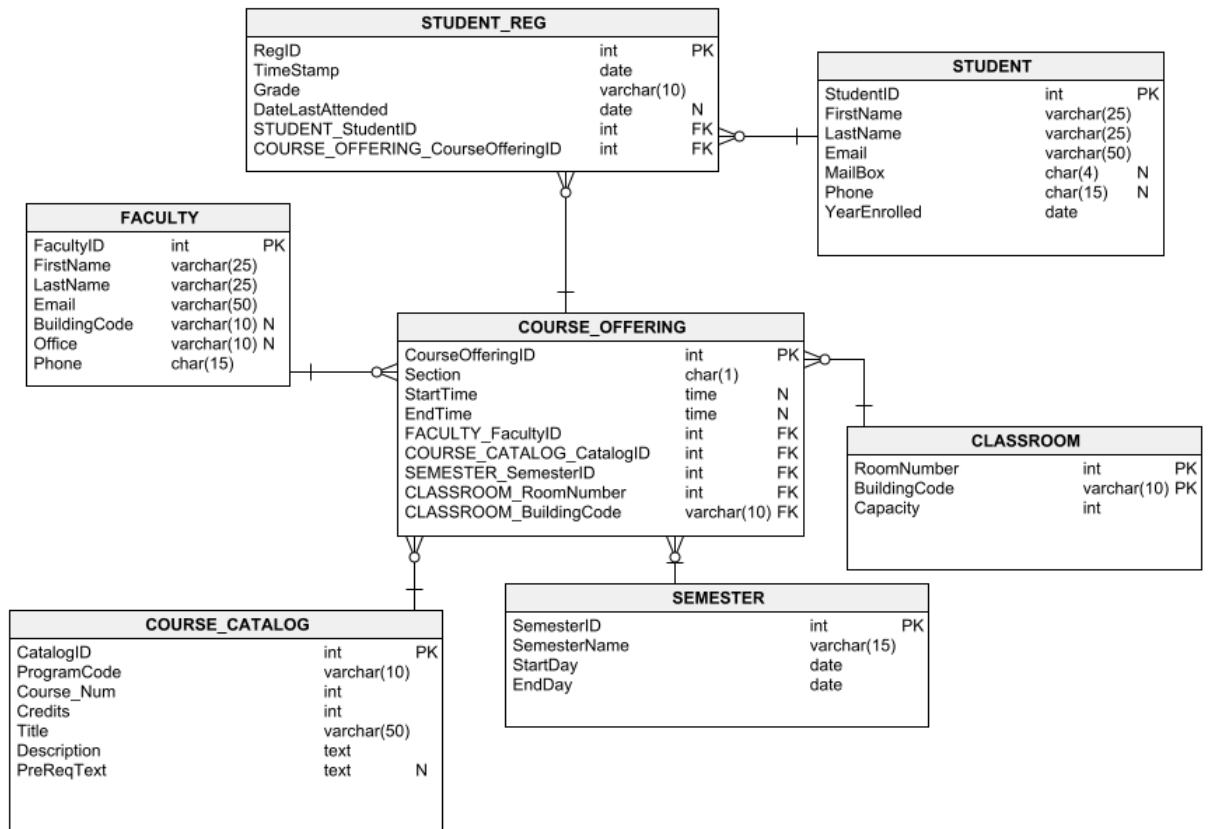


Brandon Fagiolo
Prof. Heier
Database Design
4/27/2022

Course Management Final Project

Final Vertabelo Diagram:



SQL to create the tables:

```
-- Created by Vertabelo (http://vertabelo.com)  
-- Last modification date: 2022-04-24 20:44:03.079  
  
-- tables
```

```
-- Table: CLASSROOM
CREATE TABLE CLASSROOM (
    RoomNumber int NOT NULL,
    BuildingCode varchar(10) NOT NULL,
    Capacity int NOT NULL,
    CONSTRAINT RoomNumber PRIMARY KEY (RoomNumber, BuildingCode)
);
```

```
-- Table: COURSE_CATALOG
CREATE TABLE COURSE_CATALOG (
    CatalogID int NOT NULL,
    ProgramCode varchar(10) NOT NULL,
    Course_Num int NOT NULL,
    Credits int NOT NULL,
    Title varchar(50) NOT NULL,
    Description text NOT NULL,
    PreReqText text NULL,
    CONSTRAINT CatalogID PRIMARY KEY (CatalogID)
);
```

```
-- Table: COURSE_OFFERING
CREATE TABLE COURSE_OFFERING (
    CourseOfferingID int NOT NULL,
    Section char(1) NULL,
    StartTime time NULL,
    EndTime time NULL,
    FACULTY_FacultyID int NOT NULL,
    COURSE_CATALOG_CatalogID int NOT NULL,
    SEMESTER_SemesterID int NOT NULL,
    CLASSROOM_RoomNumber int NOT NULL,
    CLASSROOM_BuildingCode varchar(10) NOT NULL,
    CONSTRAINT Offering_ID PRIMARY KEY (CourseOfferingID)
);
```

```
-- Table: FACULTY
CREATE TABLE FACULTY (
    FacultyID int NOT NULL,
    FirstName varchar(25) NOT NULL,
    LastName varchar(25) NOT NULL,
    Email varchar(50) NOT NULL,
    BuildingCode varchar(10) NULL,
    Office varchar(10) NULL,
    Phone char(15) NOT NULL,
    CONSTRAINT FacultyID PRIMARY KEY (FacultyID)
);
```

```

);

-- Table: SEMESTER
CREATE TABLE SEMESTER (
    SemesterID int NOT NULL,
    SemesterName varchar(15) NOT NULL,
    StartDay date NOT NULL,
    EndDay date NOT NULL,
    CONSTRAINT SemesterID PRIMARY KEY (SemesterID)
);

-- Table: STUDENT
CREATE TABLE STUDENT (
    StudentID int NOT NULL,
    FirstName varchar(25) NOT NULL,
    LastName varchar(25) NOT NULL,
    Email varchar(50) NOT NULL,
    MailBox int NULL,
    Phone char(15) NULL,
    YearEnrolled date NOT NULL,
    CONSTRAINT StudentID PRIMARY KEY (StudentID)
);

-- Table: STUDENT_REG
CREATE TABLE STUDENT_REG (
    RegID int NOT NULL,
    TimeStamp date NOT NULL,
    Grade varchar(10) NOT NULL,
    DateLastAttended date NULL,
    STUDENT_StudentID int NOT NULL,
    COURSE_OFFERING_CourseOfferingID int NOT NULL,
    CONSTRAINT STUDENT_REG_pk PRIMARY KEY (RegID)
);

```

Create and Test the following Queries:

- A Student schedule for a given semester

Input:

```

SELECT StudentID, SemesterName, ProgramCode, Course_Num, Section, StartTime,
EndTime FROM STUDENT JOIN STUDENT_REG

```

```

ON STUDENT.StudentID = STUDENT_REG.STUDENT_StudentID
JOIN COURSE_OFFERING ON
STUDENT_REG.COURSE_OFFERING_CourseOfferingID =
COURSE_OFFERING.CourseOfferingID
JOIN SEMESTER ON COURSE_OFFERING.SEMESTER_SemesterID =
SEMESTER.SemesterID
JOIN COURSE_CATALOG ON COURSE_OFFERING.COURSE_CATALOG_CatalogID
= COURSE_CATALOG.CatalogID
Where StudentID = 1822083
      AND SemesterName LIKE 'Fall 2021'

```

Output:

StudentID	SemesterName	ProgramCode	Course_Num	Section	StartTime	EndTime
1822083	Fall 2021	CE	101	A	09:25:00	10:40:00
1822083	Fall 2021	M	149	A	10:50:00	12:05:00

