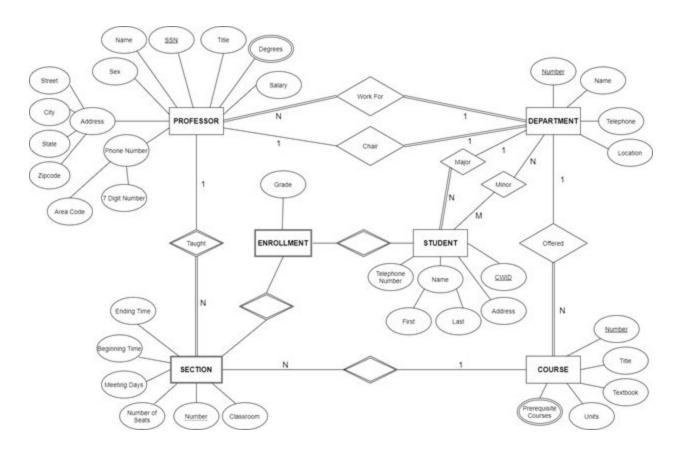
CPSC 332 - 01 (Project Report)

Name: Vinh Tran

CWID (last 4 digit): 9451

MySQL Account: cs332s40

Password: iBai9bai



E-R Diagram

PROFESSOR

SSN	DNO	Name	Street	City	State	Zip code	Area code	7 Digits	Sex	Title	Salary

DEPARTMENT

DNumber	Name	DPhone	Location	ChairSSN
---------	------	--------	----------	----------

COURSE

CNumber	DNO	Title	Textbook	Units

STUDENT

CVVID DNO FName LName Address SPIN	CWID	DNO	FName	LName	Address	SPhon
--	------	-----	-------	-------	---------	-------

SECTION

SNumber PSSN DNO	CNO Classroom	Seats Meeting	BTime	ETime
------------------	---------------	---------------	-------	-------

ENROLLMENT

-						
Е	PSSN	SCWID	DNO	CNO	SNO	Grade
1	PSSN	SCWID	DNO	CNO	SNO	

DEGREE_PROFESSOR

PSSN	Degrees

PREREQUISITE_COURSE

CNO	PreCourse

MINOR

CWID	DNO

Relational Model

Source code of implementing tables in database

```
CREATE TABLE PROFESSOR (
   -> SSN numeric(9) PRIMARY KEY,
   -> DNO numeric(5),
   -> Name varchar(30),
   -> SAddress varchar(100),
   -> City varchar(20),
   -> State varchar(20),
   -> Zipcode numeric(5),
   -> Areacode numeric(3),
   -> Digits numeric(7),
   -> Sex varchar(6),
   -> Title varchar(30),
   -> Salary numeric(10),
);
```

```
CREATE TABLE DEPARTMENT (
   -> DNumber numeric(5) PRIMARY KEY,
   -> Name varchar(100),
   -> Telephone numeric(10),
   -> Location varchar(100),
   -> ChairmanSSN numeric(9),
   -> FOREIGN KEY (ChairmanSSN) REFERENCES PROFESSOR(SSN)
);
```

```
CREATE TABLE COURSE (
   -> CNumber numeric(5) PRIMARY KEY,
   -> DNO numeric(5),
   -> Title varchar(100),
   -> Textbook varchar(250),
   -> Units numeric(3),
   -> FOREIGN KEY (DNO) REFERENCES DEPARTMENT(DNumber)
);
```

```
CREATE TABLE SECTION (
   -> SNumber numeric(2),
   -> PSSN numeric(9),
   -> DNO numeric(5),
   -> CNO numeric(5),
   -> Classroom varchar(50),
   -> Seats int,
   -> MeetingDays varchar(50),
   -> BeginningTime varchar(10),
   -> EndingTime varchar(10),
   -> PRIMARY KEY (SNumber, PSSN, DNO, CNO),
   -> FOREIGN KEY (PSSN) REFERENCES PROFESSOR(SSN),
   -> FOREIGN KEY (DNO) REFERENCES DEPARTMENT(DNumber),
   -> FOREIGN KEY (CNO) REFERENCES COURSE(CNumber)
);
```

```
CREATE TABLE STUDENT (
   -> CWID numeric(9) PRIMARY KEY,
   -> DNO numeric(5),
   -> FName varchar(50),
   -> LName varchar(50),
   -> Address varchar(100),
   -> Telephone numeric(10),
   -> FOREIGN KEY (DNO) REFERENCES DEPARTMENT(DNumber)
);
```

```
CREATE TABLE ENROLLMENT (
   -> PSSN numeric(9),
   -> SCWID numeric(9),
   -> DNO numeric(5),
   -> CNO numeric(5),
   -> SNO numeric(2),
   -> Grade char(2),
   -> PRIMARY KEY (PSSN, SCWID, DNO, CNO, SNO),
   -> FOREIGN KEY (PSSN) REFERENCES PROFESSOR(SSN),
   -> FOREIGN KEY (SCWID) REFERENCES STUDENT(CWID),
   -> FOREIGN KEY (DNO) REFERENCES DEPARTMENT(DNumber),
```

```
-> FOREIGN KEY (CNO) REFERENCES COURSE(CNumber),
-> FOREIGN KEY (SNO) REFERENCES SECTION(SNumber)
);
```

```
CREATE TABLE PROFESSOR_DEGREES (
   -> PSSN numeric(9),
   -> Degrees varchar(50),
   -> PRIMARY KEY (PSSN, Degrees)
);
```

```
CREATE TABLE COURSE_PREREQUISITE (
   -> CNO numeric(5),
   -> PreCourse varchar(10),
   -> PRIMARY KEY (CNO, PreCourse)
);
```

```
CREATE TABLE MINOR (
   -> SCWID numeric(9),
   -> DNO numeric(5),
   -> PRIMARY KEY (SCWID, DNO)
);
```

