:00 | 2025-08-02 00:00:00 | on-time |
|            14 | Paula Mcclain     | Assignment2 | 2025-08-05 00:00:00 | 2025-08-02 00:00:00 | late    |
|            15 | Hannah Robles     | Assignment2 | 2025-08-01 00:00:00 | 2025-08-02 00:00:00 | on-time |
|            16 | Linda Morris      | Assignment2 | 2025-08-05 00:00:00 | 2025-08-02 00:00:00 | late    |
|            17 | Amber Williams    | Assignment2 | 2025-08-01 00:00:00 | 2025-08-02 00:00:00 | on-time |
|            18 | Jeffrey Figueroa  | Assignment2 | 2025-08-02 00:00:00 | 2025-08-02 00:00:00 | on-time |
|            19 | Deborah Vasquez   | Assignment2 | 2025-08-06 00:00:00 | 2025-08-02 00:00:00 | late    |
|            20 | Natalie Henderson | Assignment2 | 2025-08-06 00:00:00 | 2025-08-02 00:00:00 | late    |
|            21 | John Suarez       | Assignment2 | 2025-08-04 00:00:00 | 2025-08-02 00:00:00 | late    |
|            22 | Jessica Jennings  | Assignment2 | 2025-07-29 00:00:00 | 2025-08-02 00:00:00 | on-time |
|            23 | Maria Mejia       | Assignment2 | 2025-08-04 00:00:00 | 2025-08-02 00:00:00 | late    |
|            24 | Julie Jackson     | Assignment2 | 2025-07-27 00:00:00 | 2025-08-02 00:00:00 | on-time |
|            25 | Tracy Kramer      | Assignment2 | 2025-08-03 00:00:00 | 2025-08-02 00:00:00 | late    |
|            26 | Scott Warren      | Assignment3 | 2025-08-08 00:00:00 | 2025-08-03 00:00:00 | late    |
|            27 | Matthew Harris    | Assignment3 | 2025-07-27 00:00:00 | 2025-08-03 00:00:00 | on-time |
|            28 | Gary Bruce        | Assignment3 | 2025-08-06 00:00:00 | 2025-08-03 00:00:00 | late    |
|            29 | Brian Andrews     | Assignment3 | 2025-08-03 00:00:00 | 2025-08-03 00:00:00 | on-time |
|            30 | Karen Daniels     | Assignment3 | 2025-08-06 00:00:00 | 2025-08-03 00:00:00 | late    |
|            31 | Jennifer Powell   | Assignment3 | 2025-07-29 00:00:00 | 2025-08-03 00:00:00 | on-time |
|            32 | Gloria Ryan       | Assignment3 | 2025-07-31 00:00:00 | 2025-08-03 00:00:00 | on-time |
|            33 | Geoffrey Rogers   | Assignment3 | 2025-08-06 00:00:00 | 2025-08-03 00:00:00 | late    |
|            34 | Amanda Castillo   | Assignment3 | 2025-08-05 00:00:00 | 2025-08-03 00:00:00 | late    |
|            35 | Brett Nixon       | Assignment3 | 2025-08-07 00:00:00 | 2025-08-03 00:00:00 | late    |
|            36 | Jennifer Valdez   | Assignment3 | 2025-08-08 00:00:00 | 2025-08-03 00:00:00 | late    |
|            37 | Laura Whitehead   | Assignment4 | 2025-07-30 00:00:00 | 2025-07-30 00:00:00 | on-time |
|            38 | Matthew Smith     | Assignment4 | 2025-07-26 00:00:00 | 2025-07-30 00:00:00 | on-time |
|            39 | Laura Lee         | Assignment4 | 2025-08-03 00:00:00 | 2025-07-30 00:00:00 | late    |
|            40 | Andrew Stout      | Assignment4 | 2025-07-26 00:00:00 | 2025-07-30 00:00:00 | on-time |
|            41 | Antonio Mccullough| Assignment4 | 2025-07-29 00:00:00 | 2025-07-30 00:00:00 | on-time |
|            42 | Kimberly Singleton| Assignment4 | 2025-07-24 00:00:00 | 2025-07-30 00:00:00 | on-time |
|            43 | Michael Hays      | Assignment4 | 2025-08-03 00:00:00 | 2025-07-30 00:00:00 | late    |
|            44 | Dana Ewing        | Assignment4 | 2025-07-31 00:00:00 | 2025-07-30 00:00:00 | late    |
|            45 | Joshua Hicks      | Assignment4 | 2025-07-24 00:00:00 | 2025-07-30 00:00:00 | on-time |
```

```
mysql> DELIMITER $$
mysql>
mysql> CREATE TRIGGER check_deadline
    -> BEFORE INSERT ON submissions
    -> FOR EACH ROW
    -> BEGIN
    ->     DECLARE due DATETIME;
    ->     SELECT due_date INTO due FROM deadlines WHERE assignment_id = NEW.assignment_id;
    ->
    ->     IF NEW.submission_date > due THEN
    ->         SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Submission past due date!';
    ->     END IF;
    -> END $$
Query OK, 0 rows affected (0.02 sec)

mysql>
mysql> DELIMITER ;
```

```
mysql> INSERT INTO submissions (submission_id, user_id, assignment_id, submission_date, grade)
    -> VALUES (10, 101, 5, '2025-08-10 14:00:00', 90);
ERROR 1644 (45000): Submission past due date!
```