Pritam Chakraborty | 419238

FINAL PROJECT

1) Table Creation and data input:

a) **Lecturers**:

ID_Lecturers	Title	Family_Nam	Initial_Name	ID_Institutions
1	Dr.	Kolarski	Jacek	1
2	Prof.	Zarzeczny	Jan	2

b) **Courses**:

ID_Courses	Course_Code	Course_Name	Place	Date	ID_Lecturers
1	2018_01	Psychology for Teachers	Krakow, Mickiewicz Av. 30, B-4, classroom 5	2/17/2018	1
2	2018_02	Handling of Computer Games	Krakow, Reymonta St. 11, room 10	3/27/2018	2

c) **Institutions**:

ID_Institutions	Name	Address1	Address2
1	AGH Krakow	Adama Mickiewicza 30	30-059 Kraków
2	Nano Ltd.	Mazowiecka St. 6	30-036 Kraków

d) **Participants**:

ID_Participants	Last_name	First_name	ID_Positions
1	Sowa	Andrzej	1
2	Wrobel	Andrzej	1
3	kepa	Andrzej	2
4	Wojcicki	Janusz	1
5	Niecko	Anna	3

e) **Course Grading:**

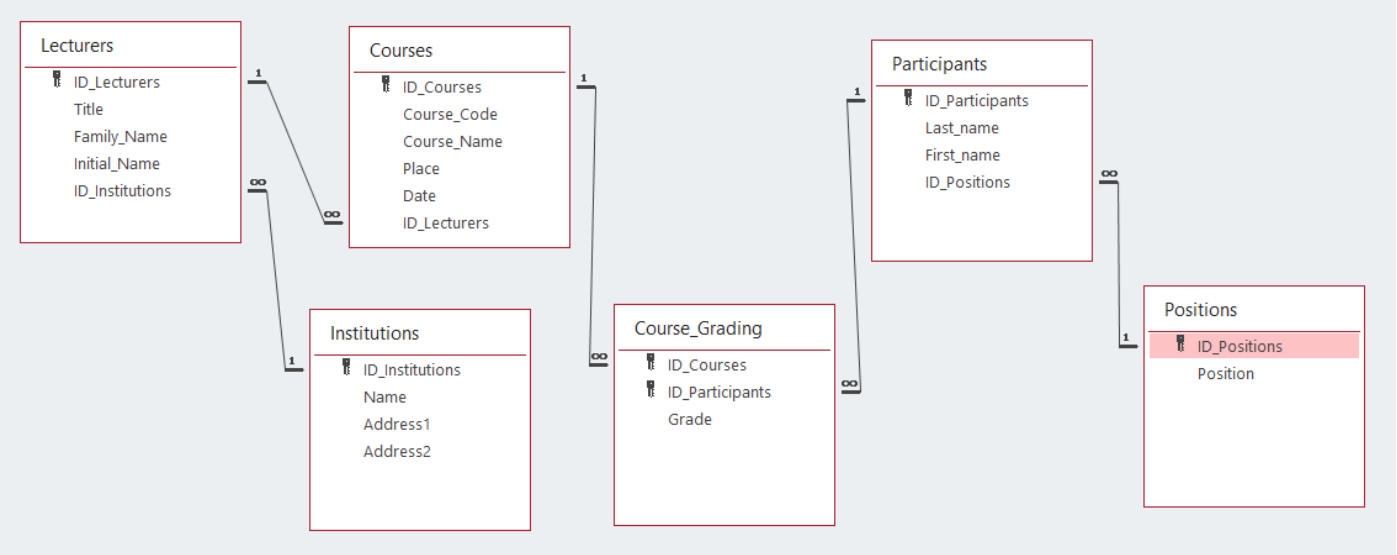
ID_Courses	ID_Participa	Grade
1	1	3.0
1	2	5.0
1	3	4.5
2	2	Passed
2	4	Passed
2	5	Passed