Source code of implementing queries in database

```
/* Query 1
Given the social security number of a professor,
List the titles, classroom, meeting days and time of his/her classes */
SELECT COURSE.Title, Classroom, MeetingDays, BeginningTime, EndingTime
FROM PROFESSOR, SECTION, COURSE
WHERE CNumber = SECTION.CNO AND SSN = PSSN AND SSN = "Social Security
Number"
```

```
/* Query 2
Given a course number and a section number,
Count how many students get each distinct grade, i.e. 'A', 'A-', 'B+', 'B',
'B-' */

SELECT Grade, COUNT(SCWID) Number_of_Students
FROM ENROLLMENT
WHERE CNO = "Course Number" AND SNO = "Section Number"
GROUP BY Grade
```

```
/* Query 3
Given a course number,
List the sections of the course, including the classrooms, the meeting days and time,
and the number of students enrolled in each section */

SELECT SNumber, Classroom, MeetingDays, BeginningTime, EndingTime,
COUNT(SCWID) Number_of_Students
FROM SECTION, ENROLLMENT
WHERE SECTION.CNO = "Course Number" AND SECTION.CNO = ENROLLMENT.CNO AND
SNumber = ENROLLMENT.SNO
```

```
/* Query 4
Given the campus wide ID of a student,
List all courses the student took and the grades */
SELECT Title, CNumber, SNO, Grade
FROM COURSE, ENROLLMENT
WHERE SCWID = "Campus wide ID" AND CNumber = ENROLLMENT.CNO
```

