CPSC 332 Database Project

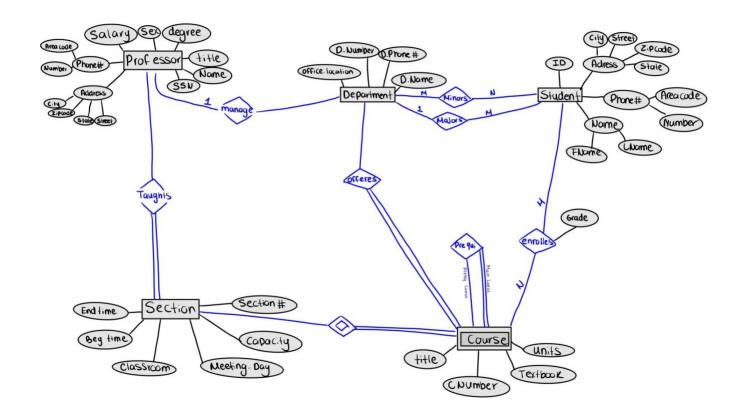
Group members:

Name	Last 4 CWID
Nayeli *****	***
Hiep ****	***
Poleth ****	***

Submission Account: cs332t31

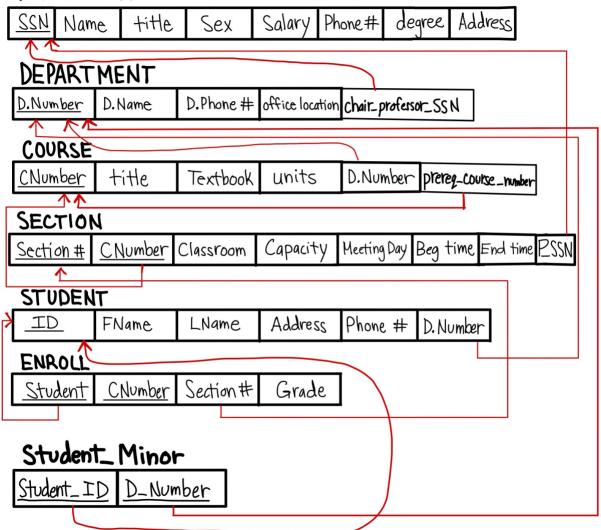
Website: http://ecs.fullerton.edu/~cs332t31/

Entity-Relationship Model:



Relational Model:

PROFESSOR



```
Primary keys:
```

Professor (SSN)

Department (D.Number)

Course (CNumber)

Section (Section#, CNumber)

Student (ID)

Enroll (Student, CNumber)

Foreign keys:

Department (Professor) REFERENCES Section (Section#, CNumber)

Course (D.Number) REFERENCES Department (D.Number)

Section (CNumber) REFERENCES Course (CNumber)

Section (P_SSN) REFERENCES Professor (SSN)

Student (D.Number) REFERENCES Department (D.Number)

Enroll (Student) REFERENCES Student (ID)

Enroll (Section#) REFERENCES Section (Section#)

Student_Minor (Student_ID) REFERENCES Student (ID)

Student_Minor (D_Number) REFERENCES Department (D.Number)