f) **Positions:**

ID_Positions	Position
1	Adjunct
2	Assistant
3	Specialist

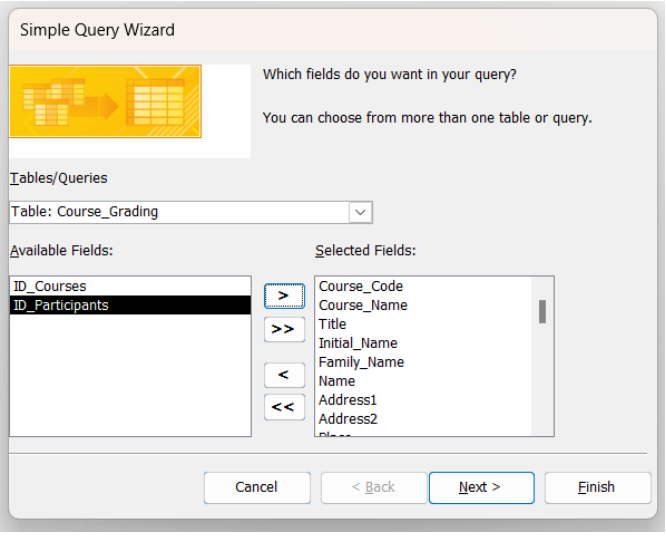
Pritam Chakraborty | 419238

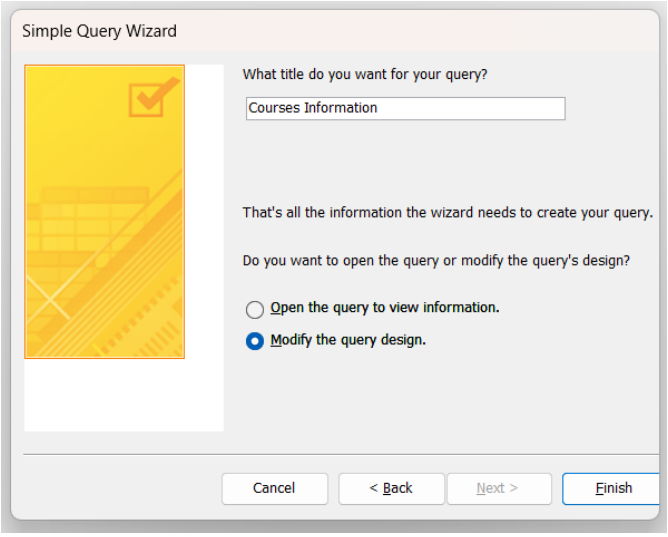
2) Relationship between tables:



3) Displaying the information:

First we create a query using query design wizard and then modify the information in Query Design View.





The Query Design View:

Field:	Course_Number: Co	Course_Name: Course_Name	Lecturer: [Lecturers].[Title] &	Place_and_date: Courses.Pl	Participant: Participants.Firs	Participant_Position: Positi	Grade: Grade
Table:	Courses	Courses				Positions	Course_Grading
Sort:							
Show:	☑	☑	☑	☑	☑	☑	☑
Criteria:							
or:							

Pritam Chakraborty | 419238

SQL View:

```
SELECT Courses.Course_Code AS Course_Number,
   Courses.Course_Name AS Course_Name,
   [Lecturers].[Title] & ' ' & [Lecturers].[Initial_Name] & ' ' & [Lecturers].[Family_Name] & Chr(13) & Chr(10) &
   [Institutions].[Name] & Chr(13) & Chr(10) & [Institutions].[Address1] & ', ' & [Institutions].[Address2] AS Lecturer,
   Courses.Place & ', ' & Courses.Date AS Place_and_date,
   Participants.First_name & ' ' & Participants.Last_name AS Participant,
   Positions.Position AS Participant_Position,
   Course_Grading.Grade AS Grade
FROM (Positions
   INNER JOIN Participants ON Positions.[ID_Positions] = Participants.[ID_Positions])
   INNER JOIN ( (Institutions
      INNER JOIN Lecturers ON Institutions.[ID_Institutions] = Lecturers.[ID_Institutions])
      INNER JOIN
      ( Courses
         INNER JOIN Course_Grading ON Courses.[ID_Courses] = Course_Grading.[ID_Courses]
      ) ON Lecturers.[ID_Lecturers] = Courses.[ID_Lecturers]
   ) ON Participants.[ID_Participants] = Course_Grading.[ID_Participants];
```

