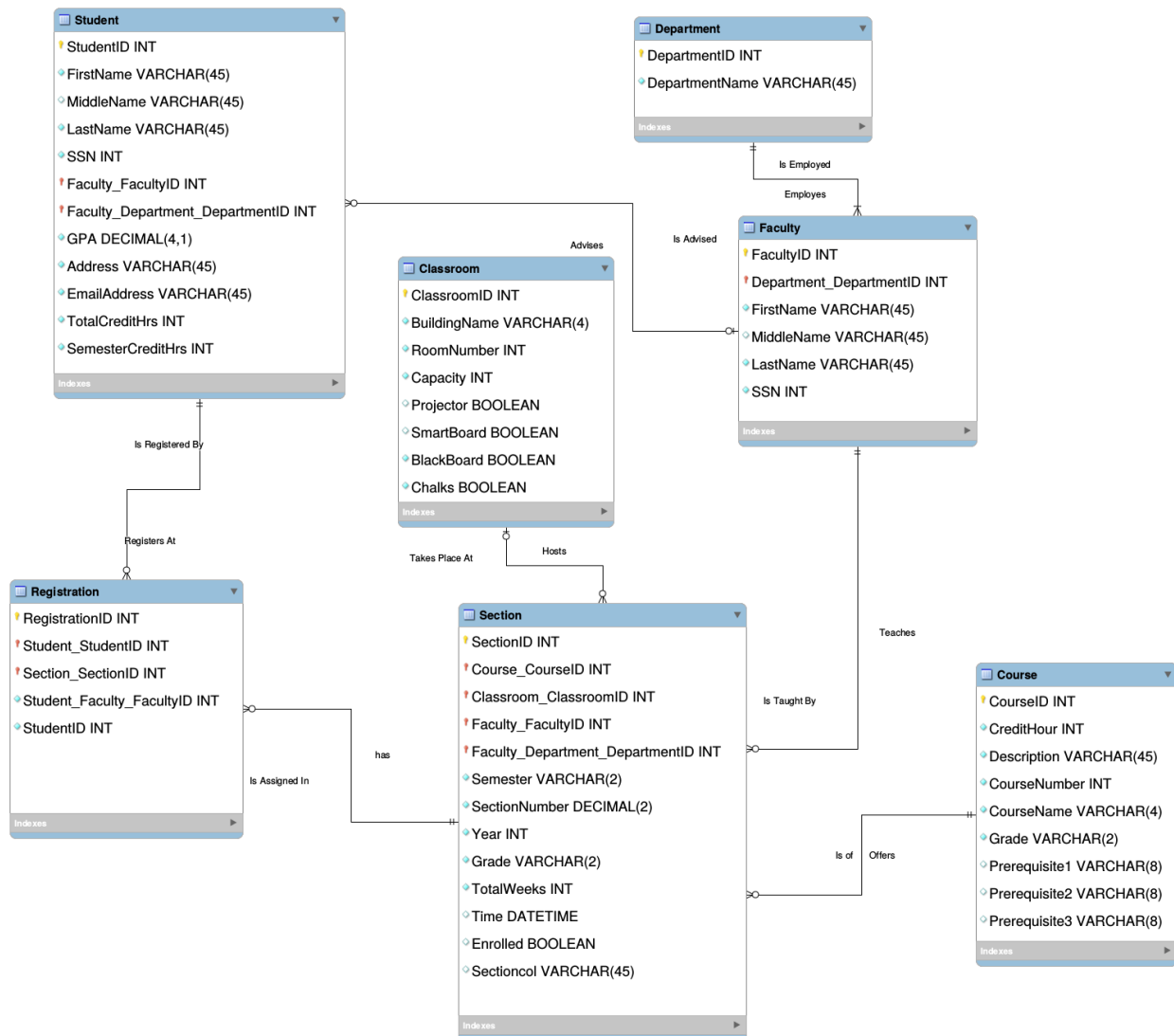


CSCI-3287, Project1

Chen Hao Cheng



```

SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0;
SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS,
FOREIGN_KEY_CHECKS=0;
SET @OLD_SQL_MODE=@@SQL_MODE,
SQL_MODE='TRADITIONAL,ALLOW_INVALID_DATES';
    
```