Source code of implementing the interface

```
<html>
<head>
 <title>CPSC 332 - 01 - Database Application (Project)</title>
</head>
<style>
 body {
   background-color: lightgreen;
   text-align: center;
 table, th, td {
   margin-left: auto;
   margin-right: auto;
   border: 1px solid black;
 th {
   text-align: left;
</style>
<body>
 <img
src="https://fontmeme.com/permalink/200504/18e8d7854253cf32142d342bfa460462
.png" alt="be-vietnam-font" border="0">
  <br></br>
<?php
 $servername = "localhost";
 $username = "cs332s40";
 $password = "iBai9bai";
 $dbname = "cs332s40";
 // Create a connection between MySQL and Web Browser
 $connect = mysql_connect($servername, $username, $password, $dbname);
 // Check the connection
 if (!$connect) {
   die("Connection failed");
 // Create a connection between created database and Web Browser
 $dbconnect = mysql_select_db($dbname, $connect);
```

```
// Check the connection
 if (!$dbconnect) {
   die("Connected failed");
?>
 <form action="" method="post">
    <label><b>Access to MySQL Account</b>
      <input type="checkbox" name="access" value="accessed" disabled</pre>
checked></input>
    </label></br>
    <label><b>Connect to 'cs332s40' database</b>
      <input type="checkbox" name="connect" value="connected" disabled</pre>
checked></input>
    </label>
 </form>
 </br>
  <img src="https://img.icons8.com/dotty/50/000000/database-export.png"/>
  <img
src="https://fontmeme.com/permalink/200504/c0140ea63936dcd837325a93dcab620f
.png" alt="tomorrow-font" border="0">
  <img src="https://img.icons8.com/dotty/50/000000/database-export.png"/>
 <br></br>
 <form action="index.php" method="post">
    <select name="showTables">
      <option value="">Please Select One</option>
      <option value="DEPARTMENT"</pre>
        <?php if ($ POST["showTables"] == "DEPARTMENT") echo</pre>
'selected="selected"'; ?>
        >DEPARTMENT</option>
      <option value="PROFESSOR"</pre>
        <?php if ($_POST["showTables"] == "PROFESSOR") echo</pre>
'selected="selected"'; ?>
        >PROFESSOR</option>
      <option value="STUDENT"</pre>
        <?php if ($_POST["showTables"] == "STUDENT") echo</pre>
'selected="selected"'; ?>
        >STUDENT</option>
      <option value="COURSE"</pre>
```

```
<?php if ($ POST["showTables"] == "COURSE") echo</pre>
'selected="selected"'; ?>
       >COURSE</option>
      <option value="SECTION"</pre>
        <?php if ($ POST["showTables"] == "SECTION") echo</pre>
'selected="selected"'; ?>
        >SECTION</option>
      <option value="ENROLLMENT"</pre>
       <?php if ($ POST["showTables"] == "ENROLLMENT") echo</pre>
'selected="selected"'; ?>
        >ENROLLMENT</option>
      <option value="PROFESSOR DEGREES"</pre>
        <?php if ($_POST["showTables"] == "PROFESSOR_DEGREES") echo</pre>
'selected="selected"'; ?>
        >PROFESSOR DEGREES</option>
      <option value="COURSE PREREQUISITE"</pre>
        <?php if ($ POST["showTables"] == "COURSE_PREREQUISITE") echo</pre>
'selected="selected"'; ?>
        >COURSE PREREQUISITE</option>
   </select> <input type="image"
src="https://img.icons8.com/ios/14/000000/search--v1.png" value="ABC"
alt="Submit">
 </form>
<?php
 // Create a query
 if ($ POST["showTables"] == "STUDENT") {
   $query = "SELECT * FROM STUDENT";
   $result = mysql_query($query, $connect);
   echo "";
   echo "";
   echo "CWID";
   echo "DNO";
   echo ">First Name";
   echo "Last Name";
   echo ">Address";
   echo "Telephone";
   echo "";
   // Show the result of the query
   for ($i = 0; $i < mysql numrows($result); $i++) {</pre>
```

```
echo "":
 echo "";
echo "";
} else if ($ POST["showTables"] == "PROFESSOR") {
$query = "SELECT * FROM PROFESSOR";
$result = mysql_query($query, $connect);
echo "";
echo "";
echo ">SSN";
echo "DNO";
echo "Name";
echo ">Street";
echo "City";
echo ">State";
echo "Zipcode":
echo "Areacode";
echo "Digits";
echo ">Sex";
echo "Title":
echo ">Salary";
echo ">Degrees";
echo "";
// Show the result of the query
for ($i = 0; $i < mysql_numrows($result); $i++) {</pre>
 echo "";
 echo "" . mysql result($result, $i, "DNO") . "";
```

```
echo "";
echo "";
} else if ($ POST["showTables"] == "COURSE") {
$query = "SELECT * FROM COURSE";
$result = mysql query($query, $connect);
echo "";
echo "";
echo "Course No.";
echo "DNO";
echo "Title";
echo "Textbook";
echo "Units";
echo "";
// Show the result of the query
for ($i = 0; $i < mysql numrows($result); $i++) {</pre>