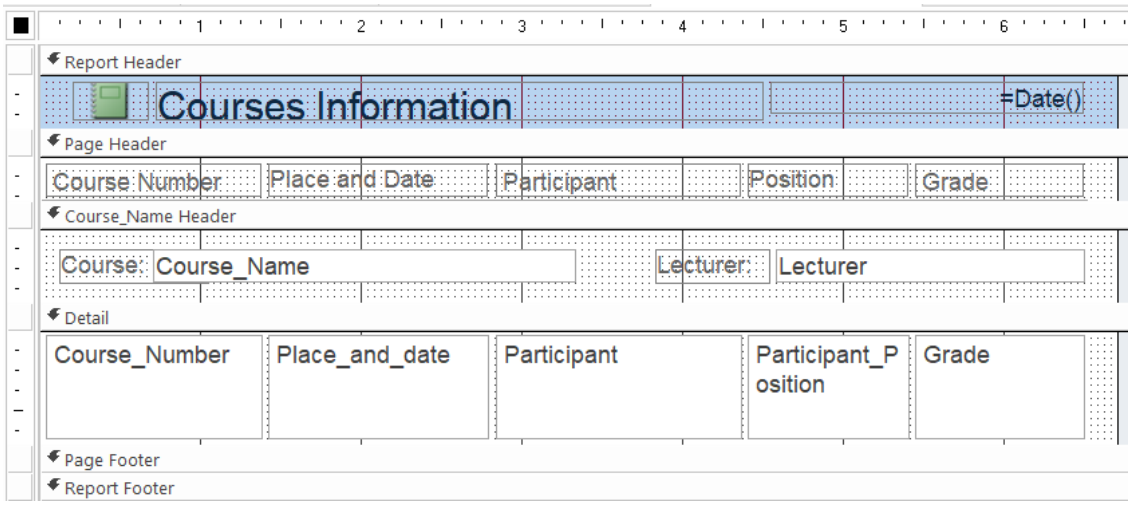
Query Final Output:

Course_Numbe	Course_Name	Lecturer	Place_and_date	Participant	Participant_P	Grade
2018_01	Psychology for Teachers	Dr. Jacek Kolarski AGH Krakow Adama Mickiewicza 30, 30-059 Kraków	Krakow, Mickiewicz Av. 30, B-4, classroom 5, 2/17/2018	Andrzej Sowa	Adjunct	3.0
2018_01	Psychology for Teachers	Dr. Jacek Kolarski AGH Krakow Adama Mickiewicza 30, 30-059 Kraków	Krakow, Mickiewicz Av. 30, B-4, classroom 5, 2/17/2018	Andrzej Wrobel	Adjunct	5.0
2018_01	Psychology for Teachers	Dr. Jacek Kolarski AGH Krakow Adama Mickiewicza 30, 30-059 Kraków	Krakow, Mickiewicz Av. 30, B-4, classroom 5, 2/17/2018	Andrzej kepa	Assistant	4.5
2018_02	Handling of Computer Games	Prof. Jan Zarzeczny Nano Ltd. Mazowiecka St. 6, 30-036 Kraków	Krakow, Reymonta St. 11, room 10, 3/27/2018	Andrzej Wrobel	Adjunct	Passed
2018_02	Handling of Computer Games	Prof. Jan Zarzeczny Nano Ltd. Mazowiecka St. 6, 30-036 Kraków	Krakow, Reymonta St. 11, room 10, 3/27/2018	Janusz Wojcicki	Adjunct	Passed
2018_02	Handling of Computer Games	Prof. Jan Zarzeczny Nano Ltd. Mazowiecka St. 6, 30-036 Kraków	Krakow, Reymonta St. 11, room 10, 3/27/2018	Anna Niecko	Specialist	Passed

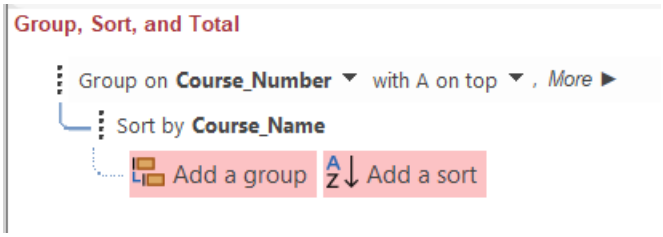
4) Creating Report with Grouped Data:

To create a report we select the query and click on 'Report' option under Create menu.

We then switch to design view to do further modifications to the report such as grouping.



Grouping of Data:



Final Report:

Courses Information Friday, January 19, 2024

Course Number	Place and Date	Participant	Position	Grade
Course: Handling of Computer Games		Lecturer: Prof. Jan Zarzeczny		
2018_02	Krakow, Reymonta St. 11, room 10, 3/27/2018	Anna Niecko	Specialist	Passed
2018_02	Krakow, Reymonta St. 11, room 10, 3/27/2018	Janusz Wojcicki	Adjunct	Passed
2018_02	Krakow, Reymonta St. 11, room 10, 3/27/2018	Andrzej Wrobel	Adjunct	Passed
Course: Psychology for Teachers		Lecturer: Dr. Jacek Kolarski		
2018_01	Krakow, Mickiewicz Av. 30, B-4, classroom 5, 2/17/2018	Andrzej kepa	Assistant	4.5
2018_01	Krakow, Mickiewicz Av. 30, B-4, classroom 5, 2/17/2018	Andrzej Wrobel	Adjunct	5.0
2018_01	Krakow, Mickiewicz Av. 30, B-4, classroom 5, 2/17/2018	Andrzej Sowa	Adjunct	3.0