-- Schema mydb

```
-----  
  
-----  
-- Schema mydb  
-----
```

```
CREATE SCHEMA IF NOT EXISTS `mydb` DEFAULT CHARACTER SET utf8 ;  
USE `mydb` ;
```

```
-----  
-- Table `mydb`.`Department`  
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Department` (  
  `DepartmentID` INT NOT NULL AUTO_INCREMENT,  
  `DepartmentName` VARCHAR(45) NOT NULL,  
  PRIMARY KEY (`DepartmentID`))  
ENGINE = InnoDB;
```

```
-----  
-- Table `mydb`.`Faculty`  
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Faculty` (  
  `FacultyID` INT NOT NULL AUTO_INCREMENT,  
  `Department_DepartmentID` INT NOT NULL,  
  `FirstName` VARCHAR(45) NOT NULL,  
  `MiddleName` VARCHAR(45) NULL,  
  `LastName` VARCHAR(45) NOT NULL,  
  `SSN` INT NOT NULL,  
  PRIMARY KEY (`FacultyID`, `Department_DepartmentID`),  
  INDEX `fk_Faculty_Department1_idx` (`Department_DepartmentID` ASC),  
  CONSTRAINT `fk_Faculty_Department1`
```

```
FOREIGN KEY (`Department_DepartmentID`)
REFERENCES `mydb`.`Department` (`DepartmentID`)
ON DELETE NO ACTION
ON UPDATE NO ACTION)
ENGINE = InnoDB;
```

```
-----
-- Table `mydb`.`Student`
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Student` (
  `StudentID` INT NOT NULL AUTO_INCREMENT,
  `FirstName` VARCHAR(45) NOT NULL,
  `MiddleName` VARCHAR(45) NULL,
  `LastName` VARCHAR(45) NOT NULL,
  `SSN` INT NOT NULL,
  `Faculty_FacultyID` INT NULL,
  `Faculty_Department_DepartmentID` INT NULL,
  `GPA` DECIMAL(4,1) NOT NULL,
  `Address` VARCHAR(45) NOT NULL,
  `EmailAddress` VARCHAR(45) NOT NULL,
  `TotalCreditHrs` INT NOT NULL,
  `SemesterCreditHrs` INT NOT NULL,
  PRIMARY KEY (`StudentID`, `Faculty_FacultyID`, `Faculty_Department_DepartmentID`),
  INDEX `fk_Student_Faculty1_idx` (`Faculty_FacultyID` ASC,
  `Faculty_Department_DepartmentID` ASC),
  CONSTRAINT `fk_Student_Faculty1`
    FOREIGN KEY (`Faculty_FacultyID`, `Faculty_Department_DepartmentID`)
    REFERENCES `mydb`.`Faculty` (`FacultyID`, `Department_DepartmentID`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
```

```
ENGINE = InnoDB;
```

```
-----  
-- Table `mydb`.`Course`  
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Course` (  
  `CourseID` INT NOT NULL AUTO_INCREMENT,  
  `CreditHour` INT NOT NULL,  
  `Description` VARCHAR(45) NOT NULL,  
  `CourseNumber` INT NOT NULL,  
  `CourseName` VARCHAR(4) NOT NULL,  
  `Grade` VARCHAR(2) NOT NULL,  
  `Prerequisite1` VARCHAR(8) NULL,  
  `Prerequisite2` VARCHAR(8) NULL,  
  `Prerequisite3` VARCHAR(8) NULL,  
  PRIMARY KEY (`CourseID`))  
ENGINE = InnoDB;
```

```
-----  
-- Table `mydb`.`Classroom`  
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Classroom` (  
  `ClassroomID` INT NOT NULL AUTO_INCREMENT,  
  `BuildingName` VARCHAR(4) NOT NULL,  
  `RoomNumber` INT NOT NULL,  
  `Capacity` INT NOT NULL,  
  `Projector` TINYINT(1) NULL,  
  `SmartBoard` TINYINT(1) NULL,  
  `BlackBoard` TINYINT(1) NOT NULL,
```

```
`Chalks` TINYINT(1) NOT NULL,  
PRIMARY KEY (`ClassroomID`))  
ENGINE = InnoDB;
```

```
-----  
-- Table `mydb`.`Section`  
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Section` (  
  `SectionID` INT NOT NULL AUTO_INCREMENT,  
  `Course_CourseID` INT NOT NULL,  
  `Classroom_ClassroomID` INT NULL,  
  `Faculty_FacultyID` INT NOT NULL,  
  `Faculty_Department_DepartmentID` INT NOT NULL,  
  `Semester` VARCHAR(2) NOT NULL,  
  `SectionNumber` DECIMAL(2) NOT NULL,  
  `Year` INT NOT NULL,  
  `Grade` VARCHAR(2) NOT NULL,  
  `TotalWeeks` INT NOT NULL,  
  `Time` DATETIME NULL,  
  `Enrolled` TINYINT(1) NULL,  
  `Sectioncol` VARCHAR(45) NULL,  
  PRIMARY KEY (`SectionID`, `Course_CourseID`, `Classroom_ClassroomID`,  
  `Faculty_FacultyID`, `Faculty_Department_DepartmentID`),  
  INDEX `fk_Section_Course1_idx` (`Course_CourseID` ASC),  
  INDEX `fk_Section_Classroom1_idx` (`Classroom_ClassroomID` ASC),  
  INDEX `fk_Section_Faculty1_idx` (`Faculty_FacultyID` ASC,  
  `Faculty_Department_DepartmentID` ASC),  
  CONSTRAINT `fk_Section_Course1`  
    FOREIGN KEY (`Course_CourseID`)  
    REFERENCES `mydb`.`Course` (`CourseID`)
```

```

ON DELETE NO ACTION
ON UPDATE NO ACTION,
CONSTRAINT `fk_Section_Classroom1`
FOREIGN KEY (`Classroom_ClassroomID`)
REFERENCES `mydb`.`Classroom` (`ClassroomID`)
ON DELETE NO ACTION
ON UPDATE NO ACTION,
CONSTRAINT `fk_Section_Faculty1`
FOREIGN KEY (`Faculty_FacultyID` , `Faculty_Department_DepartmentID`)
REFERENCES `mydb`.`Faculty` (`FacultyID` , `Department_DepartmentID`)
ON DELETE NO ACTION
ON UPDATE NO ACTION)
ENGINE = InnoDB;