SQL DDL:

```
CREATE TABLE Department (
D_Number VARCHAR(10) PRIMARY KEY,
D_Name VARCHAR(50),
D_Phone VARCHAR(20),
Office_Location VARCHAR(50)
);
```

```
ALTER TABLE Department
ADD COLUMN Chairperson_Professor_SSN VARCHAR(14),
ADD CONSTRAINT fk_Chairperson_Professor_SSN
FOREIGN KEY (Chairperson_Professor_SSN)
REFERENCES Professor (SSN);
CREATE TABLE Professor (
SSN VARCHAR(14) NOT NULL PRIMARY KEY,
Name VARCHAR(50) NOT NULL,
Title VARCHAR(50),
Sex CHAR(1),
Salary DECIMAL(10,2),
Phone VARCHAR(20),
Degree VARCHAR(50),
Address VARCHAR(100)
);
CREATE TABLE Course (
C Number VARCHAR(10) NOT NULL PRIMARY KEY,
Title VARCHAR(255) NOT NULL,
Textbook VARCHAR(255),
Units INT,
D_Number VARCHAR(10) NOT NULL,
Prerequisite Course Number VARCHAR(10),
FOREIGN KEY (D_Number) REFERENCES Department (D_Number),
FOREIGN KEY (Prerequisite Course Number) REFERENCES Course
(C Number)
```

```
);
CREATE TABLE Section (
 S Number VARCHAR(15) NOT NULL,
 C_Number VARCHAR(10) NOT NULL,
 Classroom VARCHAR(50),
 Capacity INT,
 Meeting_Day VARCHAR(10),
 Beginning_Time TIME,
 End Time TIME,
 PRIMARY KEY (S Number, C Number),
 FOREIGN KEY (C Number) REFERENCES Course(C Number)
);
ALTER TABLE Section
ADD COLUMN P SSN CHAR(11),
ADD CONSTRAINT FK Section Professor
FOREIGN KEY (P SSN)
REFERENCES Professor(SSN);
CREATE TABLE Student (
 ID VARCHAR(10) NOT NULL PRIMARY KEY,
 Fname VARCHAR(50) NOT NULL,
 Lname VARCHAR(50) NOT NULL,
 Address VARCHAR(100),
 Phone VARCHAR(20),
 D_Number VARCHAR(10) NOT NULL,
 FOREIGN KEY (D_Number) REFERENCES Department(D_Number)
```

```
);
CREATE TABLE Student Minor (
 Student ID VARCHAR(10) NOT NULL,
 Department_Number VARCHAR(10) NOT NULL,
 PRIMARY KEY (Student_ID, Department_Number),
 FOREIGN KEY (Student_ID) REFERENCES Student(ID),
 FOREIGN KEY (Department_Number) REFERENCES
Department(D_Number)
);
CREATE TABLE Enroll (
 Student VARCHAR(10) NOT NULL,
 C Number VARCHAR(10) NOT NULL,
 S Number VARCHAR(15) NOT NULL,
 Grade VARCHAR(2),
 PRIMARY KEY (Student, C Number),
 FOREIGN KEY (Student) REFERENCES Student(ID),
 FOREIGN KEY (C_Number) REFERENCES Course(C_Number),
 FOREIGN KEY (S_Number) REFERENCES Section(S_Number)
);
SQL Queries:
```

```
INSERT INTO Department (D_Number, D_Name, D_Phone, Office_Location, Chairperson_Professor_SSN)
VALUES
```

('CPSC', 'Computer Science', '657-278-3163', 'Computer Science Building, Room 202', '123-45-6789'),

('ENGL', 'English', '657-278-3163', 'Gordon Halls, Room 323B', '345-67-8901'), ('MATH', 'Mathematics', '657-278-3163', 'McCarthy Hall, Room 154', '234-56-7890');

INSERT INTO Professor (SSN, Name, Title, Sex, Salary, Phone, Degree, Address)

VALUES

('123-45-6789', 'Bernie Howell', 'Assistant Professor', 'M', 80000, '1-714-774-7821', 'PhD', '123 Main St CA 92702'),

('234-56-7890', 'Lisa Schaefer', 'Professor', 'F', 100000, '1-714-772-3485', 'PhD', '456 South West St CA 92865'),

('345-67-8901', 'Renato Archer', 'Professor', 'M', 120000, '1-714-819-2304', 'PhD', '789 Oakland St CA 92843');

INSERT INTO Course (C_Number, Title, Textbook, Units, D_Number, Prerequesite_Course_Number)

VALUES

('CPSC 121', 'Introduction to Computer Science', 'Starting Out with C++', 3, 'CPSC', NULL),

('CPSC 131', 'Data Structures and Programming Techniques', 'Data Structures and Algorithms in C++', 3, 'CPSC', 'CPSC 121'),

('ENGL 101', 'Composition and Rhetoric', 'The Norton Field Guide to Writing', 3, 'ENGL', NULL),