Optional Tasks

1) Creating Similar database using MySQL

```
CREATE TABLE Lecturers (
    ID_Lecturers INT PRIMARY KEY,
    Title VARCHAR(10),
    Initial_Name VARCHAR(10),
    Family_Name VARCHAR(50),
    ID_Institutions INT,
    FOREIGN KEY (ID_Institutions) REFERENCES Institutions(ID_Institutions));

CREATE TABLE Courses (
    ID_Courses INT PRIMARY KEY,
    Course_Code VARCHAR(10),
    Course_Name VARCHAR(100),
    ID_Lecturers INT,
    Date DATE,
    Place VARCHAR(100),
    FOREIGN KEY (ID_Lecturers) REFERENCES Lecturers(ID_Lecturers));
```

THE FULL .SQL FILE FOR CREATING TABLES CAN BE FOUND HERE: Table Creation.sql

Adding Data to the Tables:

```
INSERT INTO Institutions
VALUES
(1, 'AGH Krakow', 'Adama Mickiewicza 30', '30-059 Kraków'),
(2, 'Nano Ltd.', 'Mazowiecka St. 6', '30-065 Krakow');

INSERT INTO Lecturers
VALUES
(1, 'Dr.', 'Jacek', 'Kolarski', 1),
(2, 'Prof.', 'Jan', 'Zarzeczny', 2);
```

THE FULL .SQL FILE FOR ADDING DATA CAN BE FOUND HERE: Add Data.sql

```
mysql> source createtables.sql
```

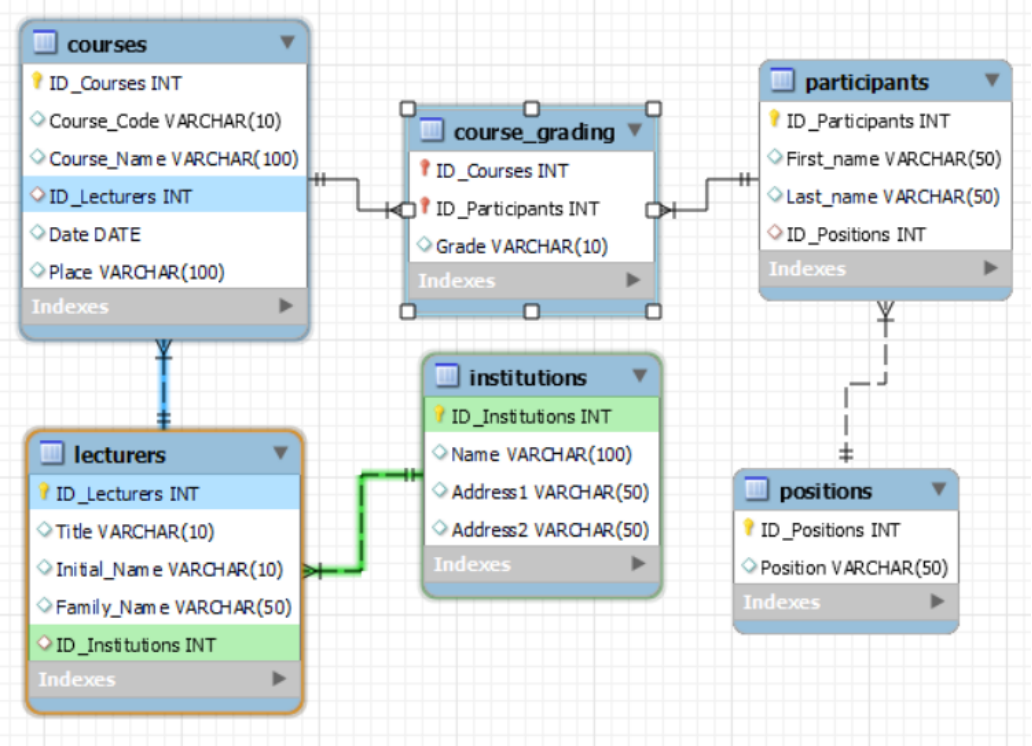
```
mysql> source insertdata.sql
```

```
mysql> SELECT * FROM Institutions;
+----------------+-----------+--------------------+--------------+
| ID_Institutions | Name      | Address1           | Address2     |
+----------------+-----------+--------------------+--------------+
|              1 | AGH Krakow | Adama Mickiewicza 30 | 30-059 Kraków |
|              2 | Nano Ltd.  | Mazowiecka St. 6     | 30-065 Kraków |
+----------------+-----------+--------------------+--------------+
```

```
mysql> show tables;
+-------------------------+
| Tables_in_final_project |
+-------------------------+
| course_grading          |
| courses                 |
| institutions            |
| lecturers               |
| participants            |
| positions               |
+-------------------------+
```

