

CPSC 332 Final Group Project

Username: cs332b24

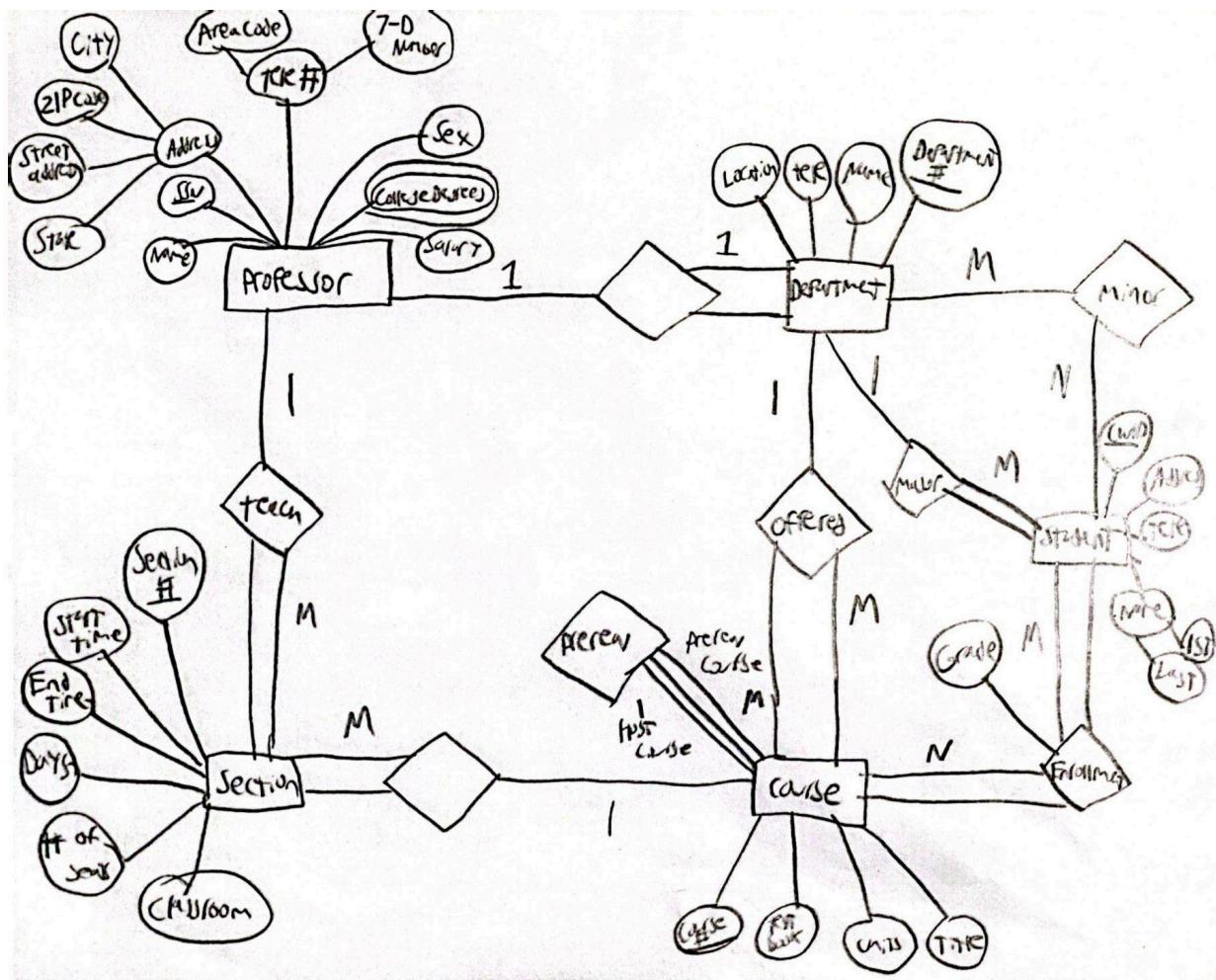
Password: EODb2NbN

Group Members:

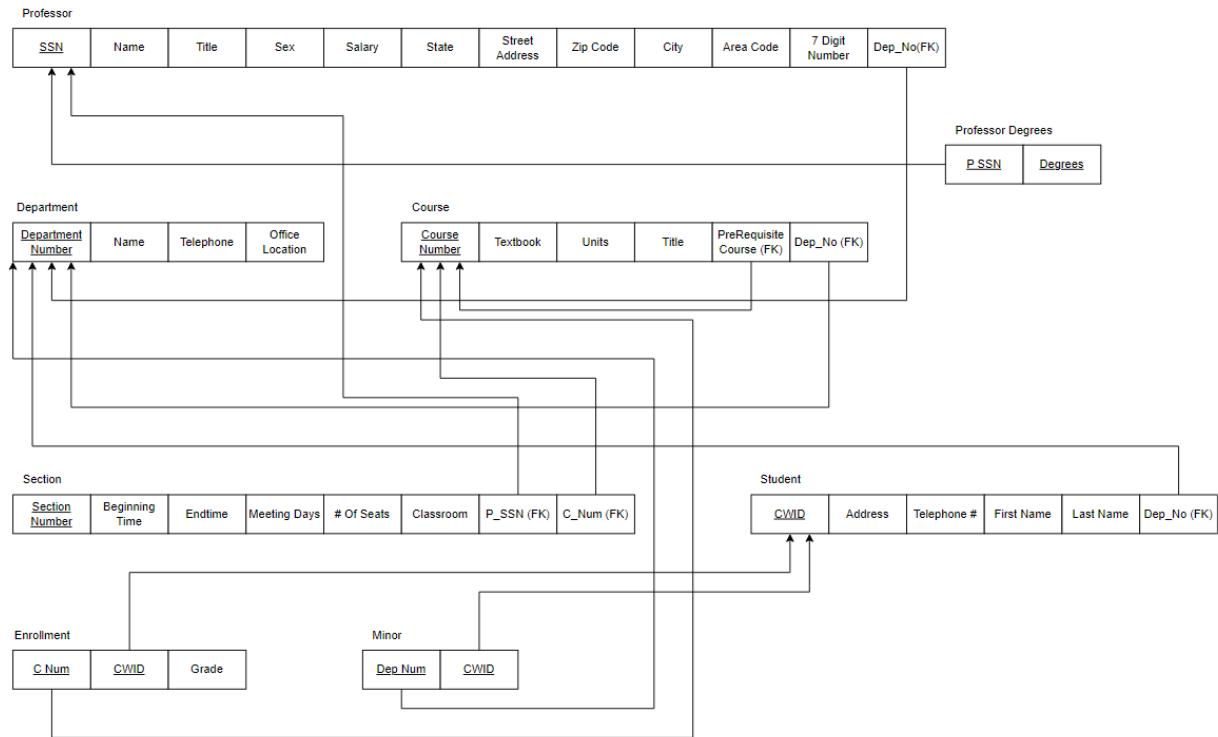
1. Nicholas Munoz Last 4-digits of CWID#: 7264

2. Juan Aguirre Last 4-digits of CWID#: 7044

3. Robert Olivares Last 4-digits of CWID#: 1696

ER MODEL:

RELATIONAL MODEL:



Source Code:

DDL:

```
:> 332 > 332TermProject > db.sql
1   -- Table for Professors
2   CREATE TABLE Professors (
3       ssn VARCHAR(11) PRIMARY KEY,
4       name VARCHAR(100),
5       address_street VARCHAR(255),
6       address_city VARCHAR(100),
7       address_state VARCHAR(50),
8       address_zip VARCHAR(10),
9       telephone_area_code VARCHAR(5),
10      telephone_number VARCHAR(10),
11      sex CHAR(1),
12      title VARCHAR(50),
13      salary DECIMAL(10, 2),
14      degrees VARCHAR(255)
15  );
16
17  -- Table for Departments
18  CREATE TABLE Departments (
19      department_number INT PRIMARY KEY,
20      name VARCHAR(100),
21      telephone VARCHAR(15),
22      office_location VARCHAR(255),
23      chairperson_ssn VARCHAR(11),
24      FOREIGN KEY (chairperson_ssn) REFERENCES Professors(ssn)
25  );
26
27  -- Table for Courses
28  CREATE TABLE Courses (
29      course_number INT PRIMARY KEY,
```

```
30      title VARCHAR(100),
31      textbook VARCHAR(255),
32      units INT,
33      department_number INT,
34      FOREIGN KEY (department_number) REFERENCES Departments(department_number)
35  );
36
37  -- Table for Prerequisite Courses
38  CREATE TABLE Prerequisites (
39      course_number INT,
40      prerequisite_course_number INT,
41      PRIMARY KEY (course_number, prerequisite_course_number),
42      FOREIGN KEY (course_number) REFERENCES Courses(course_number),
43      FOREIGN KEY (prerequisite_course_number) REFERENCES Courses(course_number)
44  );
45
46  -- Table for Course Sections
47  CREATE TABLE Sections (
48      section_number INT PRIMARY KEY,
49      course_number INT,
50      classroom VARCHAR(50),
51      seats INT,
52      meeting_days VARCHAR(20),
53      start_time TIME,
54      end_time TIME,
55      professor_ssn VARCHAR(11),
```

```
C:\> 332 > 332TermProject > db.sql
47  CREATE TABLE Sections (
56      FOREIGN KEY (course_number) REFERENCES Courses(course_number),
57      FOREIGN KEY (professor_ssn) REFERENCES Professors(ssn)
58  );
59
60  -- Table for Students
61  CREATE TABLE Students (
62      campus_id INT PRIMARY KEY,
63      name_first VARCHAR(50),
64      name_last VARCHAR(50),
65      address VARCHAR(255),
66      telephone VARCHAR(15),
67      major_department_number INT,
68      FOREIGN KEY (major_department_number) REFERENCES Departments(department_number)
69  );
70
71  -- Table for Student Minors
72  CREATE TABLE StudentMinors (
73      campus_id INT,
74      minor_department_number INT,
75      PRIMARY KEY (campus_id, minor_department_number),
76      FOREIGN KEY (campus_id) REFERENCES Students(campus_id),
77      FOREIGN KEY (minor_department_number) REFERENCES Departments(department_number)
78  );
79
80  -- Table for Enrollment Records
81  CREATE TABLE Enrollments (
82      enrollment_id INT PRIMARY KEY,
83      student_campus_id INT,
```

```
C:\> 332 > 332TermProject > db.sql
71  -- Table for Student Minors
72  CREATE TABLE StudentMinors (
73      campus_id INT,
74      minor_department_number INT,
75      PRIMARY KEY (campus_id, minor_department_number),
76      FOREIGN KEY (campus_id) REFERENCES Students(campus_id),
77      FOREIGN KEY (minor_department_number) REFERENCES Departments(department_number)
78  );
79
80  -- Table for Enrollment Records
81  CREATE TABLE Enrollments (
82      enrollment_id INT PRIMARY KEY,
83      student_campus_id INT,
84      section_number INT,
85      grade VARCHAR(2),
86      FOREIGN KEY (student_campus_id) REFERENCES Students(campus_id),
87      FOREIGN KEY (section_number) REFERENCES Sections(section_number)
88  );
```