 echo "";
 echo "";
echo "";
} else if ($_POST["showTables"] == "SECTION") {
$query = "SELECT * FROM SECTION";
$result = mysql_query($query, $connect);
echo "";
echo "";
echo ">Section No.";
echo "PSSN";
echo "DNO";
echo "CNO";
```

```
echo "Classroom";
echo ">Seats";
echo "Meeting Days";
echo ">Beginning Time";
echo ">Ending Time";
echo "";
// Show the result of the query
for ($i = 0; $i < mysql numrows($result); $i++) {</pre>
 echo "";
 echo "" . mysql_result($result, $i, "DNO") . "";
 echo "" . mysql_result($result, $i, "CNO") . "";
 echo "";
echo "":
} else if ($ POST["showTables"] == "DEPARTMENT") {
$query = "SELECT * FROM DEPARTMENT";
$result = mysql_query($query, $connect);
echo "";
echo "";
echo ">Department No.";
echo "Name";
echo "Telephone;
echo "Location";
echo "Chairman - SSN";
echo "":
// Show the result of the query
for ($i = 0; $i < mysql_numrows($result); $i++) {</pre>
 echo "";
```

```
echo "";
 }
 echo "":
} else if ($ POST["showTables"] == "ENROLLMENT") {
 $query = "SELECT * FROM ENROLLMENT";
 $result = mysql_query($query, $connect);
 echo "";
 echo "";
 echo "PSSN";
 echo "SCWID";
 echo "DNO";
 echo "CNO";
 echo "SNO":
 echo "Grade";
 echo "";
 // Show the result of the query
 for ($i = 0; $i < mysql numrows($result); $i++) {</pre>
  echo "";
  echo "" . mysql_result($result, $i, "CNO") . "";
  echo "";
 }
 echo "";
} else if ($ POST["showTables"] == "PROFESSOR DEGREES") {
 $query = "SELECT * FROM PROFESSOR_DEGREES";
 $result = mysql query($query, $connect);
 echo "";
 echo "";
 echo "PSSN";
 echo ">Degrees";
 echo "";
 // Show the result of the query
 for ($i = 0; $i < mysql numrows($result); $i++) {</pre>
```

```
echo "":
    echo "":
   echo "";
 } else if ($_POST["showTables"] == "COURSE_PREREQUISITE") {
   $query = "SELECT * FROM COURSE PREREQUISITE";
   $result = mysql query($query, $connect);
   echo "";
   echo "";
   echo "CNO";
   echo ">PreCourse";
   echo "";
  // Show the result of the query
   for ($i = 0; $i < mysql_numrows($result); $i++) {</pre>
    echo "";
    echo "" . mysql result($result, $i, "CNO") . "";
    echo "":
   echo "";
?>
 <br>
 <img src="https://img.icons8.com/dotty/50/000000/search-database.png"/>
src="https://fontmeme.com/permalink/200504/c13fbf2defe714909ff4f5b9a597ceec
.png" alt="tomorrow-font" border="0">
 <img src="https://img.icons8.com/dotty/50/000000/search-database.png"/>
 <form action="index.php" method="post">
   <b> You are a ... </b>
    <input type="radio" name="whoareyou" value="professor"</pre>
      <?php if ($ POST["whoareyou"] == "professor") echo</pre>
'checked="checked"'; ?>>Professor</input>
    <input type="radio" name="whoareyou" value="student"</pre>
      <?php if ($ POST["whoareyou"] == "student") echo</pre>
'checked="checked"'; ?>>Student</input>
```

```
  <input type="image"</pre>
src="https://img.icons8.com/ios/17/000000/circled-chevron-right.png"
value="Next">
    </form>
<?php
 // Show queries related to 'Professor' field
 if ($ POST["whoareyou"] == "professor") {
?>
   <!-- Design the first query -->
   <b>a. Given the social security number of a professor, list the
titles, classrooms, meeting days and time of his/her classes.</b>
    <form action="index.php" method="get">
     SSN: <input type="text" name="ssn" placeholder="Enter a social
security number" size="22">
      <input type="image"</pre>
src="https://img.icons8.com/ios/14/000000/search--v1.png" alt="Submit">
   </form>
   <!-- Design the second query -->
   <b>b. Given a course number and a section number, count how many
students get each distinct grade.</b>
   <form action="index.php" method="get">
      Course No.: <input type="text" name="cno1" placeholder="Enter a
course number" size="16"> <br></br>
     Section No.: <input type="text" name="sno" placeholder="Enter a
section number" size="16"> <br></br>
      <input type="image"</pre>
src="https://img.icons8.com/ios/14/000000/search--v1.png" alt="Submit">
   </form>
<?php
 // Show queries related to 'Student' field
 } else if ($_POST["whoareyou"] == "student") {
?>
 <!-- Design the third query -->
  <b>c. Given a course number, list the sections of the course,
including the classrooms, the meeting days, time, and the number of
students enrolled in each section.</b>
 <form action="index.php" method="get">
   Course No.: <input type="text" name="cno2" placeholder="Enter a course
```

