definitions

#primary key

foreign key

[] composite Keys

*departments

(#depID,depname,depPhone,##profID-As head,##locationID)

*professors

(#profID,profFName,profLName,proOffice,profContact,##depId)

*courses

(#[courseID,##depID(from department)],courseName,courseCredits,courseHours)

*courseSections

(#[##courseId,secSem,secYear,secNo],secName,secClass,secClassSize,secTime)

*professorSections

(#[##professorID,##courseId,##secSem,##secYear,##secNo],##bookID)

*book

(#bookID,bookISBN,bookYear,bookTitle,bookPublisher,##professorID)

*graduate

(#stdID,stdFName,stdLName,stdStreetNo,stdStreet,stdCity)

*undergraduate

(#stdID,stdFName,stdLName,stdStreetNo,stdStreet,stdCity)

*studentCourseSections

(#[##courseId,##secSem,##secYear,##secNo,##stdID])

*studentBookborrow

(#[##stdID,##bookID],issuedDate,returnedDate)

**companysessionmanager

(#empID,##sesYear,##sesSem,manFName,manLName)

*companysession

(comSesName,#sesYear,#sesSem,comSesAssesment)

*undergraduatecompanysessions

(#[##stdID,##comSesID])

*labsession
(#[##courseId,##secSem,##secYear,##secNo,labSessionNo],labTopic,labTime,location,stdID(from Graduate))

*Location
(#locationID,locStreet,locStreetNo,locCity)