Home Page (index.html)

```
> 332 > 332TermProject > index.html > ...
1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5      <meta charset="UTF-8">
6      <meta name="viewport" content="width=device-width, initial-scale=1.0">
7      <title>Student Interface</title>
8      <style>
9          body {
10              background-color: #beige;
11          }
12      </style>
13  </head>
14
15 <body>
16     <h1 style="text-align: center;">332 Term Project</h1>
17     <h2 style="text-align: center;">Professors</h2>
18     <h4 style="text-align: center;">Class Schedule</h4>
19         <form action="professor_schedule.php" method="post" style="text-align: center;">
20             <label for="professor_ssn">Professor SSN:</label>
21             <input type="text" name="professor_ssn" required>
22             <button type="submit">Get Class Schedule</button>
23         </form>
24         <h4 style="text-align: center;">Grade Distribution</h4>
25         <form action="course_grades.php" method="post" style="text-align: center;">
26             <label for="course_number">Course Number:</label>
27             <input type="text" name="course_number" required>
28             <label for="section_number">Section Number:</label>
29             <input type="text" name="section_number" required>
30
31             <button type="submit">Get Grade Distribution</button>
32         </form>
33
34         <br>
35
36         <h2 style="text-align: center;">Students</h2>
37         <h4 style="text-align: center;">Course Sections</h4>
38             <form action="sections.php" method="post" style="text-align: center;">
39                 <label for="course_number">Course Number:</label>
40                 <input type="text" name="course_number" required>
41                 <button type="submit">Get Course Sections</button>
42             </form>
43             <h4 style="text-align: center;">Academic History</h4>
44             <form action="student_grades.php" method="post" style="text-align: center;">
45                 <label for="student_campus_id">Student CWID:</label>
46                 <input type="text" name="student_campus_id" required>
47                 <button type="submit">Get Courses and Grades</button>
48             </form>
49             <br>
50     </body>
51
52 </html>
```

Sample Data:

```
C: > 332 > 332TermProject > courses.sql
1  -- Inserting data into Courses table
2  INSERT INTO Courses (course_number, title, textbook, units, department_number)
3  VALUES
4  (101, 'Introduction to Programming', 'Programming For Dummies', 3, 1),
5  (150, 'Calculus I', 'Calculus for Dummies', 4, 2),
6  (332, 'Database Management', 'Database For Dummies', 3, 1),
7  (335, 'Algorithms', 'Algorithms For Dummies', 4, 1);
```

```
C: > 332 > 332TermProject > departments.sql
1  |- Inserting data into Departments table
2  INSERT INTO Departments (department_number, name, telephone, office_location, chairperson_ssn)
3  VALUES
4  (1, 'Computer Science', '909-1111', 'Building A, Room 101', '845-19-2342'),
5  (2, 'Mathematics', '909-2222', 'Building B, Room 201', '846-28-8356');
6
```

```
C: > 332 > 332TermProject > enrollments.sql
1  -- Inserting data into Enrollments table
2  INSERT INTO Enrollments (enrollment_id, student_campus_id, section_number, grade)
3  VALUES
4  (1, 888611699, 1, 'C+'),
5  (2, 888611698, 2, 'B'),
6  (3, 888611697, 3, 'B-'),
7  (4, 888611696, 4, 'A-'),
8  (5, 888611695, 5, 'C+'),
9  (6, 888611694, 1, 'A'),
10 (7, 888611693, 2, 'B-'),
11 (8, 888611692, 3, 'C+'),
12 (9, 888611699, 4, 'C+'),
13 (10, 888611698, 5, 'A-'),
14 (11, 888611697, 6, 'B+'),
15 (12, 888611696, 1, 'B+'),
16 (13, 888611695, 2, 'A+'),
17 (14, 888611694, 3, 'B-'),
18 (15, 888611693, 4, 'B'),
19 (16, 888611692, 5, 'B+'),
20 (17, 888611699, 6, 'B'),
21 (18, 888611698, 1, 'A+'),
22 (19, 888611697, 2, 'C'),
23 (20, 888611696, 3, 'C-');
24
```

```
C: > 332 > 332TermProject > professor.sql
1  |- Inserting data into Professors table
2  INSERT INTO Professors (ssn, name, address_street, address_city, address_state, address_zip, telephone_area_code, telephone_number, sex, ti
3  VALUES
4  ('845-19-2342', 'Shawn Wang', '123 Cerulean St', 'Fullerton', 'CA', '12345', '909', '1234567', 'M', 'Professor', 150000.00, 'Ph.D. in Comput
5  ('846-28-8356', 'Zack Hudack', '123 Viridian St', 'Pomona', 'CA', '67890', '909', '9876543', 'M', 'Professor', 90000.00, 'M.S. in Mathemati
6  ('365-24-9705', 'Naruto Uzamaki', '123 Lavender St', 'Leaf', 'CA', '54321', '909', '7654321', 'M', 'Assistant Professor', 60000.00, 'B.S. i
7
```

```
:> 332 > 332TermProject > sections.sql
1  -- Inserting data into Sections table
2  INSERT INTO Sections (section_number, course_number, classroom, seats, meeting_days, start_time, end_time, professor_ssn)
3  VALUES
4  (1, 101, 'Room 102', 30, 'MWF', '08:00:00', '09:30:00', '845-19-2342'),
5  (2, 150, 'Room 202', 25, 'TTH', '10:00:00', '11:30:00', '846-28-8356'),
6  (3, 332, 'Room 103', 20, 'MWF', '13:00:00', '14:30:00', '845-19-2342'),
7  (4, 335, 'Room 203', 15, 'TTH', '15:00:00', '16:30:00', '365-24-9705'),
8  (5, 101, 'Room 104', 28, 'MWF', '11:00:00', '12:30:00', '845-19-2342'),
9  (6, 150, 'Room 204', 22, 'TTH', '09:00:00', '10:30:00', '846-28-8356');
```

```
:> 332 > 332TermProject > students.sql
1  -- Inserting data into Students table with formatted campus IDs and telephone numbers
2  INSERT INTO Students (campus_id, name_first, name_last, address, telephone, major_department_number)
3  VALUES
4  (888611699, 'Robert', 'Olivares', '123 Pewter St', '909-123-4567', 1),
5  (888611698, 'Nick', 'Martinez', '234 Fuchsia St', '909-234-5678', 2),
6  (888611697, 'Juan', 'Aguilar', '345 Celadon St', '909-345-6789', 1),
7  (888611696, 'Ryan', 'Seymour', '456 Cinnabar St', '909-456-7890', 1),
8  (888611695, 'Edward', 'Newgate', '567 Pallet St', '909-567-8901', 2),
9  (888611694, 'Fiona', 'Ogre', '678 Vermillion St', '909-678-9012', 1),
10 (888611693, 'Mike', 'Tyson', '789 Indigo St', '909-789-0123', 2),
11 (888611692, 'Helen', 'Kellar', '987 Anville St', '909-987-6543', 1);
```