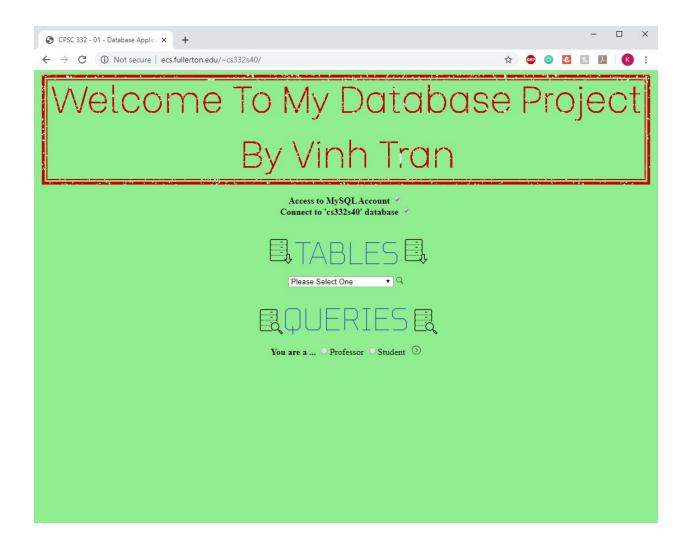
```
number" size="16">
   <input type="image"</pre>
src="https://img.icons8.com/ios/14/000000/search--v1.png" alt="Submit">
  </form>
 <!-- Design the fourth query -->
  <b>d. Given the campus wide ID of a student, list all courses the
student took and the grades.</b>
  <form action="index.php" method="get">
   CWID: <input type="text" name="cwid" placeholder="Enter a campus-wide
identification" size="25">
    <input type="image"</pre>
src="https://img.icons8.com/ios/14/000000/search--v1.png" alt="Submit">
  </form>
<?php
 }
?>
<!-- Create tables for queries -->
<?php
  // Create a table for Query 1
 if ($_GET["ssn"] != "") {
   echo "<b>Result:</b>";
   echo "";
   echo "";
   echo "Title";
   echo "Classroom";
   echo ">Meeting Days";
   echo ">Beginning Time";
   echo ">Ending Time";
   echo "";
  // Create a first query
 $query1 = "SELECT COURSE.Title, Classroom, MeetingDays, BeginningTime,
EndingTime
            FROM PROFESSOR, SECTION, COURSE
            WHERE CNumber = SECTION.CNO AND SSN = PSSN AND SSN=" .
$ GET["ssn"];
  $result1 = mysql_query($query1, $connect);
 // Show the result of the first query
 for ($i = 0; $i < mysql numrows($result1); $i++) {</pre>
```