```

```

-----
-- Table `mydb`.`Registration`
-----

```

```

CREATE TABLE IF NOT EXISTS `mydb`.`Registration` (
  `RegistrationID` INT NOT NULL,
  `Student_StudentID` INT NOT NULL,
  `Section_SectionID` INT NOT NULL,
  `Student_Faculty_FacultyID` INT NOT NULL,
  `StudentID` INT NOT NULL AUTO_INCREMENT,
  PRIMARY KEY (`RegistrationID`, `Student_StudentID`, `Section_SectionID`),
  INDEX `fk_Registration_Student1_idx` (`Student_StudentID` ASC,
  `Student_Faculty_FacultyID` ASC),
  INDEX `fk_Registration_Section1_idx` (`Section_SectionID` ASC),
  CONSTRAINT `fk_Registration_Student1`
FOREIGN KEY (`Student_StudentID`)
REFERENCES `mydb`.`Student` (`StudentID`)

```

```
ON DELETE NO ACTION
ON UPDATE NO ACTION,
CONSTRAINT `fk_Registration_Section1`
FOREIGN KEY (`Section_SectionID`)
REFERENCES `mydb`.`Section` (`SectionID`)
ON DELETE NO ACTION
ON UPDATE NO ACTION)
ENGINE = InnoDB;
```

```
SET SQL_MODE=@OLD_SQL_MODE;
SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS;
SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS;
```

Section 3: Assumption

- There are 700 new students in average join the university
- The SSN number was used as an identifier for students prior to the implementation of PC-based system in 1997
- If the course is full, the capacity attribute will reach maximum. Same as the section size
- Faculty must have SSN with 5-digit EmployeeID
- There must be a description in each course
- Each classroom has at least a blackboard and chalks
- For each course, the grade is 2 characters such as B+
- Since the school operates three semesters, so there is a semester attribute in section table
- Prerequisite course is 8 characters long (i.e. CSCI3287)
- Each course carries credit-hours between 1 to 4
- No student can take more than 18 credit-hours each semester
- Each semester represented by 2 characters (Spring: SP, Fall: FL, Summer: SM)