Database Connection (db_connect.php)

```
C: > 332 > 332TermProject > db_connect.php
1  <?php
2      $mysqli = mysqli_connect('mariadb', 'cs332b24', 'EODb2NbN', 'cs332b24');
3      if (!$mysqli) {
4          die('Could not connect to database: ' . mysql_error());
5      }
6  ?>
7
```

Professor Schedule (professor_schedule.php)

```
332 > 332TermProject > professor_schedule.php
1  ?>php
2  error_reporting(E_ALL);
3  ini_set('display_errors', 1);
4
5  include("db_connect.php");
6
7  $professor_ssn = "";
8  $result = "";
9
10 if ($_SERVER["REQUEST_METHOD"] == "POST") {
11     $professor_ssn = $_POST["professor_ssn"];
12     $query =
13         "    SELECT Sections.course_number, Courses.title, Sections.classroom, Sections.meeting_days, Sections.start_time, Sections.end_time
14         FROM Sections
15         JOIN Courses ON Sections.course_number = Courses.course_number
16         WHERE Sections.professor_ssn = ?
17     ";
18
19     $stmt = $mysqli-&gt;prepare($query);
20     $stmt-&gt;bind_param("s", $professor_ssn);
21     $stmt-&gt;execute();
22     $result_set = $stmt-&gt;get_result();
23
24     if ($result_set-&gt;num_rows &lt;= 0) {
25         echo "Error: Could not find SSN ";
26     }
27
28     if ($result_set-&gt;num_rows &gt; 0) {
29         $result = $result_set-&gt;fetch_all(MYSQLI_ASSOC);
30
31         if ($result_set-&gt;num_rows &gt; 0) {
32             $result = $result_set-&gt;fetch_all(MYSQLI_ASSOC);
33         }
34     }
35 ?&gt;
36
37 &lt;!DOCTYPE html&gt;
38 &lt;html lang="en"&gt;
39 &lt;head&gt;
40     &lt;meta charset="UTF-8"&gt;
41     &lt;meta name="viewport" content="width=device-width, initial-scale=1.0"&gt;
42     &lt;title&gt;Professor SSN Query&lt;/title&gt;
43     &lt;style&gt;
44         body {
45             background-color: beige;
46         }
47         table, th, td{
48             border: 1px solid black;
49             margin-left: auto;
50             margin-right: auto;
51         }
52     &lt;/style&gt;
53 &lt;/head&gt;
54 &lt;body&gt;</pre
```