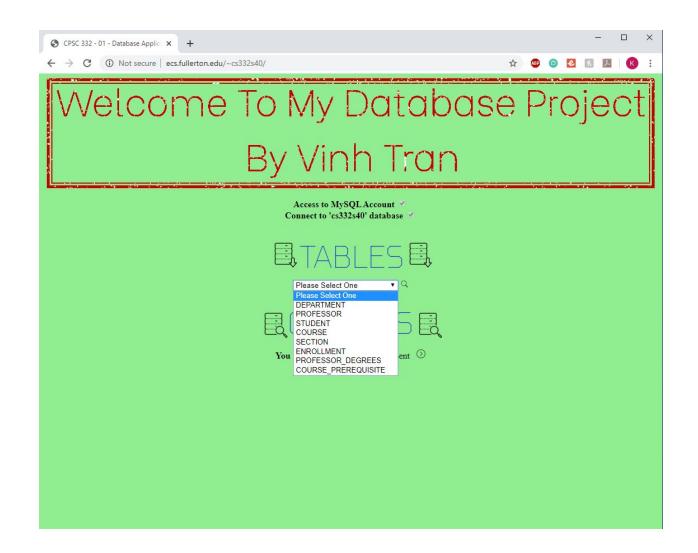
```
echo "";
  echo "";
 echo "";
 // Create a table for Query 2
 if ($ GET["cno1"] != "" && $ GET["sno"] != "") {
  echo "<b>Result:</b>";
  echo "";
  echo "";
  echo "Grade";
  echo "Number of Students";
  echo "";
 $cno = $_GET["cno1"];
 $sno = $_GET["sno"];
 // Create a second query
 $query2 = "SELECT Grade, COUNT(SCWID) Number_of_Students
       FROM ENROLLMENT
       WHERE CNO = '$cno' AND SNO= '$sno'
       GROUP BY Grade";
 $result2 = mysql_query($query2, $connect);
// Show the result of the second query
 for ($i = 0; $i < mysql_numrows($result2); $i++) {</pre>
  echo "":
  echo "" . mysql_result($result2, $i, "Number_of_Students") .
"";
  echo "";
echo "";
// Create a table for Query 3
if ($ GET["cno2"] != "") {
```