Pritam Chakraborty | 419238

Workbench Tables Diagram: **Reverse Engineer**



2) Using **PHP** and **HTML** to interact with data on webpages:

db_connection.php

```php
<?php
$servername = "localhost";
$username = "root";
$password = "######";
$dbname = "final_project";

// Create connection
$conn = new mysqli($servername, $username, $password, $dbname);

// Check connection
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}
```

Connecting to the local SQL server and database using PHP

I created a query to display Corse information grouped by Lecturer, displaying course name and participants:

db_operations.php

```php
<?php
1 reference
function fetchCourseData() {
    global $conn;
    $sql = "SELECT
    concat(Lecturers.Title, ' ',Lecturers.Initial_Name,' ',
    Lecturers.Family_Name) AS Lecturer,
    Courses.Course_Name AS Course,
    CONCAT(Courses.Date) AS Date,
    GROUP_CONCAT(CONCAT(Participants.First_name, ' ',
    Participants.Last_name) SEPARATOR ', ') AS Participants
FROM
    ((Courses
    INNER JOIN Lecturers ON Courses.ID_Lecturers = Lecturers.ID_Lecturers)
    INNER JOIN Institutions ON Lecturers.ID_Institutions = Institutions.ID_Institutions)
    INNER JOIN Course_Grading ON Courses.ID_Courses = Course_Grading.ID_Courses
    INNER JOIN Participants ON Course_Grading.ID_Participants = Participants.ID_Participants
GROUP BY
    Lecturers.Title, Lecturers.Initial_Name, Lecturers.Family_Name,
    Courses.Course_Name, Institutions.Name, Courses.Place, Courses.Date";

    $result = $conn->query($sql);

    $data = array();
    if ($result->num_rows > 0) {
        while ($row = $result->fetch_assoc()) {
            $data[] = $row;
        }
    }
    return $data;
}
```

Using HTML to display Data on Webpage:

pritam.php

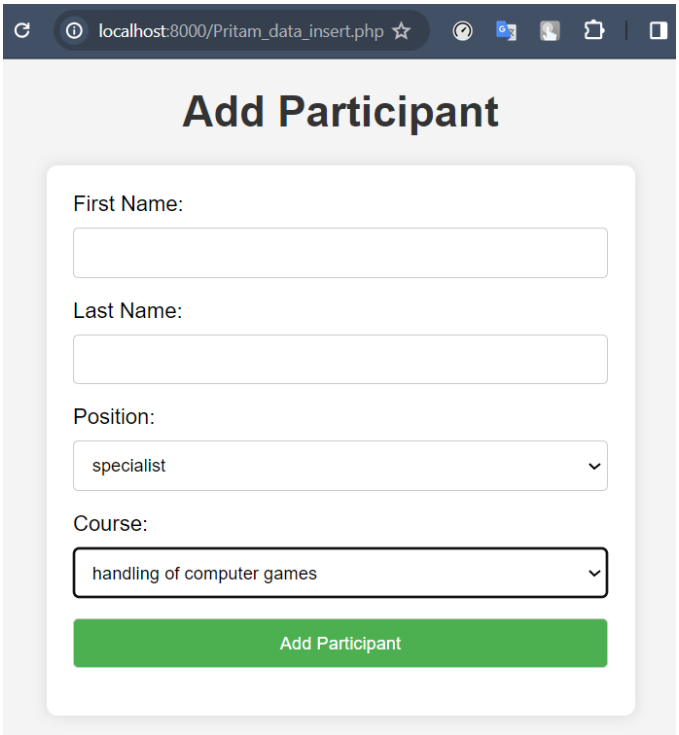
```php
<?php
//database connection file and the function
include('db_connection.php');
include('db_operations.php');
//Fetching course data
$courseData = fetchCourseData();?>
<!DOCTYPE html><html lang="en">
<head><meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Course Data</title><style>
        table {width: 100%;border-collapse: collapse;margin-top: 20px; }
        th, td {border: 2px solid #85C1E9; text-align: left;padding: 8px;
            white-space: nowrap;}
        th {background-color: #3498DB;}
    </style></head><body><h1>Course Data</h1>
<table><tr><th>Lecturer</th> <th>Course</th><th>Date</th>
<th>Participants</th></tr>
```