Sections (sections.php)

```
C: > 332 > 332TermProject > sections.php
 1  ?>php
 2  error_reporting(E_ALL);
 3  ini_set('display_errors', 1);
 4
 5  include("db_connect.php");
 6
 7  $course_number = "";
 8  $result = "";
 9
10 if ($_SERVER["REQUEST_METHOD"] == "POST") {
11
12     $course_number = $_POST["course_number"];
13
14     $query =
15         "    SELECT Sections.section_number, Sections.classroom, Sections.meeting_days, Sections.start_time, Sections.end_time, COUNT(Enrollments.student_campus_id) AS num
16         FROM Sections
17         LEFT JOIN Enrollments ON Sections.section_number = Enrollments.section_number
18         WHERE Sections.course_number = ?
19         GROUP BY Sections.section_number;
20
21     ";
22
23
24     $stmt = $mysqli-&gt;prepare($query);
25     $stmt-&gt;bind_param("s", $course_number);
26     $stmt-&gt;execute();
27     $result_set = $stmt-&gt;get_result();
28
29     if ($result_set-&gt;num_rows &lt;= 0) {
30         echo "Error: Could not find course";
31     }
32
33     if ($result_set-&gt;num_rows &gt; 0) {
34         $result = $result_set-&gt;fetch_all(MYSQLI_ASSOC);
35     }
36</pre
```

```
C: > 332 > 332TermProject > sections.php
 5  include("db_connect.php");
10  if ($_SERVER["REQUEST_METHOD"] == "POST") {
11
12      $stmt->close();
13
14  }
15  ?>
16
17  <!DOCTYPE html>
18  <html lang="en">
19  <head>
20      <meta charset="UTF-8">
21      <meta name="viewport" content="width=device-width, initial-scale=1.0">
22      <title style="text-align: center;">Professor SSN Query</title>
23      <style>
24          body {
25              background-color: beige;
26          }
27      </style>
28  </head>
29  <body>
30      <h2 style="text-align: center;">Sections for Course <?php echo $course_number?></h2>
31      <?php if ($result): ?>
32
33          <?php foreach ($result as $row):?
34              echo "Section Number: " . $row['section_number'] . "<br>";
35              echo "Classroom: " . $row['classroom'] . "<br>";
36              echo "Meeting Days: " . $row['meeting_days'] . "<br>";
37              echo "Time: " . $row['start_time'] . " - " . $row['end_time'] . "<br>";
38              echo "Number of Students Enrolled: " . $row['num_students_enrolled'] . "<br><br>";
39          <?php endforeach; ?>
40          <?php endif; ?>
41      </body>
42  </html>
```