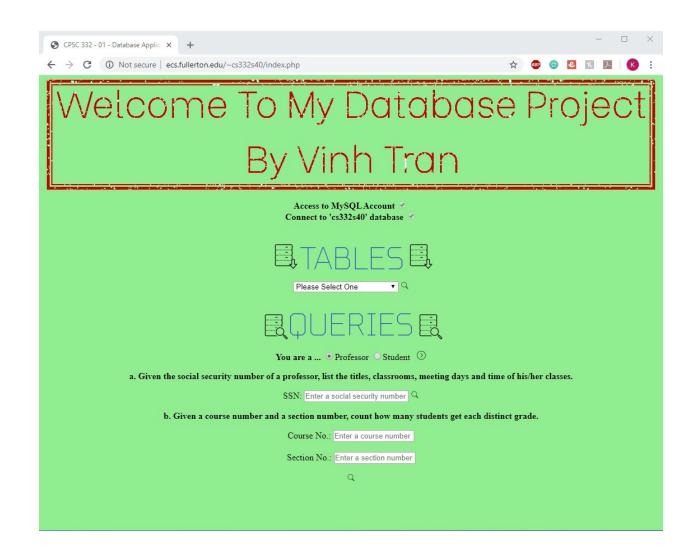
```
echo "<b>Result:</b>";
  echo "";
  echo "";
  echo ">Section";
  echo "Classroom";
  echo "Meeting Days";
  echo "Beginning Time";
  echo ">Ending Time";
  echo "Number of Enrolled Students";
  echo "";
 }
 $cno = $_GET["cno2"];
 // Create a third query
 $query3 = "SELECT SNumber, Classroom, MeetingDays, BeginningTime,
EndingTime, COUNT(SCWID) Number_of_Students
        FROM SECTION, ENROLLMENT
        WHERE SECTION.CNO = '$cno' AND SECTION.CNO = ENROLLMENT.CNO
AND SNumber = ENROLLMENT.SNO
        GROUP BY SNumber";
 $result3 = mysql_query($query3, $connect);
 // Show the result of the third query
 for ($i = 0; $i < mysql_numrows($result3); $i++) {</pre>
  echo "":
  echo "" . mysql_result($result3, $i, "Number_of_Students") .
"";
  echo "";
 echo "";
 // Create a table for Query 4
 if ($ GET["cwid"] != "") {
  echo "<b>Result:</b>";
  echo "";
  echo "";
```

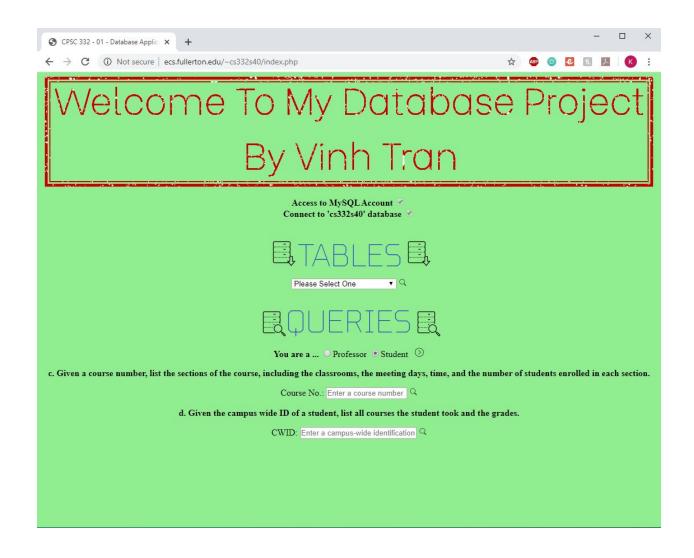
```
echo "Title";
  echo "CNO";
  echo ">Section";
  echo "Grade";
  echo "";
 $cwid = $_GET["cwid"];
// Create a fourth query
 $query4 = "SELECT Title, CNumber, SNO, Grade
       FROM COURSE, ENROLLMENT
       WHERE SCWID = '$cwid' AND CNumber = ENROLLMENT.CNO";
 $result4 = mysql_query($query4, $connect);
 // Show the result of the fourth query
 for ($i = 0; $i < mysql_numrows($result4); $i++) {</pre>
  echo "";
  echo "";
echo "";
?>
</body>
</html>
```