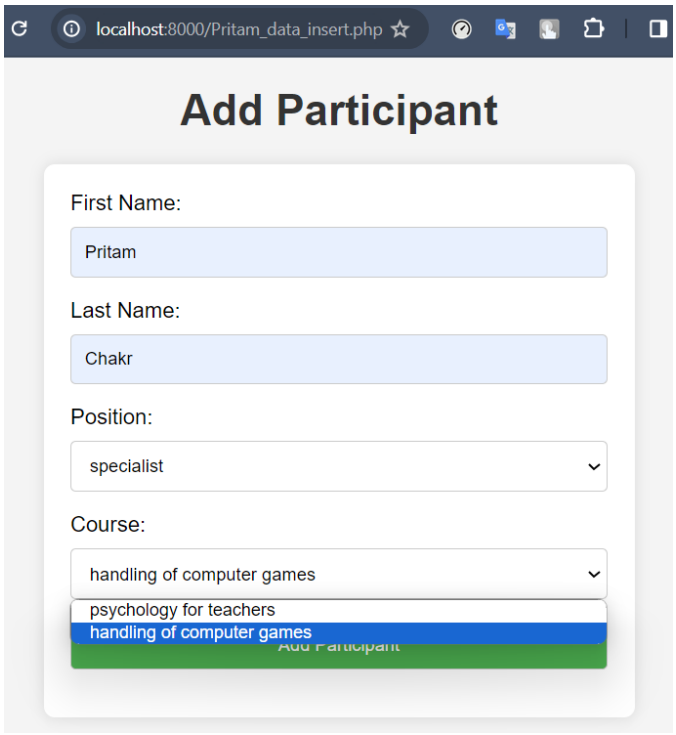
Information Display:

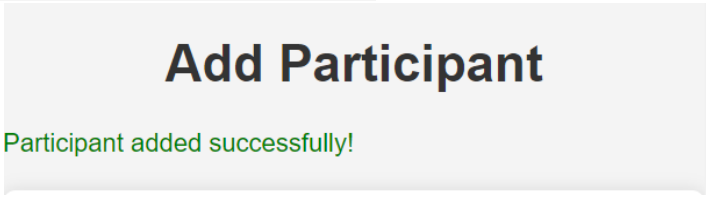
Course Data

Lecturer	Course	Date	Participants
Dr. Jacek Kolarski	psychology for teachers	2018-02-17	Andrzej Sowa, Andrzej Wrobel, Andrzej Kepa
Prof. Jan Zarzeczny	handling of computer games	2018-03-27	Andrzej Wrobel, Janusz Wojcicki, Anna Niecko

Adding Participant from Web: (Insertion of Data)







Course Data

Lecturer	Course	Date	Participants
Dr. Jacek Kolarski	psychology for teachers	2018-02-17	Andrzej Sowa, Andrzej Wrobel, Andrzej Kepa
Prof. Jan Zarzeczny	handling of computer games	2018-03-27	Andrzej Wrobel, Janusz Wojcicki, Anna Niecko, Pritam Chakr

Full Source Code for Data Addition: Pritam_Data_Insert.php

Review in mySQL if new Participant was added correctly:

```
mysql> SELECT
    ->  CONCAT(Participants.First_name, ' ', Participants.Last_name) AS "Participant Name",
    ->  GROUP_CONCAT(DISTINCT Courses.Course_Name ORDER BY Courses.Course_Name ASC) AS "Course Names",
    ->  GROUP_CONCAT(DISTINCT Positions.Position ORDER BY Courses.Course_Name ASC) AS "Participant Positions"
    -> FROM Participants
    -> INNER JOIN Course_Grading
    ->  ON Participants.ID_Participants = Course_Grading.ID_Participants
    -> INNER JOIN Courses
    ->  ON Course_Grading.ID_Courses = Courses.ID_Courses
    -> INNER JOIN Positions
    ->  ON Participants.ID_Positions = Positions.ID_Positions
    -> GROUP BY
    ->     Participants.ID_Participants, Participants.Last_name;
+-----------------+-----------------------------------------------------+----------------------+
| Participant Name | Course Names                                        | Participant Positions |
+-----------------+-----------------------------------------------------+----------------------+
| Andrzej Sowa     | psychology for teachers                             | adjunct              |
| Andrzej Wrobel   | handling of computer games,psychology for teachers | adjunct              |
| Andrzej Kepa     | psychology for teachers                             | assistant            |
| Janusz Wojcicki  | handling of computer games                          | adjunct              |
| Anna Niecko      | handling of computer games                          | specialist           |
| Pritam Chakr     | handling of computer games                          | specialist           |
+-----------------+-----------------------------------------------------+----------------------+
```

As we can see, new Participant was added to the main database.

---Updates--- 24/01/2024

- I have added buttons to display table information for every table in the Database:
- Remove participant Function.
- Custom Query directly from the web.