('MATH 150A', 'Calculus I', 'Calculus: Early Transcendentals', 4, NULL);

INSERT INTO Section (S_Number, C_Number, Classroom, Capacity,

Meeting_Day, Beginning_Time, End_Time) VALUES

('Section 01', 'CPSC 121', 'CS Building, Room 201', 30, 'MWF', '09:00:00', '09:50:00'),

('Section 02', 'CPSC 121', 'CS Building, Room 332', 25, 'TTH', '11:00:00', '12:20:00'),

('Section 01', 'CPSC 131', 'CS Building, Room 201', 40, 'MW', '01:00:00', '02:20:00'),

('Section 02', 'CPSC 131', 'CS Building, Room 605', 20, 'TTH', '03:30:00', '04:50:00'),

('Section 01', 'ENGL 101', 'Gordon Halls, Room 202', 35, 'MWF', '11:00:00', '11:50:00'),

('Section 01', 'MATH 150A', 'McCarthy Hall, Room 601', 30, 'TTH', '10:00:00', '11:20:00');

UPDATE Section

 $SET P_SSN = '123-45-6789'$

WHERE S Number = 'Section 01' AND C Number = 'CPSC 121';

UPDATE Section

SET P SSN = '123-45-6789'

WHERE S_Number = 'Section 02' AND C_Number = 'CPSC 121';

UPDATE Section

SET P SSN = '123-45-6789'

WHERE S Number = 'Section 01' AND C Number = 'CPSC 131';

UPDATE Section

```
SET P SSN = '123-45-6789'
WHERE S Number = 'Section 02' AND C Number = 'CPSC 131';
UPDATE Section
SET P SSN = '345-67-8901'
WHERE S Number = 'Section 01' AND C Number = 'ENGL 101';
UPDATE Section
SET P SSN = '234-56-7890'
WHERE S Number = 'Section 01' AND C Number = 'MATH 150A';
INSERT INTO Student (ID, Fname, Lname, Address, Phone, D Number)
VALUES
('103749882', 'Donny', 'Vazquez', '1232 Maryland St', '714-555-1212', 'CPSC'),
('932233223', 'Samuel', 'Patton', '4567 N. Hamilton St', '714-555-2121', 'CPSC'),
('123358250', 'Hazel', 'Merritt', '7890 Oakland St', '714-555-3434', 'CPSC'),
('796862879', 'Alice', 'Williams', '3213 Maple St', '714-555-4545', 'CPSC'),
('997342361', 'David', 'Lee', '987 North Cherry Drive St', '714-555-5656',
'ENGL'),
('339862886', 'Mary', 'Jones', '654 Lincoln St', '714-555-6767', 'ENGL'),
('736974249', 'Mark', 'Davis', '876 Cheddar Ave', '714-555-7878', 'MATH'),
('414101389', 'Karen', 'Taylor', '5434 South Birch St', '714-555-8989', 'MATH');
INSERT INTO Enroll (Student, C Number, S Number, Grade)
VALUES
  ('103749882', 'CPSC 121', 'Section 01', 'B'),
  ('932233223', 'CPSC 131', 'Section 01', 'A-'),
  ('123358250', 'ENGL 101', 'Section 01', 'C'),
```

```
('796862879', 'MATH 150A', 'Section 02', 'D+'),
('997342361', 'CPSC 121', 'Section 02', 'B-'),
('339862886', 'CPSC 131', 'Section 02', 'C+'),
('736974249', 'ENGL 101', 'Section 02', 'A'),
('414101389', 'MATH 150A', 'Section 01', 'C-'),
('103749882', 'ENGL 101', 'Section 01', 'B+'),
('932233223', 'MATH 150A', 'Section 01', 'D-'),
('123358250', 'CPSC 121', 'Section 02', 'F'),
('796862879', 'CPSC 131', 'Section 02', 'C'),
('997342361', 'ENGL 101', 'Section 02', 'A-'),
('339862886', 'MATH 150A', 'Section 02', 'B+'),
('736974249', 'CPSC 121', 'Section 01', 'B-'),
('414101389', 'CPSC 131', 'Section 01', 'D'),
('103749882', 'MATH 150A', 'Section 02', 'C+'),
('932233223', 'ENGL 101', 'Section 02', 'A'),
('123358250', 'CPSC 131', 'Section 01', 'B'),
('736974249', 'MATH 150A', 'Section 01', 'C-');
```