- A Faculty schedule for a given semester

Input:

```

SELECT FacultyID, ProgramCode, Course_Num, Section, StartTime, EndTime
FROM FACULTY JOIN COURSE_OFFERING
ON FACULTY.FacultyID = COURSE_OFFERING.FACULTY_FacultyID
JOIN COURSE_CATALOG
ON COURSE_OFFERING.COURSE_CATALOG_CatalogID =
COURSE_CATALOG.CatalogID
JOIN SEMESTER
ON COURSE_OFFERING.SEMESTER_SemesterID = SEMESTER.SemesterID
WHERE FacultyID = '1522052'
      AND SemesterName LIKE 'Fall 2021'

```

Output: **

FacultyID	ProgramCode	Course_Num	Section	StartTime	EndTime
1522052	M	149	A	10:50:00	12:05:00

- A Student Transcript:

Input:

```

SELECT FirstName, LastName, ProgramCode, Course_Num, SemesterName, Grade
FROM STUDENT JOIN STUDENT_REG
ON STUDENT.StudentID = STUDENT_REG.STUDENT_StudentID
JOIN COURSE_OFFERING

```

```

ON STUDENT_REG.COURSE_OFFERING_CourseOfferingID =
COURSE_OFFERING.CourseOfferingID
JOIN COURSE_CATALOG
ON COURSE_OFFERING.COURSE_CATALOG_CatalogID =
COURSE_CATALOG.CatalogID
JOIN SEMESTER
ON COURSE_OFFERING.SEMESTER_SemesterID = SEMESTER.SemesterID
WHERE StudentID = 01822085

```

Output:

FirstName	LastName	ProgramCode	Course_Num	SemesterName	Grade
Sam	Frick	M	149	Fall 2021	A
Sam	Frick	BU	243	Fall 2021	B
Sam	Frick	C	142	Spring 2022	D
Sam	Frick	CE	101	Spring 2022	A

- Courses Offered for a given semester

Input:

```

SELECT SemesterName, ProgramCode, Course_Num, Section, StartTime, EndTime,
FACULTY.FirstName, FACULTY.LastName
FROM SEMESTER JOIN COURSE_OFFERING
ON SEMESTER.SemesterID = COURSE_OFFERING.SEMESTER_SemesterID
JOIN COURSE_CATALOG
ON COURSE_OFFERING.COURSE_CATALOG_CatalogID =
COURSE_CATALOG.CatalogID
JOIN FACULTY
ON COURSE_OFFERING.FACULTY_FacultyID = FACULTY.FacultyID
WHERE SemesterName LIKE 'Fall 2021'

```

Output:

SemesterName	ProgramCode	Course_Num	Section	StartTime	EndTime	FirstName	LastName
Fall 2021	M	149	A	10:50:00	12:05:00	Stan	Heffley
Fall 2021	BU	243	A	13:30:00	14:45:00	Bob	Jefferson
Fall 2021	BU	243	A	08:00:00	09:15:00	Sam	Gonzales
Fall 2021	CE	101	A	09:25:00	10:40:00	John	Steffen

- List of students enrolled in any course offering

Input:

```

SELECT SemesterName, ProgramCode, Course_Num, Section, StudentID,
STUDENT.FirstName, STUDENT.LastName
FROM SEMESTER JOIN COURSE_OFFERING
ON SEMESTER.SemesterID = COURSE_OFFERING.SEMESTER_SemesterID
JOIN COURSE_CATALOG

```

```

ON COURSE_OFFERING.COURSE_CATALOG_CatalogID =
COURSE_CATALOG.CatalogID
JOIN STUDENT_REG
ON COURSE_OFFERING.CourseOfferingID =
STUDENT_REG.COURSE_OFFERING_CourseOfferingID
JOIN STUDENT
ON STUDENT_REG.STUDENT_StudentID = STUDENT.StudentID
WHERE CourseOfferingID = 11123042

```

Output:

SemesterName	ProgramCode	Course_Num	Section	StudentID	FirstName	LastName
Fall 2021	BU	243	A	1822084	Joel	Tranel
Fall 2021	BU	243	A	1822081	Tyler	Dodds
Fall 2021	BU	243	A	1822082	Augie	Deavers

