

Introduction to databases

Web applications in PHP to query a database - Practice n. 5

Introduction

This practice has the objective of realizing a simple web application based on PHP to query a database.

1 Preliminary steps

This practice uses the Apache web server and the MySQL database available in XAMPP. In order to perform the practice it is necessary to start both the services.

1.1 Starting of the MySQL server on the localhost and starting of Apache

The execution of the SQL scripts containing the SQL commands for creating and populating the database used in this practice is done through the web interface of MySQL. Before opening the MySQL web interface it is necessary to:

- Start the local Apache server;
- Start the local MySQL server.

In particular, perform the following steps:

1. Start the program "XAMPP Control Panel";
2. Start Apache by clicking on the "Start" button in the row relative to Apache;
3. Start MySQL by clicking on the "Start" button in the MySQL row;
4. Open the MySQL web interface (phpMyAdmin) by clicking on the "Admin" button in the MySQL row (the browser will automatically open on the URL associated to the administration and querying page of MySQL);
5. To run a SQL script from the MySQL web interface:
 - Select the "Import" panel;
 - Select the file containing the script you want to run and then click on "Go".

1.2 Publishing/loading a PHP page in XAMPP

The Apache web server in XAMPP, when active, uses as main folder the *htdocs* folder. This means that to request the file *index.php*, you must navigate to the address <http://localhost/index.php> and the file must be in the file system in the path **XAMPP/htdocs/index.php**. The folder *htdocs* is in the main folder of XAMPP. In Windows it is saved by default in the path *C:\XAMPP\htdocs*.

2 Creation and population of the database

The database used for this practice is the same that you created in the last practice. The database is called GYM and describes the activities of a gym. It is characterised by the following logical schema (primary keys are underlined):

```

1 TRAINER (SSN, Name, Surname, DateOfBirth, Email, PhoneNo*)
2 COURSE (CId, Name, CType, CLevel)
3 SCHEDULE (SSN, WeekDay, StartTime, Duration, CId, GymRoom)

```

Create the GYM database and populate it using the *createDB.sql* and *populateDB.sql* scripts that you find on the course website. After running the scripts, the database tables will contain the data reported in Tables 1, 2 and 3.

Note: to run multiple times the creation/population scripts remember to delete already existing instances of the database previously created from the Database panel or include the commands for deleting the preexisting tables at the beginning of the scripts.

SSN	Name	Surname	DateOfBirth	Email	PhoneNo
SMTPLA80N31B791Z	Paul	Smith	31/12/1980	p.smith@email.it	NULL
KHNJHN81E30C455Y	John	Johnson	30/5/1981	j.johnson@email.it	+2300110303444
AAAGGG83E30C445A	Peter	Johnson	30/5/1981	p.johnson@email.it	+2300110303444

Table 1: TRAINER table

CId	Name	CType	CLevel
CT100	Spinning for beginners	Spinning	1
CT101	Fitdancing	Music	2
CT104	Advanced spinning	Spinning	4

Table 2: COURSE table

SSN	WeekDay	StartTime	Duration	CId	GymRoom
SMTPLA80N31B791Z	Monday	10:00	45	CT100	R1
SMTPLA80N31B791Z	Tuesday	11:00	45	CT100	R1
SMTPLA80N31B791Z	Tuesday	15:00	45	CT100	R2
KHNJHN81E30C455Y	Monday	10:00	30	CT101	R2
KHNJHN81E30C455Y	Monday	11:30	30	CT104	R2
KHNJHN81E30C455Y	Wednesday	9:00	60	CT104	R1

Table 3: SCHEDULE table

3 Exercises

Make sure to follow the preliminary steps: the database must be present and correctly populated, while the PHP file on which you work must be in the *htdocs* folder.

Create a web application in PHP that allows both inserting a new course and inserting a new schedule for a course already existing. The steps to develop the app are listed in the following.

Note: the PHP method `mysqli_connect()` requires a username and a password as arguments. For simplicity, for the purposes of this practice, you can use the default ones:

- **username:** 'root'
- **password:** "" (empty string)

3.1 Insertion of a new course

Create a form that requires all the necessary data to insert a new course in the database. The result page must evaluate the correct insertion of data from the user by verifying:

- if all fields have been filled;
- if the inserted course is not already present;
- if the data types are not coherent (for example an alphanumeric field has been inserted instead of a numeric one). **These checks must be done through appropriate functions.**

If the insertion ends correctly, a success message must be displayed, otherwise the error must be notified.