Web Interface & PHP Code:

1) index.php

```
<html>
<head>
<title>Database Project</title>
<style>
<h1 {
    font-size: 3em;
    color: #333;
    text-align: center;
    margin-top: 50px;
    margin-bottom: 50px;
}
```

```
</style>
</head>
<body>
    <form method="POST">
        <h1>Welcome to Our Web Application Database Project</h1>
        <label for="user type">Are you a professor or a
student?</label>
        <select name="user type" id="user type">
            <option value="professor">Professor</option>
            <option value="student">Student</option>
        </select>
        <input type="submit" value="Submit">
    </form>
</body>
</html>
<?php
if ($ SERVER["REQUEST METHOD"] == "POST") {
  $user type = $ POST["user type"];
  if ($user_type == "professor") {
    header("Location: professor.php");
    exit();
  } elseif ($user type == "student") {
    header("Location: student.php");
    exit();
```

2) student.php

```
<html>
<head>
<title>Database Project</title>
<style>
h1 {
font-size: 3em;
```

```
color: #333;
        text-align: center;
        margin-top: 50px;
        margin-bottom: 50px;
    table {
        border-collapse: collapse;
        width: 100%;
    th,
    td {
        padding: 8px;
        text-align: left;
        border-bottom: 1px solid #ddd;
    }
    th {
        background-color: #4CAF50;
        color: white;
    tr:nth-child(even) {
        background-color: #f2f2f2;
    </style>
</head>
<body>
    <form method="GET">
        <h1>Welcome to Our Web Application Database Project</h1>
        <label for="search course">Enter Course Number:</label>
        <input type="text" id="search course" name="search course">
        <input type="submit" value="Submit">
        <input type="button" value="Clear current query"</pre>
onclick="location.href='student.php';">
        <input type="button" value="Return to homepage"</pre>
onclick="location.href='index.php';">
    </form>
    <form method="GET">
        <label for="cw id">Enter Student CWID:</label>
        <input type="text" id="cw id" name="cw id">
        <input type="submit" value="Submit">
```

```
<input type="button" value="Clear current query"</pre>
onclick="location.href='student.php';">
       <input type="button" value="Return to homepage"</pre>
onclick="location.href='index.php';">
   </form>
   <?php
       // username and password need to be replaced by your
username and password
       // dbname is the same as your username
       $link = mysqli connect('mariadb', 'cs332t9', 'br79JFW4',
'cs332t9');
       if (!$link) {
           die('Could not connect: ' . mysql error());
       }
       echo 'Database loaded successfully.';
     // Course sections query
     if (isset($ GET['search course'])) {
       $search_course = mysqli_real_escape_string($link,
$ GET['search course']);
       $section query = "SELECT Section.S Number,
Section.Classroom, Section.Meeting day, Section.Beginning time,
Section. End time, COUNT(*) AS Enrollment FROM Section INNER JOIN
Enroll ON Section.S Number = Enroll.S Number AND Section.C Number =
Enroll.C Number WHERE Section.C Number = '$search course' GROUP BY
Section.S Number";
       $section result = $link->query($section query);
     if ($section result->num rows > 0) {
       echo "";
       echo "SectionClassroomMeeting
DayTimeEnrollment";
       while ($row = $section result->fetch assoc()) {
         echo "";
         echo "".$row["S Number"]."";
         echo "".$row["Meeting day"]."";
```

```
echo "".$row["Beginning time"]." -
".$row["End_time"]."";
        echo "".$row["Enrollment"]."";
        echo "";
     echo "";
     } else {
     echo "No results found.";
     $section result->free result();
   }
   // Check for a submitted CWID
   if (isset($ GET['cw id'])) {
   $cwid = mysqli real escape string($link, $ GET['cw id']);
   // Query the database for the student's courses and grades
   $query = "SELECT Course.C Number, Course.Title, Enroll.Grade
            FROM Enroll
            INNER JOIN Course ON Enroll.C Number = Course.C Number
            WHERE Enroll.Student = '$cwid'";
   $result = mysqli query($link, $query);
   // Display the results in a table
   if (mysqli num rows($result) > 0) {
     echo "";
     echo "Course NumberCourse
TitleGrade";
     while ($row = mysqli_fetch_assoc($result)) {
      echo "";
      echo "".$row["C Number"]."";
      echo "".$row["Title"]."";
      echo "".$row["Grade"]."";
      echo "";
     echo "";
   } else {
```

```
echo "No results found.";
}

// Free the result set
mysqli_free_result($result);
}

$link->close();
?>
</body>
</html>
```