- Enrollment Count for a given semester

Input:

```

SELECT SemesterName, ProgramCode, Course_Num, Section, COUNT(StudentID)
FROM SEMESTER JOIN COURSE_OFFERING
ON SEMESTER.SemesterID = COURSE_OFFERING.SEMESTER_SemesterID
JOIN COURSE_CATALOG
ON COURSE_OFFERING.COURSE_CATALOG_CatalogID =
COURSE_CATALOG.CatalogID
JOIN STUDENT_REG
ON COURSE_OFFERING.CourseOfferingID =
STUDENT_REG.COURSE_OFFERING_CourseOfferingID
JOIN STUDENT
ON STUDENT_REG.STUDENT_StudentID = STUDENT.StudentID
WHERE SemesterName LIKE 'Spring 2022'
GROUP BY SemesterName, ProgramCode, Course_Num, Section
ORDER BY SemesterName, ProgramCode, Course_Num, Section

```

Output:

SemesterName ▲ 1	ProgramCode ▲ 2	Course_Num ▲ 3	Section ▲ 4	COUNT(StudentID)
Spring 2022	BU	243	B	2
Spring 2022	C	142	A	2
Spring 2022	CE	101	B	3
Spring 2022	ST	431	A	3

SQL for Inserting records:

```
--  
-- Table structure for table `CLASSROOM`  
--
```

```
CREATE TABLE `CLASSROOM` (  
  `RoomNumber` int(11) NOT NULL,  
  `BuildingCode` varchar(10) NOT NULL,  
  `Capacity` int(11) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
--  
-- Dumping data for table `CLASSROOM`  
--
```

```
INSERT INTO `CLASSROOM` (`RoomNumber`, `BuildingCode`, `Capacity`) VALUES  
(110, 'PAGE', 200),  
(141, 'LS', 15),  
(210, 'SM', 15);
```

```
-- -----
```

```
--  
-- Table structure for table `COURSE_CATALOG`  
--
```

```
CREATE TABLE `COURSE_CATALOG` (  
  `CatalogID` int(11) NOT NULL,  
  `ProgramCode` varchar(10) NOT NULL,  
  `Course_Num` int(11) NOT NULL,  
  `Credits` int(11) NOT NULL,  
  `Title` varchar(50) NOT NULL,  
  `Description` text NOT NULL,  
  `PreReqText` text  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
--  
-- Dumping data for table `COURSE_CATALOG`  
--
```

```
INSERT INTO `COURSE_CATALOG` (`CatalogID`, `ProgramCode`, `Course_Num`, `Credits`,  
`Title`, `Description`, `PreReqText`) VALUES  
(1122033, 'M', 149, 4, 'Calculus I', 'This course strengthens student's understanding of functions  
in preparation for the process of differentiation and integration', NULL),
```

```
(1122034, 'ST', 431, 3, 'Mathematical Statistics I', 'An introduction to the mathematical
foundations and techniques of modern statistical analysis', 'ST232RG, M251RG\r\n'),
(1123031, 'BU', 243, 3, 'Business Computer Applications', ' Students will study computer
terminology, hardware, and software related to the business environment', NULL),
(1123042, 'MK', 217, 3, 'Principles Marketing', 'An introduction to the study of the marketing
function in the business world', NULL),
(1125042, 'C', 142, 3, 'General Chemistry II', 'The study of the major concepts and theories
required for an understanding of chemical phenomena', 'C131RG, C133RG'),
(1128035, 'CE', 101, 0, 'Cultural Engagement Requirement #1', 'The course is designed to
develop your capacity for self-reflection, cultural self-awareness, and ability to perceive the
world around you', NULL);
```

```
-- -----
```

```
--
```

```