3.2 Addition of the CSS classes

To improve the user experience, the outcome of the course insertion must be properly styled. Use the CSS classes to create a green/red colored banner in the page returned by the server. In figures 1 and 2 you may see an example of application.



Figure 1: An example of correct insertion.



Figure 2: An example of failed insertion.

3.3 Insertion of a new schedule

Create a form that allows the insertion of a new schedule for one of the existing courses. The form must allow to choose, through two dropdown menus, the SSN of the trainer in charge of the lesson and the code of the course of which you are inserting the schedule. The menus must display the trainers and the courses already present in the database.

The result page must evaluate the correct insertion of data from the user by verifying:

- if all fields have been filled;
- if there are inconsistencies among the values provided as start time and end time (for example, start time as 18:30 and end time as 15:00¹);
- if the data types are not coherent (for example, the provided day is not one of the days of the week);
- if there are compatibility problems with the already present schedules. In particular, check if, in the provided day and time, the selected room is not busy and the selected trainer is not busy with another course.

These checks must be done through appropriate functions. If the insertion fails, the page must notify the error.

The image shows a web form titled "Inserimento nuova programmazione". It contains the following fields:

- Giorno: A text input field containing "Lunedì".
- Ora inizio: A text input field containing "18:00".
- Ora fine: A text input field containing "19:00".
- Sala: A text input field containing "3".
- Codice istruttore: A dropdown menu showing "MTTSRG41L23G273B".
- Codice corso: A dropdown menu showing "CT105".

Figure 3: An example of the required form for the insertion of a new schedule.

¹In PHP, dates and times can be checked (type checking) and compared (inconsistency checking) by using the function `strtotime($string)` that allows to convert a time provided as a string into a time format and so comparable. If the inserted string is NOT in a correct format, the function returns `FALSE`, otherwise the string is converted into time format.

4 Management of accented characters and encoding

The choice of the textual data encoding specifies in which format (that is with which and how many bytes) the characters are saved in the database. This choice is crucial to manage cases in which we have characters not present in the English alphabet, such as accents or other diacritics.

In this practice we will use the **utfmb4** encoding, that follows the 4-Byte UTF-8 Unicode Encoding standard. The file provided with the practice creates a database that uses this encoding:

```
creaDB.sql
...
CREATE DATABASE IF NOT EXISTS PALESTRA;
SET NAMES = 'utf8mb4';
...
```

At this point, to correctly query the database it necessary to specify, also in the PHP code, the encoding we want to use to communicate with the MySQL server. In the procedural version of APIs, the method **mysqli_set_charset()** is used. The method can be invoked:

```
process_request.php
...
mysqli_set_charset($conn, 'utf8mb4');
...
```

Finally, since both the database and the PHP script work with UTF-8 encoding, **it is suggested that also the HTML source is in the same format**. It may happen that if we statically define values that contain, for example, accented characters, then these are wrongly encoded. It is then suggested to use a modern text editor (such as Visual Studio Code, Atom, Sublime Text, etc.) in which it is possible to easily specify the desired encoding.

5 Solutions

5.1 Creation of the database

```
1  -- create an empty database. Name of the database:
2  SET storage_engine=InnoDB;
3  SET FOREIGN_KEY_CHECKS=1;
4  CREATE DATABASE IF NOT EXISTS palestra;
5  SET NAMES 'utf8mb4';
6
7  -- use gym
8  use gym;
9
10
11 -- drop tables if they already exist
12 DROP TABLE IF EXISTS SCHEDULE;
13 DROP TABLE IF EXISTS COURSES;
14 DROP TABLE IF EXISTS TRAINER;
15
16 -- create tables
17
18 CREATE TABLE TRAINER (
19     SSN CHAR(20) ,
20     Name CHAR(50) NOT NULL ,
21     Surname CHAR(50) NOT NULL ,
22     DateOfBirth DATE NOT NULL ,
23     Email CHAR(50) NOT NULL ,
24     PhoneNo CHAR(20) NULL ,
25     PRIMARY KEY (SSN)
26 );
27
28 CREATE TABLE COURSE (
29     CId CHAR(10) ,
30     Name CHAR(50) NOT NULL ,
31     Type CHAR(50) NOT NULL ,
32     CLevel SMALLINT NOT NULL,
33     PRIMARY KEY (CId),
34     CONSTRAINT chk_Level CHECK (CLevel>=1 and CLevel<=4)
35 );
36
37 CREATE TABLE SCHEDULE (
38     SSN CHAR(20) NOT NULL ,
39     DayOfWeek CHAR(15) NOT NULL ,
40     StartTime TIME NOT NULL ,
41     Duration SMALLINT NOT NULL ,
42     GymRoom CHAR(5) NOT NULL,
43     CId CHAR(10) NOT NULL,
44     PRIMARY KEY (SSN,DayOfWeek,StartTime),
45     FOREIGN KEY (SSN)
46     REFERENCES TRAINER(SSN)
47     ON DELETE CASCADE
48     ON UPDATE CASCADE,
49     FOREIGN KEY (CId)
50     REFERENCES COURSE(CId)
51     ON DELETE CASCADE
52     ON UPDATE CASCADE
53 );
```