User's Interface



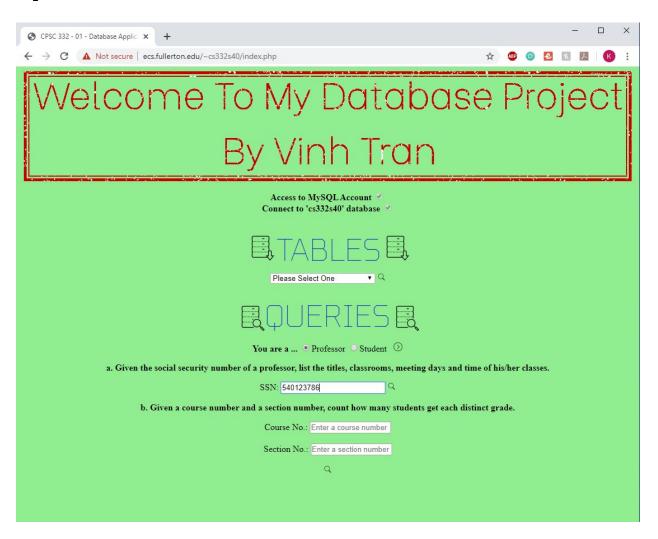


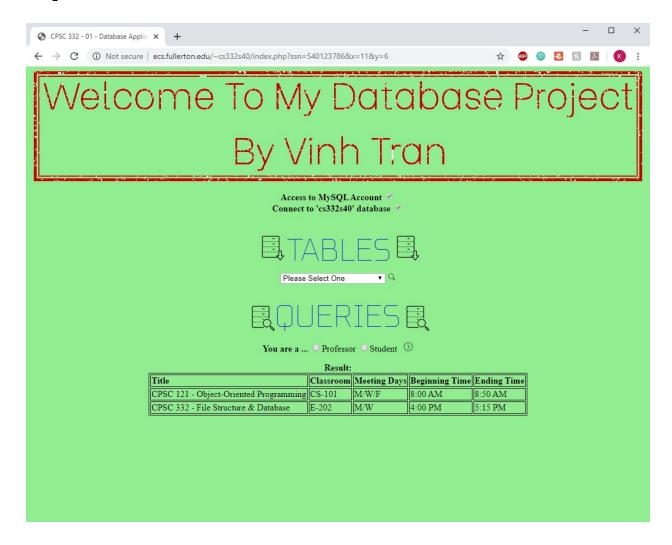




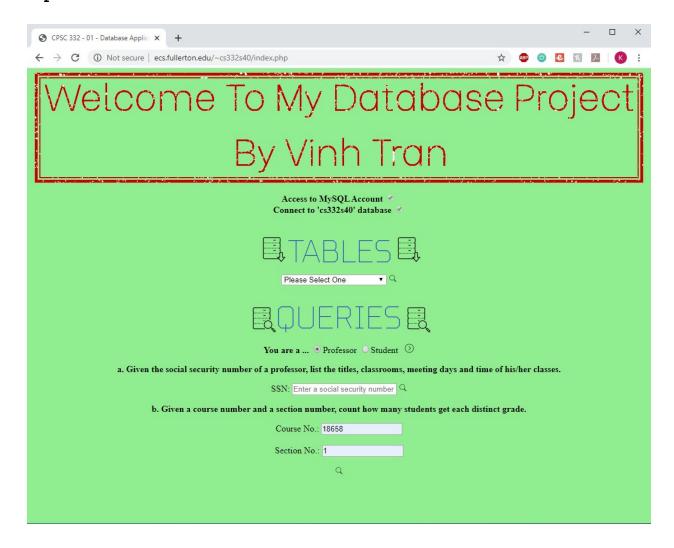
Sample Runs Of The System

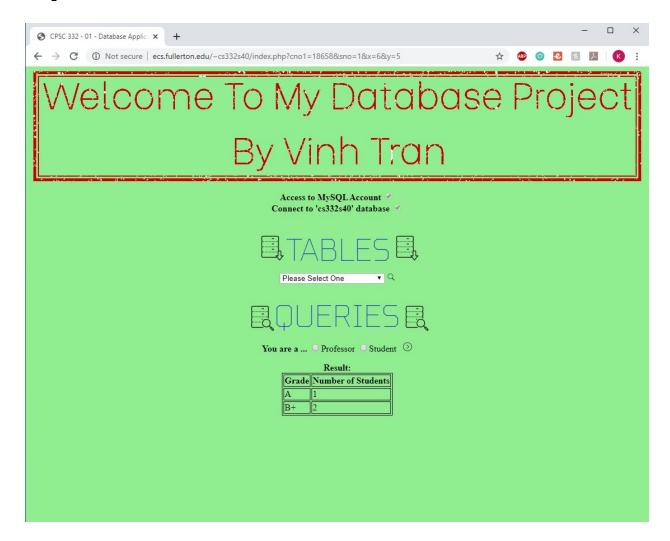
a. Given the social security number of a professor, list the titles, classrooms, meeting days and time of his/her classes.



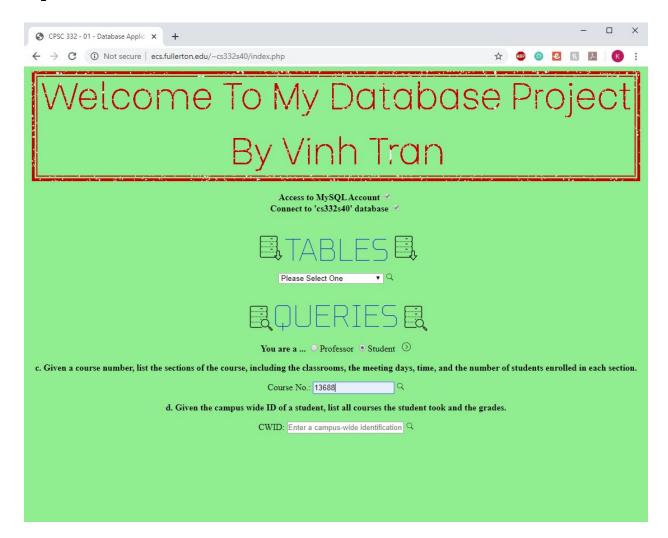


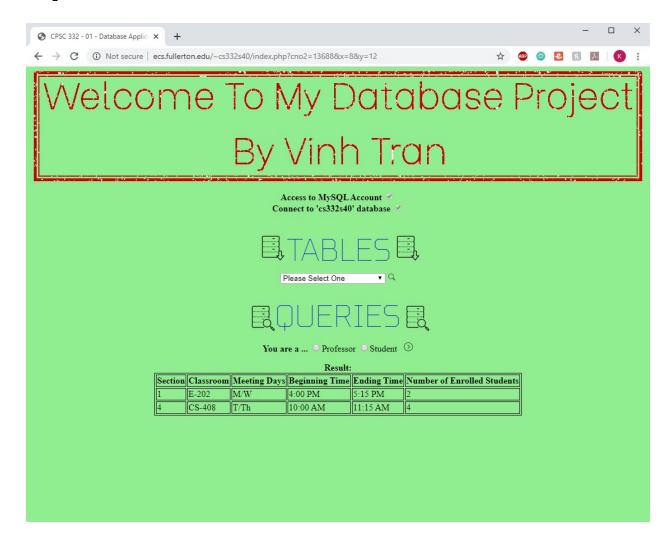
b. Given a course number and a section number, count how many students get each distinct grade





c. Given a course number, list the sections of the course, including the classrooms, the meeting days, time, and the number of students enrolled in each section.





d. Given the campus wide ID of a student, list all courses the student took and the grades.