-----SQL QUERIES----------

```
CREATE TABLE location(
	locationID VARCHAR(20) NOT NULL PRIMARY KEY,
	locStreet VARCHAR(50) NOT NULL,
	locStreeNo VARCHAR(10) NOT NULL,
	locCity VARCHAR(50) NOT NULL,
);


CREATE TABLE departments(
	depID VARCHAR(20) NOT NULL PRIMARY KEY,
	depName VARCHAR(100) NOT NULL,
	depPhone VARCHAR(20) NOT NULL,
	profID VARCHAR(20),
	locationID VARCHAR(20),

	FOREIGN KEY (locationID) REFERENCES location(locationID) ON DELETE SET NULL ON UPDATE CASCADE
);

CREATE TABLE professors(
	profID VARCHAR(20) NOT NULL PRIMARY KEY,
	profFName VARCHAR(50) NOT NULL,
	proLName VARCHAR(50) NOT NULL,
	profContact VARCHAR(20) NOT NULL,
	profEmail VARCHAR(50),
	depID VARCHAR(20),

	FOREIGN KEY (depID) REFERENCES departments(depID) ON DELETE SET NULL ON UPDATE CASCADE

);

ALTER TABLE departments
ADD FOREIGN KEY (profID) REFERENCES professors(profID) ON DELETE SET NULL ON UPDATE CASCADE;
```

```
CREATE TABLE courses(
	courseID VARCHAR(20) NOT NULL,
	depID VARCHAR(20) NOT NULL,
	courseName VARCHAR(100) NOT NULL,
	courseCredits INT(3) NOT NULL,
	courseHours INT(2) NOT NULL,
	PRIMARY KEY(courseID,depID),

	FOREIGN KEY (depID) REFERENCES departments(depID) ON DELETE CASCADE
ON UPDATE CASCADE
);

CREATE TABLE course_sections(
	courseID VARCHAR(20) NOT NULL,
	secSem INT(5) NOT NULL,
	secYear INT(5) NOT NULL,
	secNo INT(5) NOT NULL,
	secName VARCHAR(50) NOT NULL,
	secClass VARCHAR(20) NOT NULL,
	secClassSize INT(5) NOT NULL,
	secTime VARCHAR(20) NOT NULL,
	PRIMARY KEY(courseID,secSem,secYear,secNo),

	FOREIGN KEY (courseID) REFERENCES courses(courseID) ON DELETE
CASCADE ON UPDATE CASCADE
);

CREATE TABLE book(
	bookID VARCHAR(20) NOT NULL PRIMARY KEY,
	bookISBN varchar(20) NOT NULL,
	bookYear INT(5) NOT NULL,
	bookTitle VARCHAR(100) NOT NULL,
	bookPublisher VARCHAR(100) NOT NULL,
	profID VARCHAR(20) ,

	FOREIGN KEY (profID) REFERENCES professors(profID) ON DELETE CASCADE
ON UPDATE CASCADE
);

CREATE TABLE teachingBooks(
	profID VARCHAR(20) NOT NULL,
	courseID VARCHAR(20) NOT NULL,
	secSem INT(5) NOT NULL,
	secYear INT(5) NOT NULL,
	secNo INT(5) NOT NULL,
	bookID VARCHAR(20),
```

```
	PRIMARY KEY (profID,courseID,secSem,secYear,secNo),

	FOREIGN KEY (profID) REFERENCES professors(profID) ON DELETE CASCADE
ON UPDATE CASCADE,
	FOREIGN KEY (courseID) REFERENCES course_sections(courseID) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (secSem) REFERENCES course_sections(secSem) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (secYear) REFERENCES course_sections(secYear) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (secNo) REFERENCES course_sections(secNo) ON DELETE
CASCADE ON UPDATE CASCADE,

);

CREATE TABLE graduate(
	stdID VARCHAR(20) NOT NULL PRIMARY KEY,
	stdFName VARCHAR(50) NULL,
	stdLName VARCHAR(50) NULL,
	stdStreetNo VARCHAR(20) NULL,
	stdStreet VARCHAR(20) NULL,
	stdCity VARCHAR(20) NULL

);


CREATE TABLE students(
	stdID VARCHAR(20) NOT NULL PRIMARY KEY,
	stdFName VARCHAR(50) NULL,
	stdLName VARCHAR(50) NULL,
	stdStreetNo VARCHAR(20) NULL,
	stdStreet VARCHAR(20) NULL,
	stdCity VARCHAR(20) NULL

);

CREATE TABLE undergraduate(
	stdID VARCHAR(20) NOT NULL PRIMARY KEY,
	FOREIGN KEY (stdID) REFERENCES students(stdID) ON DELETE CASCADE ON
UPDATE CASCADE
);

CREATE TABLE graduate(
	stdID VARCHAR(20) NOT NULL PRIMARY KEY,
```

```
	FOREIGN KEY (stdID) REFERENCES students(stdID) ON DELETE CASCADE ON
UPDATE CASCADE


);

CREATE TABLE student_course_section(
	courseID VARCHAR(20) NOT NULL,
	secSem INT(5) NOT NULL,
	secYear INT(5) NOT NULL,
	secNo INT(5) NOT NULL,
	stdID VARCHAR(20) NOT NULL,

	PRIMARY KEY(courseID,secSem,secYear,secNo,stdID),

	FOREIGN KEY (courseID) REFERENCES course_sections(courseID) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (secSem) REFERENCES course_sections(secSem) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (secYear) REFERENCES course_sections(secYear) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (secNo) REFERENCES course_sections(secNo) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (stdID) REFERENCES students(stdID) ON DELETE CASCADE ON
UPDATE CASCADE

);

CREATE TABLE stud_book_borrow(
	stdID VARCHAR(20) NOT NULL,
	bookID VARCHAR(20) NOT NULL,
	issuedDate VARCHAR(50),
	returnedDate VARCHAR(50),

	PRIMARY KEY (stdID,bookID),

	FOREIGN KEY (stdID) REFERENCES students(stdID) ON DELETE CASCADE ON
UPDATE CASCADE,
	FOREIGN KEY (bookID) REFERENCES book(bookID) ON DELETE CASCADE ON
UPDATE CASCADE

);

CREATE TABLE companySession(
	comSesName VARCHAR(100) NOT NULL,
	sesYear INT(5) NOT NULL,
```

```
	sesSem INT(5) NOT NULL,
	comSesAssesment VARCHAR(50) NOT NULL,

	PRIMARY KEY(sesYear,sesSem)
);

CREATE TABLE company_sess_manager(
	empID VARCHAR(20) NOT NULL PRIMARY KEY,
	empFName VARCHAR(50) NOT NULL,
	empLName VARCHAR(50) NOT NULL,
	sesYear INT(5),
	sesSem INT(5),

	FOREIGN KEY (sesYear) REFERENCES companySession(sesYear) ON DELETE
SET NULL ON UPDATE CASCADE,
	FOREIGN KEY (sesSem) REFERENCES companySession(sesSem) ON DELETE
SET NULL ON UPDATE CASCADE

);

CREATE TABLE undergraduatecompanysessions(
	stdID VARCHAR(20) NOT NULL,
	sesYear INT(5) NOT NULL,
	sesSem INT(5) NOT NULL,

	PRIMARY KEY(stdID,sesYear,sesSem),
	FOREIGN KEY (stdID) REFERENCES undergraduate(stdID) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (sesYear) REFERENCES companySession(sesYear) ON DELETE
CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (sesSem) REFERENCES companySession(sesSem) ON DELETE
CASCADE ON UPDATE CASCADE

);

CREATE TABLE labSession(
	courseID VARCHAR(20) NOT NULL,
	secSem INT(5) NOT NULL,
	secYear INT(5) NOT NULL,
	secNo INT(5) NOT NULL,
	labSessionNo INT(5) NOT NULL,
	labTopic VARCHAR(100),
	labTime VARCHAR(50),
	location VARCHAR(100),
	stdID VARCHAR(20) NOT NULL,
```

```
        PRIMARY KEY(courseID,secSem,secYear,secNo,labSessionNo),

        FOREIGN KEY (courseID) REFERENCES course_sections(courseID) ON DELETE
CASCADE ON UPDATE CASCADE,
        FOREIGN KEY (secSem) REFERENCES course_sections(secSem) ON DELETE
CASCADE ON UPDATE CASCADE,
        FOREIGN KEY (secYear) REFERENCES course_sections(secYear) ON DELETE
CASCADE ON UPDATE CASCADE,
        FOREIGN KEY (secNo) REFERENCES course_sections(secNo) ON DELETE
CASCADE ON UPDATE CASCADE,
        FOREIGN KEY (stdID) REFERENCES graduate(stdID) ON DELETE CASCADE ON
UPDATE CASCADE

);


###
```