5.2 Population of the database

```
1 SET storage_engine=InnoDB;
2 SET FOREIGN_KEY_CHECKS=1;
3 use gym;
4
5 -- Insert data
6 INSERT INTO TRAINER (SSN,Name,Surname,DateOfBirth,Email, PhoneNo)
7 VALUES ('SMTPLA80N31B791Z','Paul','Smith','1980-12-31','p.smith@email.it',NULL);
8 INSERT INTO TRAINER (SSN,Name,Surname,DateOfBirth,Email, PhoneNo)
9 VALUES ('KHNJHN81E30C455Y','John','Johnson','1981-05-30',
10         'j.johnson@email.it','+2300110303444');
11 INSERT INTO TRAINER (SSN,Name,Surname,DateOfBirth,Email, PhoneNo)
12 VALUES ('AAAGGG83E30C445A','Peter','Johnson','1981-05-30',
13         'p.johnson@email.it','+2300110303444');
14 INSERT INTO COURSE (CId,Name,CType,CLevel)
15 VALUES ('CT100','Spinning for beginners','Spinning ',1);
16 INSERT INTO COURSE (CId,Name,CType,CLevel)
17 VALUES ('CT101','Fitdancing','Music',2);
18 INSERT INTO COURSE (CId,Name,CType,CLevel)
19 VALUES ('CT104','Advanced spinning','Spinning',4);
20 INSERT INTO SCHEDULE (SSN,DayOfWeek,StartTime,Duration,CId,GymRoom)
21 VALUES ('SMTPLA80N31B791Z','Monday','10:00',45,'CT100','R1');
22 INSERT INTO SCHEDULE (SSN,DayOfWeek,StartTime,Duration,CId,GymRoom)
23 VALUES ('SMTPLA80N31B791Z','Tuesday','11:00',45,'CT100','R1');
24 INSERT INTO SCHEDULE (SSN,DayOfWeek,StartTime,Duration,CId,GymRoom)
25 VALUES ('SMTPLA80N31B791Z','Tuesday','15:00',45,'CT100','R2');
26 INSERT INTO SCHEDULE (SSN,DayOfWeek,StartTime,Duration,CId,GymRoom)
27 VALUES ('KHNJHN81E30C455Y','Monday','10:00',30,'CT101','R2');
28 INSERT INTO SCHEDULE (SSN,DayOfWeek,StartTime,Duration,CId,GymRoom)
29 VALUES ('KHNJHN81E30C455Y','Monday','11:30',30,'CT104','R2');
30 INSERT INTO SCHEDULE (SSN,DayOfWeek,StartTime,Duration,CId,GymRoom)
31 VALUES ('KHNJHN81E30C455Y','Wednesday','9:00',60,'CT104','R1');
```

5.3 Insertion of a new course

1. Front-end

```
1 <html>
2 <head>
3 <title>Scheduling</title>
4 </head>
5
6 <body>
7 <h3>New course insertion</h3>
8 <form method="get" action="insertcourse.php">
9
10 <p>Data of new course to insert<br>
11
12 <table>
13 <tr>
14 <td> Code: </td>
15 <td> <input type="text" size="10" maxlength="10" name="cid"> </td>
16 </tr>
17 <tr>
18 <td> Name: </td>
19 <td> <input type="text" size="50" maxlength="50" name="name"> </td>
```

```

20 </tr>
21 <tr>
22 <td> Type: </td>
23 <td> <input type="text" size="50" maxlength="50" name="type"> </td>
24 </tr>
25 <tr>
26 <td> Level: </td>
27 <td> <input type="text" size="10" maxlength="10" name="clevel"> </td>
28 </tr>
29 </table>
30
31 <br>
32 <input type="submit" value="Insert">
33
34 </form>
35 </body>
36 </html>