Course Grades (course_grades.php):

```
C: > 332 > 332TermProject > course_grades.php
1  ?>php
2  error_reporting(E_ALL);
3  ini_set('display_errors', 1);
4
5  include("db_connect.php");
6
7  $course_number = "";
8  $section_number = "";
9  $result = "";
10
11 if ($_SERVER["REQUEST_METHOD"] == "POST") {
12
13     $course_number = $_POST["course_number"];
14     $section_number = $_POST["section_number"];
15
16     $query =
17         "    SELECT grade, COUNT(*) as student_count
18             FROM Enrollments
19             JOIN Sections ON Enrollments.section_number = Sections.section_number
20             WHERE Sections.course_number = ? AND Sections.section_number = ?
21             GROUP BY grade;
22     ";
23
24
25     $stmt = $mysqli-&gt;prepare($query);
26     $stmt-&gt;bind_param("ss", $course_number, $section_number);
27     $stmt-&gt;execute();
28     $result_set = $stmt-&gt;get_result();
29
30     if ($result_set-&gt;num_rows &lt;= 0) {
31         echo "Error: Course or Section number not found";
32     }
33
34     if ($result_set-&gt;num_rows &gt; 0) {
35         $result = $result_set-&gt;fetch_all(MYSQLI_ASSOC);
36     }
37
38     $stmt-&gt;close();
39
40 }
41 ?&gt;
42
43 &lt;!DOCTYPE html&gt;
44 &lt;html lang="en"&gt;
45 &lt;head&gt;
46     &lt;meta charset="UTF-8"&gt;
47     &lt;meta name="viewport" content="width=device-width, initial-scale=1.0"&gt;
48     &lt;title style="text-align: center;"&gt;Professor SSN Query&lt;/title&gt;
49     &lt;style&gt;
50         body {
51             background-color: beige;
52         }
53     &lt;/style&gt;
54 &lt;/head&gt;
55 &lt;body&gt;
56     &lt;h2 style="text-align: center;"&gt;Grade Distribution for Course &lt;?php echo $course_number, " Section Number: ", $section_number?&gt;&lt;/h2&gt;
57     &lt;?php if ($result): ?&gt;
58         &lt;?php foreach ($result as $row): ?&gt;
59             &lt;div&gt;&lt;?php echo "Grade: " . $row['grade'] . " ~ Student Count: " . $row['student_count']; ?&gt; ;
60             &lt;?php endforeach; ?&gt;
61         &lt;/table&gt;
62     &lt;?php endif; ?&gt;
63 &lt;/body&gt;
64 &lt;/html&gt;
65
66
67</pre
```

Student Grades (student_grades.php):

```
C: > 332 > 332TermProject > student_grades.php
 1  ?>php
 2  error_reporting(E_ALL);
 3  ini_set('display_errors', 1);
 4
 5  include("db_connect.php");
 6
 7  $student_campus_id = "";
 8  $result = "";
 9
10 if ($_SERVER["REQUEST_METHOD"] == "POST") {
11
12     $student_campus_id = $_POST["student_campus_id"];
13
14     $query =
15         "    SELECT Courses.course_number, Courses.title, Enrollments.grade
16         FROM Enrollments
17         JOIN Sections ON Enrollments.section_number = Sections.section_number
18         JOIN Courses ON Sections.course_number = Courses.course_number
19         WHERE Enrollments.student_campus_id = ?;
20
21     ";
22
23
24     $stmt = $mysqli-&gt;prepare($query);
25     $stmt-&gt;bind_param("s", $student_campus_id);
26     $stmt-&gt;execute();
27     $result_set = $stmt-&gt;get_result();
28
29     if ($result_set-&gt;num_rows &lt;= 0) {
30         echo "Error: Could not find CWID";
31     }
32
33     if ($result_set-&gt;num_rows &gt; 0) {
34         $result = $result_set-&gt;fetch_all(MYSQLI_ASSOC);
35     }
36
37
38     $stmt-&gt;close();
39
40 }
41 ?&gt;
42
43
44 &lt;!DOCTYPE html&gt;
45 &lt;html lang="en"&gt;
46 &lt;head&gt;
47     &lt;meta charset="UTF-8"&gt;
48     &lt;meta name="viewport" content="width=device-width, initial-scale=1.0"&gt;
49     &lt;title style="text-align: center;"&gt;Professor SSN Query&lt;/title&gt;
50     &lt;style&gt;
51         body {
52             background-color: beige;
53         }
54     &lt;/style&gt;
55 &lt;/head&gt;
56 &lt;body&gt;
57     &lt;h2 style="text-align: center;"&gt;Academic history for &lt;?php echo $student_campus_id?&gt;&lt;/h2&gt;
58     &lt;?php if ($result): ?&gt;
59         &lt;?php foreach ($result as $row): ?&gt;
60             echo "Course Number: " . $row['course_number'] . "&lt;br&gt;";
61             echo "Class Name: " . $row['title'] . "&lt;br&gt;";
62             echo "Grade: " . $row['grade'] . "&lt;br&gt;&lt;br&gt;&lt;br&gt;";
63         &lt;?php endforeach; ?&gt;
64     &lt;?php endif; ?&gt;
65 &lt;/body&gt;
66 &lt;/html&gt;
67
68</pre
```