-- Table structure for table `COURSE_OFFERING`
```

```
--
```

```
CREATE TABLE `COURSE_OFFERING` (
  `CourseOfferingID` int(11) NOT NULL,
  `Section` char(1) NOT NULL DEFAULT 'A',
  `StartTime` time DEFAULT NULL,
  `EndTime` time DEFAULT NULL,
  `FACULTY_FacultyID` int(11) NOT NULL,
  `COURSE_CATALOG_CatalogID` int(11) NOT NULL,
  `SEMESTER_SemesterID` int(11) NOT NULL,
  `CLASSROOM_RoomNumber` int(11) NOT NULL,
  `CLASSROOM_BuildingCode` varchar(10) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
--
```

```
-- Dumping data for table `COURSE_OFFERING`
```

```
--
```

```
INSERT INTO `COURSE_OFFERING` (`CourseOfferingID`, `Section`, `StartTime`, `EndTime`,
`FACULTY_FacultyID`, `COURSE_CATALOG_CatalogID`, `SEMESTER_SemesterID`,
`CLASSROOM_RoomNumber`, `CLASSROOM_BuildingCode`) VALUES
(11122033, 'A', '10:50:00', '12:05:00', 1522052, 1122033, 1922042, 210, 'SM'),
(11123031, 'A', '13:30:00', '14:45:00', 1522051, 1123031, 1922042, 212, 'AH'),
(11123042, 'A', '08:00:00', '09:15:00', 1522053, 1123042, 1922042, 141, 'LS'),
(11128035, 'A', '09:25:00', '10:40:00', 1522054, 1128035, 1922042, 110, 'PAGE'),
(21122034, 'A', '09:25:00', '10:40:00', 1522052, 1122034, 1922043, 210, 'SM'),
(21123031, 'B', '13:30:00', '14:45:00', 1522051, 1123031, 1922043, 212, 'AH'),
(21125042, 'A', '08:00:00', '09:15:00', 1522053, 1125042, 1922043, 141, 'LS'),
```



```
(21128035, 'B', '12:15:00', '13:00:00', 1522054, 1128035, 1922043, 110, 'PAGE');
```

```
-- -----
```

```
--
```

```
-- Table structure for table `FACULTY`
```

```
--
```

```
CREATE TABLE `FACULTY` (  
  `FacultyID` int(11) NOT NULL,  
  `FirstName` varchar(25) NOT NULL,  
  `LastName` varchar(25) NOT NULL,  
  `Email` varchar(50) NOT NULL,  
  `BuildingCode` varchar(10) DEFAULT NULL,  
  `Office` varchar(10) DEFAULT NULL,  
  `Phone` char(15) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
--
```

```
-- Dumping data for table `FACULTY`
```

```
--
```

```
INSERT INTO `FACULTY` (`FacultyID`, `FirstName`, `LastName`, `Email`, `BuildingCode`,  
  `Office`, `Phone`) VALUES  
(1522051, 'Bob', 'Jefferson', 'bjefferson19@smumn.edu', 'LS', '110', '651-201-6469'),  
(1522052, 'Stan', 'Heffley', 'sheffley21@smumn.edu', 'AH', '115', '651-333-2323'),  
(1522053, 'Sam', 'Gonzales', 'sgonzales17@smumn.edu', 'PAGE', '210', '612-577-0479'),  
(1522054, 'John', 'Steffen', 'jsteffen02@smumn.edu', 'SM', '112', '651-555-5605');
```

```
-- -----
```

```
--
```

```
-- Table structure for table `SEMESTER`
```

```
--
```

```
CREATE TABLE `SEMESTER` (  
  `SemesterID` int(11) NOT NULL,  
  `SemesterName` varchar(15) NOT NULL,  
  `StartDay` date NOT NULL,  
  `EndDay` date NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
--
```

```
-- Dumping data for table `SEMESTER`
```

--

```
INSERT INTO `SEMESTER` (`SemesterID`, `SemesterName`, `StartDay`, `EndDay`) VALUES
(1922042, 'Fall 2021', '2021-09-01', '2021-12-22'),
(1922043, 'Spring 2022', '2022-01-25', '2022-05-03');
```