```

2. Back-end

```

1 <html>
2 <head>
3 <title>Course insertion</title>
4 </head>
5
6 <body>
7 <?php
8
9 /* READING AND CHECKING OF PARAMETERS */
10
11 if( !isset($_REQUEST["cid"]) or
12 !isset($_REQUEST["name"]) or
13 !isset($_REQUEST["type"]) or
14 !isset($_REQUEST["clevel"])){
15     echo "<div class = 'w3-red w3-text-white'>
16         <h2>Insertion error!</h2>
17         <p>Error: insert all required data</p>
18         </div>";
19     exit;
20 }
21
22 $cid = $_REQUEST["cid"];
23 $name = $_REQUEST["name"];
24 $type = $_REQUEST["type"];
25 $clevel = $_REQUEST["clevel"];
26
27 if ($cid=="")
28     echo "<div class = 'w3-red w3-text-white'>
29         <h2>Insertion error!</h2>
30         <p>Error: Course code is missing</p>
31         </div>";
32
33 if ($name=="")
34     echo "<div class = 'w3-red w3-text-white'>
35         <h2>Insertion error!</h2>
36         <p>Error: Course name is missing</p>
37         </div>";
38

```



```

39 if ($type=="")
40     echo "<div class = 'w3-red w3-text-white'>
41         <h2>Insertion error!</h2>
42         <p>Error: Course type is missing</p>
43         </div>";
44
45 if ($clevel=="")
46     echo "<div class = 'w3-red w3-text-white'>
47         <h2>Insertion error!</h2>
48         <p>Error: Course level is missing</p>
49         </div>";
50
51
52 if ($cid=="" || $name=="" || $type=="" || $clevel=="")
53     die();
54
55 if (!is_numeric($clevel))
56 {
57     echo "<div class = 'w3-red w3-text-white'>
58         <h2>Insertion error!</h2>
59         <p>Error: Level must be an integer
60         from 1 to 4</p>
61         </div>";
62     exit;
63 }
64
65 if ($clevel<1 || $clevel>4)
66 {
67     echo "<div class = 'w3-red w3-text-white'>
68         <h2>Insertion error!</h2>
69         <p>Error: Level must be an integer
70         from 1 to 4</p>
71         </div>";
72     exit;
73 }
74
75
76 /* CONNECTION TO DB */
77
78 $con = mysqli_connect('localhost','root','','gym');
79
80 if (mysqli_connect_errno())
81 {
82     echo "Failed to connect to MySQL: " . mysqli_connect_error();
83 }
84
85 mysqli_set_charset($con, 'utf8mb4');
86 /* INSERTION EXECUTION */
87
88 if(mysqli_query($con,"INSERT INTO COURSE(CId,Name,CType,CLevel)
89 VALUES('$cid', '$name', '$type', '$clevel');"))
90 {
91     echo "<div class = 'w3-green w3-text-white'>
92         <h2>Insertion successful!</h2>
93         <p>The course $cid has been inserted in the database.</p>
94         </div>";
95 }
96 else

```

```

97 {
98     echo "<div class = 'w3-red w3-text-white'>
99         <h2>Insertion error!</h2>
100         <p>Error: It was not possible to insert data because an error has occurred: </p>
101         </div>";
102     echo mysqli_error($con);
103     exit;
104 }
105
106 mysqli_close($con);
107 ?>
108
109 </br>
110 <form method="get" action="form1.php">
111     <input type="submit" value="Perform another insertion">
112 </form>
113
114 </body>
115 </html>