Course Data

Lecturer	Course	Date	Participants Add Participant
Dr. Jacek Kolarski	psychology for teachers	2018-02-17	Andrzej Sowa, Andrzej Wrobel, Andrzej Kepa
Prof. Jan Zarzeczny	handling of computer games	2018-03-27	Andrzej Wrobel, Janusz Wojcicki, Anna Niecko, Pritam Chakr

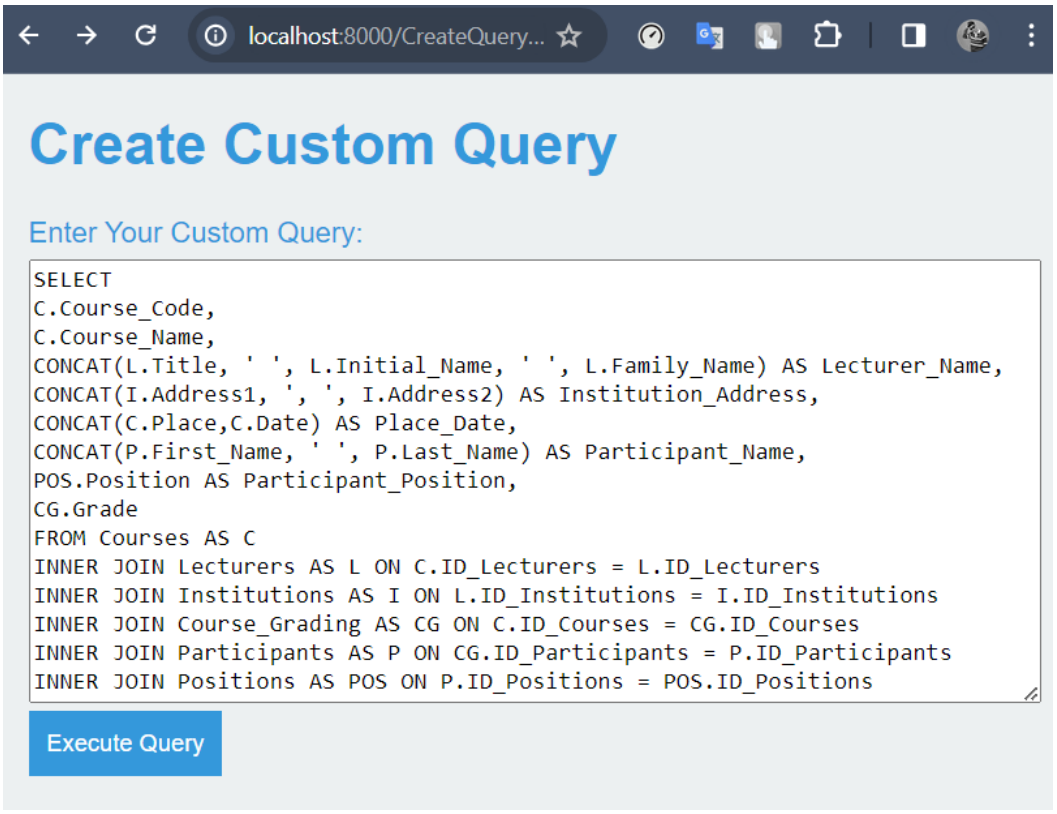
View Participants | View Positions | View Lecturers | View Institutions | View Courses | View Course Grading | Custom Query