3) professor.php

```
<html>
<head>
    <title>Database Project</title>
    <style>
    h1 {
        font-size: 3em;
        color: #333;
        text-align: center;
        margin-top: 50px;
        margin-bottom: 50px;
    }
    table {
        border-collapse: collapse;
        width: 100%;
    }
    th,
    td {
        padding: 8px;
        text-align: left;
        border-bottom: 1px solid #ddd;
        background-color: #4CAF50;
        color: white;
```

```
tr:nth-child(even) {
        background-color: #f2f2f2;
    </style>
</head>
<body>
    <form method="GET">
        <h1>Welcome to Our Web Application Database Project</h1>
        <label for="search ssn">Enter Professor SSN:</label>
        <input type="text" id="search ssn" name="search ssn">
        <input type="submit" value="Submit">
        <input type="button" value="Clear current query"</pre>
onclick="location.href='professor.php';">
        <input type="button" value="Return to homepage"</pre>
onclick="location.href='index.php';">
    </form>
    <form method="GET">
        <label for="search course">Enter Course Number:</label>
        <input type="text" id="search course" name="search course">
        <label for="search section">Enter Section Number:</label>
        <input type="text" id="search section"</pre>
name="search section">
        <input type="submit" value="Submit">
        <input type="button" value="Clear current query"</pre>
onclick="location.href='professor.php';">
        <input type="button" value="Return to homepage"</pre>
onclick="location.href='index.php';">
    </form>
    <?php
      // username and password need to be replaced by your username
and password
      // dbname is the same as your username
      $link = mysqli connect('mariadb', 'cs332t9', 'br79JFW4',
'cs332t9');
      if (!$link) {
        die('Could not connect: ' . mysql_error());
```

```
echo 'Database loaded successfully.';
     //Professor SSN query
     if (isset($ GET['search ssn'])) {
       $search ssn = mysqli real escape string($link,
$ GET['search ssn']);
       $prof query = "SELECT S Number, C Number, Classroom,
Meeting_day, Beginning_time, End_time FROM Section WHERE P_SSN =
|$search ssn'";
       $prof_result = $link->query($prof_query);
     if ($prof result->num rows > 0) {
       echo "";
       echo "SectionCourse
NameClassroomMeeting DayTime";
       while ($row = $prof result->fetch assoc()) {
         echo "";
        echo "".$row["S Number"]."";
        echo "".$row["C Number"]."";
         echo "".$row["Classroom"]."";";";";
         echo "".$row["Meeting day"]."";
         echo "".$row["Beginning time"]." -
".$row["End time"]."";
        echo "";
       echo "";
       } else {
         echo "No results found.";
       $prof result->free result();
     }
     //Course and section number query
     if (isset($ GET['search course']) &&
isset($ GET['search section'])) {
     $search course = mysqli real escape string($link,
$ GET['search course']);
```

```
$search section = mysqli real escape string($link,
$_GET['search_section']);
     $grades_query = "SELECT Grade, COUNT(*) as count FROM Enroll
WHERE C Number = '$search_course' AND S Number = '$search_section'
GROUP BY Grade";
     $grades result = $link->query($grades_query);
     if ($grades_result->num_rows > 0) {
     echo "";
     echo "GradeCount";
     while ($row = $grades_result->fetch_assoc()) {
      echo "";
      echo "".$row["count"]."";
      echo "";
     }
     echo "";
     } else {
     echo "No results found.";
     $grades result->free_result();
     $link->close();
</body>
</html>
```

Interface Screenshots:

Enter Student CWID:

Database loaded successfully.