```

5.4 Schedule insertion

1. Front-end

```

1 <html>
2 <head>
3 <title>Scheduling</title>
4 </head>
5
6 <body>
7 <h3> New schedule insertion </h3>
8 <form method="get" action="insertSchedule.php">
9
10 Scheduling of the new weekly lesson<br>
11
12 <table>
13     <tr>
14         <td> Trainer: </td>
15         <td> <select name="ssn">
16             <?php
17                 /* CONNECTION TO DB */
18                 $con = mysqli_connect('localhost','root','','gym');
19
20                 if (mysqli_connect_errno())
21                 {
22                     echo "Failed to connect to MySQL: " . mysqli_connect_error();
23                 }
24
25                 mysqli_set_charset($con, 'utf8mb4');
26
27                 /* QUERY EXECUTION */
28                 $sql = "SELECT SSN, Surname, Name
29                     FROM TRAINER
30                     ORDER BY Surname, Name";
31
32                 $result = mysqli_query($con,$sql);
33

```

```

34     if( !$result )
35         die('Query error: ' . mysqli_error($con));
36
37
38     /* Loading of results in the dropdown menu */
39
40     if( mysqli_num_rows($result) > 0 ){
41
42         while ($row = mysqli_fetch_row($result)) {
43             echo "<option value=$row[0]>$row[1] $row[2] ($row[0])</option>";
44         }
45
46     }
47
48     ?>
49     </select>
50 </td>
51 </tr>
52
53 <tr>
54     <td> Day of week: </td>
55     <td> <input type="text" size="10" maxlength="10" name="dayofweek"> </td>
56 </tr>
57 <tr>
58     <td> Start time: </td>
59     <td> <input type="text" size="10" maxlength="10" name="starttime"> </td>
60 </tr>
61 <tr>
62     <td> Duration: </td>
63     <td> <input type="text" size="10" maxlength="10" name="duration"> </td>
64 </tr>
65 <tr>
66     <td> Course: </td>
67     <td>
68         <select name="cid">
69 <?php
70
71     /* CONNECTION TO DB */
72
73     $con = mysqli_connect('localhost','root','','gym');
74
75     if (mysqli_connect_errno())
76     {
77         echo "Failed to connect to MySQL: " . mysqli_connect_error();
78     }
79
80     /* QUERY EXECUTION */
81     $sql = "SELECT CId, Name
82     FROM COURSE
83     ORDER BY Name";
84
85     $result = mysqli_query($con,$sql);
86
87     if( !$result )
88         die('Query error: ' . mysqli_error($con));
89
90
91     /* Loading of results in the dropdown menu */

```

```

92
93     if( mysqli_num_rows($result) > 0 ){
94
95         while ($row = mysqli_fetch_row($result)) {
96             echo "<option value=$row[0]>$row[1] ($row[0])</option>";
97         }
98
99     }
100
101     ?>
102     </select>
103     </td>
104 </tr>
105
106 <tr>
107     <td> Gym room: </td>
108     <td> <input type="text" size="2" maxlength="2" name="gymroom"> </td>
109 </tr>
110
111 </table>
112
113 <p> <input type="submit" value="Insert">
114 </form>
115 </body>
116 </html>

```

2. Back-end

```

1 <html>
2 <head>
3 <title>Scheduling</title>
4 <link rel="stylesheet" href="https://www.w3schools.com/w3css/4/w3.css">
5 </head>
6
7 <body>
8
9
10
11 <?php
12
13 /* READING AND CHECKING PARAMETERS */
14
15 if( !isset($_REQUEST["ssn"]) or
16     !isset($_REQUEST["dayofweek"]) or
17     !isset($_REQUEST["starttime"]) or
18     !isset($_REQUEST["duration"]) or
19     !isset($_REQUEST["cid"]) or
20     !isset($_REQUEST["gymroom"])) {
21     echo "<div class = 'w3-red w3-text-white">
22         <h2>Insertion error!</h2>
23         <p>Error: insert all required data</p>
24     </div>";
25     exit;
26 }
27
28 $ssn = $_REQUEST["ssn"];
29 $dayofweek = $_REQUEST["dayofweek"];
30 if($dayofweek!="Monday" and $dayofweek!="Tuesday" and $dayofweek!="Wednesday" and