Participants Data

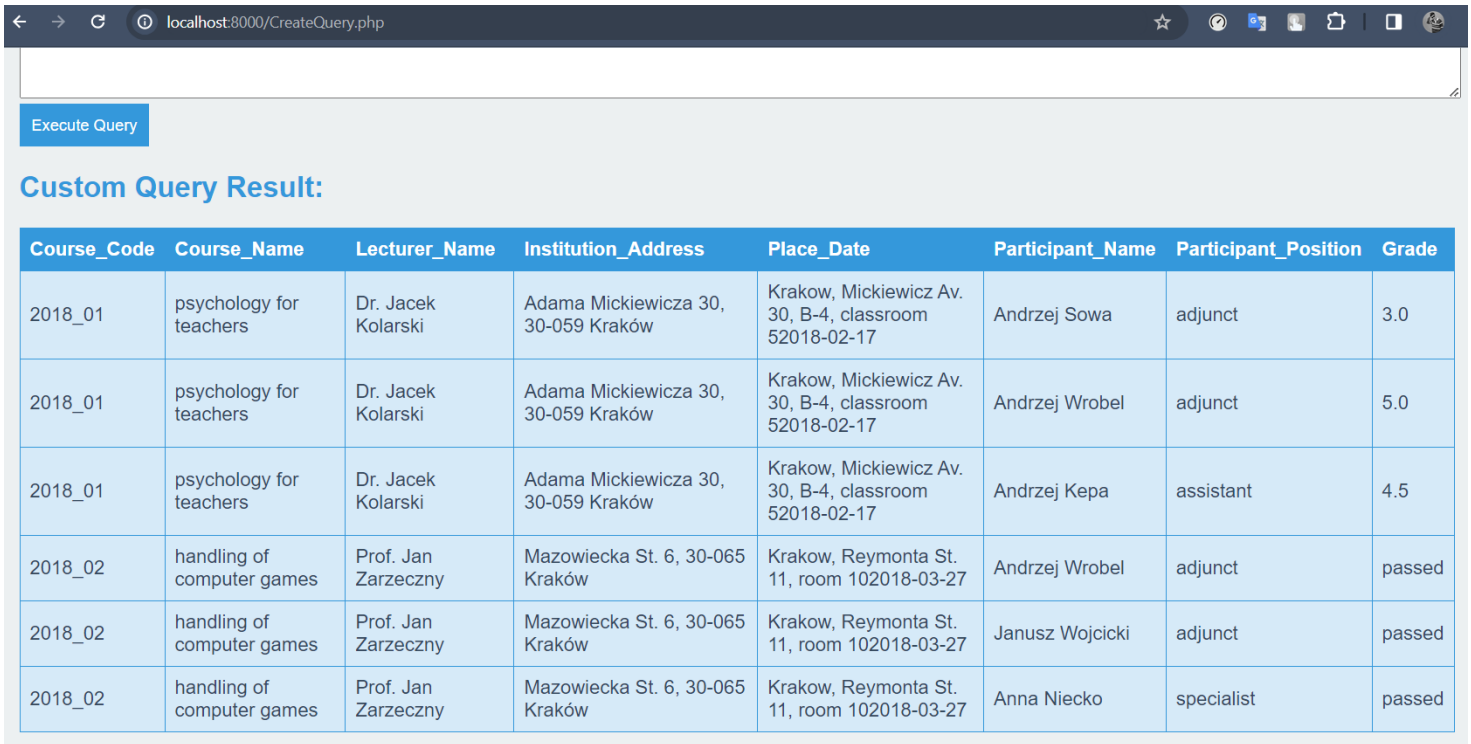
ID	First Name	Last Name	Position ID	Action
1	Andrzej	Sowa	1	Remove
2	Andrzej	Wrobel	1	Remove
3	Andrzej	Kepa	2	Remove
4	Janusz	Wojcicki	1	Remove
5	Anna	Niecko	3	Remove
6	Pritam	Chakr	3	Remove

Pritam Chakraborty | 419238

Custom Query from web:



Query Output:



Course_Code	Course_Name	Lecturer_Name	Institution_Address	Place_Date	Participant_Name	Participant_Position	Grade
2018_01	psychology for teachers	Dr. Jacek Kolarski	Adama Mickiewicza 30, 30-059 Kraków	Krakow, Mickiewicz Av. 30, B-4, classroom 52018-02-17	Andrzej Sowa	adjunct	3.0
2018_01	psychology for teachers	Dr. Jacek Kolarski	Adama Mickiewicza 30, 30-059 Kraków	Krakow, Mickiewicz Av. 30, B-4, classroom 52018-02-17	Andrzej Wrobel	adjunct	5.0
2018_01	psychology for teachers	Dr. Jacek Kolarski	Adama Mickiewicza 30, 30-059 Kraków	Krakow, Mickiewicz Av. 30, B-4, classroom 52018-02-17	Andrzej Kepa	assistant	4.5
2018_02	handling of computer games	Prof. Jan Zarzeczny	Mazowiecka St. 6, 30-065 Kraków	Krakow, Reymonta St. 11, room 102018-03-27	Andrzej Wrobel	adjunct	passed
2018_02	handling of computer games	Prof. Jan Zarzeczny	Mazowiecka St. 6, 30-065 Kraków	Krakow, Reymonta St. 11, room 102018-03-27	Janusz Wojcicki	adjunct	passed
2018_02	handling of computer games	Prof. Jan Zarzeczny	Mazowiecka St. 6, 30-065 Kraków	Krakow, Reymonta St. 11, room 102018-03-27	Anna Niecko	specialist	passed

We use multi_query() to take direct query input from web (relevant part of code):

```php
if ($_SERVER['REQUEST_METHOD'] == 'POST') {
    $customQuery = $_POST['custom_query'];
    $conn->multi_query($customQuery)
```