-- -----

--

-- Table structure for table `STUDENT`

--

```
CREATE TABLE `STUDENT` (
  `StudentID` int(11) NOT NULL,
  `FirstName` varchar(25) NOT NULL,
  `LastName` varchar(25) NOT NULL,
  `Email` varchar(50) NOT NULL,
  `MailBox` char(4) DEFAULT NULL,
  `Phone` char(15) DEFAULT NULL,
  `YearEnrolled` year(4) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

--

-- Dumping data for table `STUDENT`

--

```
INSERT INTO `STUDENT` (`StudentID`, `FirstName`, `LastName`, `Email`, `MailBox`, `Phone`,
`YearEnrolled`) VALUES
(1822081, 'Tyler', 'Dodds', 'tdodds21@smumn.edu', '111A', '612-481-9434', 2021),
(1822082, 'Augie', 'Deavers', 'adeavers21@smumn.edu', '112A', '651-307-4345', 2020),
(1822083, 'Kristian', 'Lindanger', 'klindanger21@smumn.edu', '115B', '612-351-8205', 2020),
(1822084, 'Joel', 'Tranel', 'jtranel21@smumn.edu', '113B', '507-457-0609', 2018),
(1822085, 'Sam', 'Frick', 'sfrick21@smumn.edu', '111B', '507-444-3434', 2019);
```

-- -----

--

-- Table structure for table `STUDENT_REG`

--

```
CREATE TABLE `STUDENT_REG` (
  `RegID` int(11) NOT NULL,
  `TimeStamp` date NOT NULL,
  `Grade` char(2) NOT NULL,
```

```
`DateLastAttended` date DEFAULT NULL,  
`STUDENT_StudentID` int(11) NOT NULL,  
`COURSE_OFFERING_CourseOfferingID` int(11) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
--  
-- Dumping data for table `STUDENT_REG`  
--
```

```
INSERT INTO `STUDENT_REG` (`RegID`, `TimeStamp`, `Grade`, `DateLastAttended`,  
`STUDENT_StudentID`, `COURSE_OFFERING_CourseOfferingID`) VALUES  
(101101, '2021-04-03', 'A', '2021-12-22', 1822083, 11128035),  
(101102, '2021-04-03', 'A', '2021-12-22', 1822083, 11122033),  
(101105, '2021-04-01', 'C', '2021-11-22', 1822084, 11123042),  
(101106, '2021-04-01', 'B', '2021-12-22', 1822084, 11128035),  
(101107, '2021-07-05', 'A', '2021-12-22', 1822081, 11123031),  
(101108, '2021-07-05', 'D', '2021-12-22', 1822081, 11123042),  
(101109, '2021-04-03', 'C', '2021-12-22', 1822082, 11123042),  
(101110, '2021-04-03', 'B', '2021-12-22', 1822082, 11122033),  
(101111, '2021-04-01', 'A', '2021-12-22', 1822085, 11122033),  
(101112, '2021-04-01', 'B', '2021-12-22', 1822085, 11123031),  
(101211, '2021-11-17', 'D', '2022-04-27', 1822081, 21128035),  
(101212, '2021-11-17', 'B', '2022-04-27', 1822081, 21122034),  
(101214, '2021-11-14', 'AB', '2022-04-27', 1822083, 21125042),  
(101215, '2021-11-14', 'B', '2022-04-27', 1822083, 21122034),  
(101216, '2021-11-14', 'BC', '2022-04-27', 1822084, 21122034),  
(101217, '2021-11-15', 'A', '2022-04-27', 1822082, 21128035),  
(101218, '2021-11-15', 'CD', '2022-04-27', 1822082, 21123031),  
(101219, '2021-11-14', 'D', '2022-04-27', 1822085, 21125042),  
(101220, '2021-11-14', 'A', '2022-04-27', 1822085, 21128035),  
(101221, '2021-11-14', 'A', '2022-04-27', 1822084, 21123031);
```