Welcome to Our Web Applic

Enter Professor SSN:	Submit Clear current query	Return to homepage			
Enter Course Number:	Enter Section Number:		Submit	Clear current query	Return to homepag
Database loaded successfully.					
		W	elc	ome	to
		* * * *		OHIC	to
Enter Course Number:	Subn	nit Clear current	query	Return to home	page

Submit

Clear current query

Return to homepage

Student List(use to know what to insert):

CWID	Fname	Lname	D_Num
103749882	Donny	Vazquez	CPSC
123358250	Hazel	Merritt	CPSC
339862886	Mary	Jones	ENGL
414101389	Karen	Taylor	MATH
736974249	Mark	Davis	MATH
796862879	Alice	Williams	CPSC
932233223	Samuel	Patton	CPSC
997342361	David	Lee	ENGL

Professor List (use to know what to insert):

SSN	Name
123-45-6789	Bernie Howell
234-56-7890	Lisa Schaefer
345-67-8901	Renato Archer

Course List (use to know what to insert)

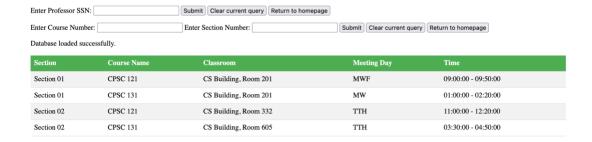
Course Number	Sections
CPSC 121	Section 01 and Section 02
CPSC 131	Section 01 and Section 02
ENGL 101	Section 01 and Section 02
MATH 150A	Section 01 and Section 02

Picture of Output:

Welcome to Our Web Application Database Project

Enter Professor SSN:	123-45-6789	Submit	Clear current query	Return to homepage			
Enter Course Number	::[Enter Se	ection Number:		Submit	Clear current query	Return to homepage
Database loaded succe	essfully						

Welcome to Our Web Application Database Project



Welcome to Our Web Application Database Project

Enter Professor SSN:		Submit	Clear current q	uery	Return to homepage			
Enter Course Number:	CPSC 121	Enter Se	ction Number:	Secti	on 01	Submit	Clear current query	Return to homepage
Database loaded succes	ssfully.							

Welcome to Our Web Application Database Project



Welcome to Our Web Application Database Project

Enter Course Number:	CPSC 131	Submit	Clear current query	Return to homepage
Enter Student CWID:		Submit	Clear current query	Return to homepage
Databasa laadad susaas	ofully.			

Welcome to Our Web Application Database Project

Enter Course Number: Submit Clear current query Return to homepage

Enter Student CWID: Submit Clear current query Return to homepage

Database loaded successfully.

Sect	tion	Classroom	Meeting Day	Time	Enrollment
Sect	tion 01	CS Building, Room 201	MW	01:00:00 - 02:20:00	3
Sect	tion 02	CS Building, Room 605	TTH	03:30:00 - 04:50:00	2

Welcome to Our Web Application Database Project

Enter Course Number:	Submit	Clear current query	Return to homepage
Enter Student CWID: 736974249	Submit	Clear current query	Return to homepage
Database loaded successfully			

Welcome to Our Web Application Database Project

Enter Course Number:	Submit	Clear current query	Return to homepage
Enter Student CWID:	Submit	Clear current query	Return to homepage
Database loaded successfully.			

Course Number	Course Title	Grade
CPSC 121	Introduction to Computer Science	B-
ENGL 101	Composition and Rhetoric	A
MATH 150A	Calculus I	C-