Screen Shots:

Database Tables:

```
MariaDB [cs332b24]> SHOW TABLES;
+-----+
| Tables_in_cs332b24 |
+-----+
| Courses
| Departments
| Enrollments
| Prerequisites
| Professors
| Sections
| StudentMinors
| Students
+-----+
8 rows in set (0.001 sec)

MariaDB [cs332b24]>
```

Front Page:

332 Term Project

Professors

Class Schedule

Professor SSN:

Grade Distribution

Course Number: Section Number:

Students

Course Sections

Course Number:

Academic History

Student CWID:

Class Schedule for Professors:

The screenshot shows a web browser window titled "Professor SSN Query". The URL in the address bar is "ecs.fullerton.edu/~cs332b24/professor_schedule.php". The main content area is titled "Professor SSN Query" and "Classes for Professor with SSN 845-19-2342". Below this, there is a table with the following data:

Title	Classroom	Meeting Days	Start Time	End Time
Introduction to Programming	Room 102	MWF	08:00:00	09:30:00
Introduction to Programming	Room 104	MWF	11:00:00	12:30:00
Database Management	Room 103	MWF	13:00:00	14:30:00

Grade Distribution for Course:

The screenshot shows a web browser window titled "Professor SSN Query". The URL in the address bar is "ecs.fullerton.edu/~cs332b24/course_grades.php". The main content area is titled "Grade Distribution for Course 101 Section Number: 1". Below this, the following text is displayed:

Grade: A ~ Student Count: 1 ;
Grade: A+ ~ Student Count: 1 ;
Grade: B+ ~ Student Count: 1 ;
Grade: C+ ~ Student Count: 1 ;

Sections for Course Number:

A screenshot of a web browser window titled "Professor SSN Query". The address bar shows the URL "ecs.fullerton.edu/~cs332b24/sections.php". The main content area is titled "Sections for Course 101". It displays two sections of the course:

Section Number: 1
Classroom: Room 102
Meeting Days: MWF
Time: 08:00:00 - 09:30:00
Number of Students Enrolled: 4

Section Number: 5
Classroom: Room 104
Meeting Days: MWF
Time: 11:00:00 - 12:30:00
Number of Students Enrolled: 3

Academic History for Students:

A screenshot of a web browser window titled "Professor SSN Query". The address bar shows the URL "ecs.fullerton.edu/~cs332b24/student_grades.php". The main content area is titled "Academic history for 888611696". It displays three courses taken by the student:

Course Number: 101
Class Name: Introduction to Programming
Grade: B+

Course Number: 332
Class Name: Database Management
Grade: C-

Course Number: 335
Class Name: Algorithms
Grade: A-

Invalid Inputs:

The screenshot shows a web browser window titled "Student Interface" with the URL "ecs.fullerton.edu/~cs332b24/". The main title is "332 Term Project". Under "Professors", there is a "Class Schedule" section with a form. The "Professor SSN:" field is empty, and a red error message box says "Please fill out this field." Below it are fields for "Course Number:" and "Section Number:", followed by a "Get Grade Distribution" button.

332 Term Project

Professors

Class Schedule

Professor SSN: Get Class Schedule

Please fill out this field.

Course Number: Section Number: Get Grade Distribution

The screenshot shows a web browser window titled "Professor SSN Query" with the URL "ecs.fullerton.edu/~cs332b24/professor_schedule.php". The message "Error: Could not find SSN" is displayed above the "Professor SSN Query" title.

Error: Could not find SSN

Professor SSN Query