```

```

    $dayofweek!="Thursday" and $dayofweek!="Friday")
31 {
32     echo "<div class = 'w3-red w3-text-white'>
33         <h2>Insertion error!</h2>
34         <p>Error: The specified day of week is not valid</p>
35     </div>";
36     exit;
37 }
38
39 $starttime = $_REQUEST["starttime"];
40 $duration = $_REQUEST["duration"];
41
42 if ($duration>60)
43 {
44     echo "<div class = 'w3-red w3-text-white'>
45         <h2>Insertion error!</h2>
46         <p>Error: Lessons cannot last more than 60 minutes</p>
47     </div>";
48     exit;
49 }
50
51 $cid = $_REQUEST["cid"];
52
53 $gymroom = $_REQUEST["gymroom"];
54
55
56 /* CONNECTION TO DB */
57
58 $con = mysqli_connect('localhost','root','','gym');
59
60 if (mysqli_connect_errno())
61 {
62     echo "Failed to connect to MySQL: " . mysqli_connect_error();
63 }
64
65 mysqli_set_charset($con, 'utf8mb4');
66
67 /* EXECUTE QUERY TO CHECK THE CONDITIONS TO BE VERIFIED AND THEN INSERTION OF THE
68     LESSON.
69     These belong to a single transaction. */
70 // I set autocommit to FALSE and then start the transaction
71 mysqli_query($con,"SET autocommit=0;");
72 mysqli_query($con,"START TRANSACTION;");
73
74 /* QUERY EXECUTION */
75 $sql = "SELECT count(*)
76 FROM SCHEDULE
77 where CId='$cid' and DayOfWeek='$dayofweek' and StartTime='$starttime'";
78
79 $result = mysqli_query($con,$sql);
80
81 if( !$result )
82     die('Query error: ' . mysqli_error($con));
83
84 // Check on the number of lessons of the course in the provided day of week at same hour
85 $row = mysqli_fetch_row($result);
86 if ($row[0]!=0) {

```

```

87     echo "<div class = 'w3-red w3-text-white'>
88         <h2>Insertion error!</h2>
89         <p>It is not allowed to insert two lessons for the same course in
90             the same day of week and at same time</p>
91         </div>";
92     mysqli_query($con,"ROLLBACK;");
93 }
94 else
95 {
96     // Check gym room availability
97     $sql = "SELECT count(*)
98     FROM SCHEDULE
99     where GymRoom='$gymroom' and DayOfWeek='$dayofweek' and StartTime='$starttime'";
100
101     $result = mysqli_query($con,$sql);
102
103     if( !$result )
104         die('Query error: ' . mysqli_error($con));
105
106     $row = mysqli_fetch_row($result);
107     if ($row[0]!=0) {
108         echo "<div class = 'w3-red w3-text-white'>
109             <h2>Insertion error!</h2>
110             <p>It is not allowed to insert two lessons in the same gym room in
111                 the same day of week and same hour</p>
112             </div>";
113         mysqli_query($con,"ROLLBACK;");
114     }
115
116     else{
117         // Check trainer availability
118         $sql = "SELECT count(*)
119         FROM SCHEDULE
120         where SSN='$ssn' and DayOfWeek='$dayofweek' and StartTime='$starttime'";
121
122         $result = mysqli_query($con,$sql);
123
124         if( !$result )
125             die('Query error: ' . mysqli_error($con));
126
127
128         $row = mysqli_fetch_row($result);
129         if ($row[0]!=0) {
130             echo "<div class = 'w3-red w3-text-white'>
131                 <h2>Insertion error!</h2>
132                 <p>It is not allowed to insert two lessons for the same trainer
133                     in the same day of week and at same hour</p>
134                 </div>";
135             mysqli_query($con,"ROLLBACK;");
136         }
137         else{
138             // New lesson insertion
139             if(mysqli_query($con,"INSERT INTO SCHEDULE
140                 (SSN,DayOfWeek,StartTime,Duration,CId,GymRoom)
141                 VALUES ('$ssn','$dayofweek','$starttime','$duration','$cid','$gymroom');"))
142                 {

```

```

141     mysqli_query($con,"COMMIT;");
142     echo "<div class = 'w3-green w3-text-white'>
143         <h2>Insertion successful!</h2>
144         <p>The lesson has been inserted in the course schedule.</p>
145     </div>";
146 }
147 else
148 {
149     echo "<div class = 'w3-red w3-text-white'>
150         <h2>Insertion error!</h2>
151         <p>It was not possible to insert the data because an error has
152             occurred: </p>
153         </div>";
154     echo mysqli_error($con);
155     mysqli_query($con,"ROLLBACK;");
156 }
157 }
158 }
159
160 mysqli_close($con);
161
162 ?>
163
164 </br>
165 <form method="get" action="form2.php">
166     <input type="submit" value="Perform another insertion">
167 </form>
168
169
170 </body>
171 </html>

```