CSCI 3287/5817 -- Assignment 1

Fall 2015

Due Tuesday, September 1st by midnight but at least try to get it started before class Monday, August 31st.

In MySQL, create the schema for the university database that is shown on the next page. There are a few extra constraints that are not shown in the schema that I will tell you about once you get the database created.

To help you along, the steps necessary to create the db are as follows:

1) Install MySQL.
2) Change root password.
3) Create a new account with admin privileges. This account is what you will use to create the database.
4) Create all the tables that are shown in the schema making sure that you implement the primary and foreign keys.
5) Play around with the db by trying to break some of the primary and foreign key constraints.
6) Once you have your database set up, I will provide data for you to populate it.
7) Feel free to post any questions to the forum on Moodle.

Some useful MySQL commands:

To log in the first time from the command line:

> mysql –u root –p

ALTER USER 'root'@'localhost' IDENTIFIED BY 'newpass';

CREATE USER 'adam'@'localhost' IDENTIFIED BY 'some_pass';

GRANT ALL PRIVILEGES ON *.* TO 'adam'@'localhost' WITH GRANT OPTION;

Now log out of root and log back in using the new credentials. In the case above, you would use the following:

> mysql –u adam –p
Enter password:

show databases;
use database;

```
show tables;
describe table;
create database university;
```

Once you have gotten this far, below is the code to create the first three tables:

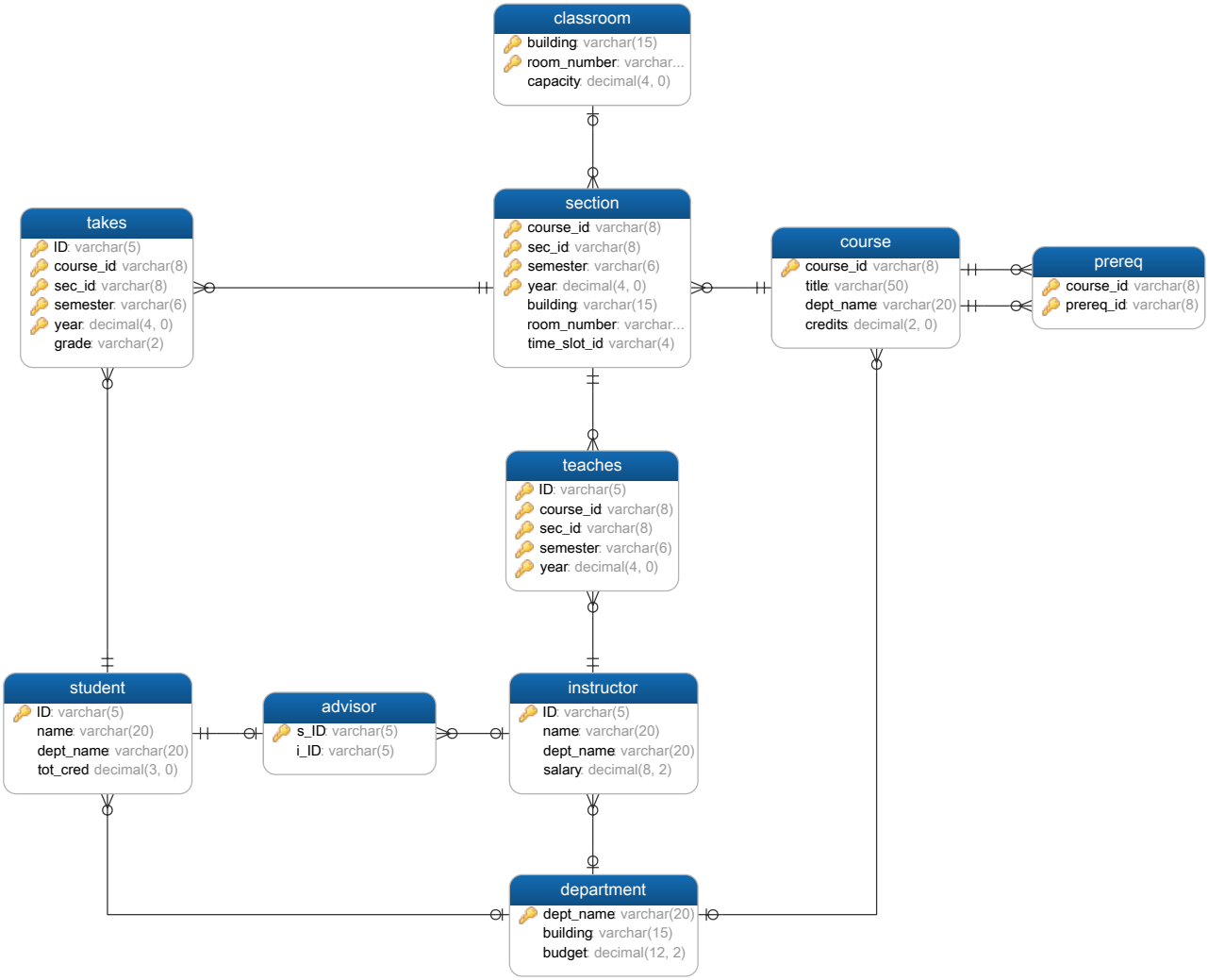
```
create table classroom
        (building               varchar(15),
         room_number            varchar(7),
         capacity               numeric(4,0),
         primary key (building, room_number)
        );

create table department
        (dept_name              varchar(20),
         building               varchar(15),
         budget                 numeric(12,2) check (budget > 0),
         primary key (dept_name)
        );

create table course
        (course_id              varchar(8),
         title                  varchar(50),
         dept_name              varchar(20),
         credits                numeric(2,0) check (credits > 0),
         primary key (course_id),
         foreign key (dept_name) references department (dept_name)
                on delete set null
        );
```

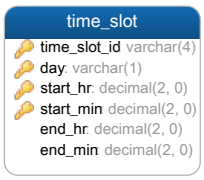
Now try to create the other tables from the schema. Once you have attempted it, I will provide a complete script to create the schema and populate the databases.

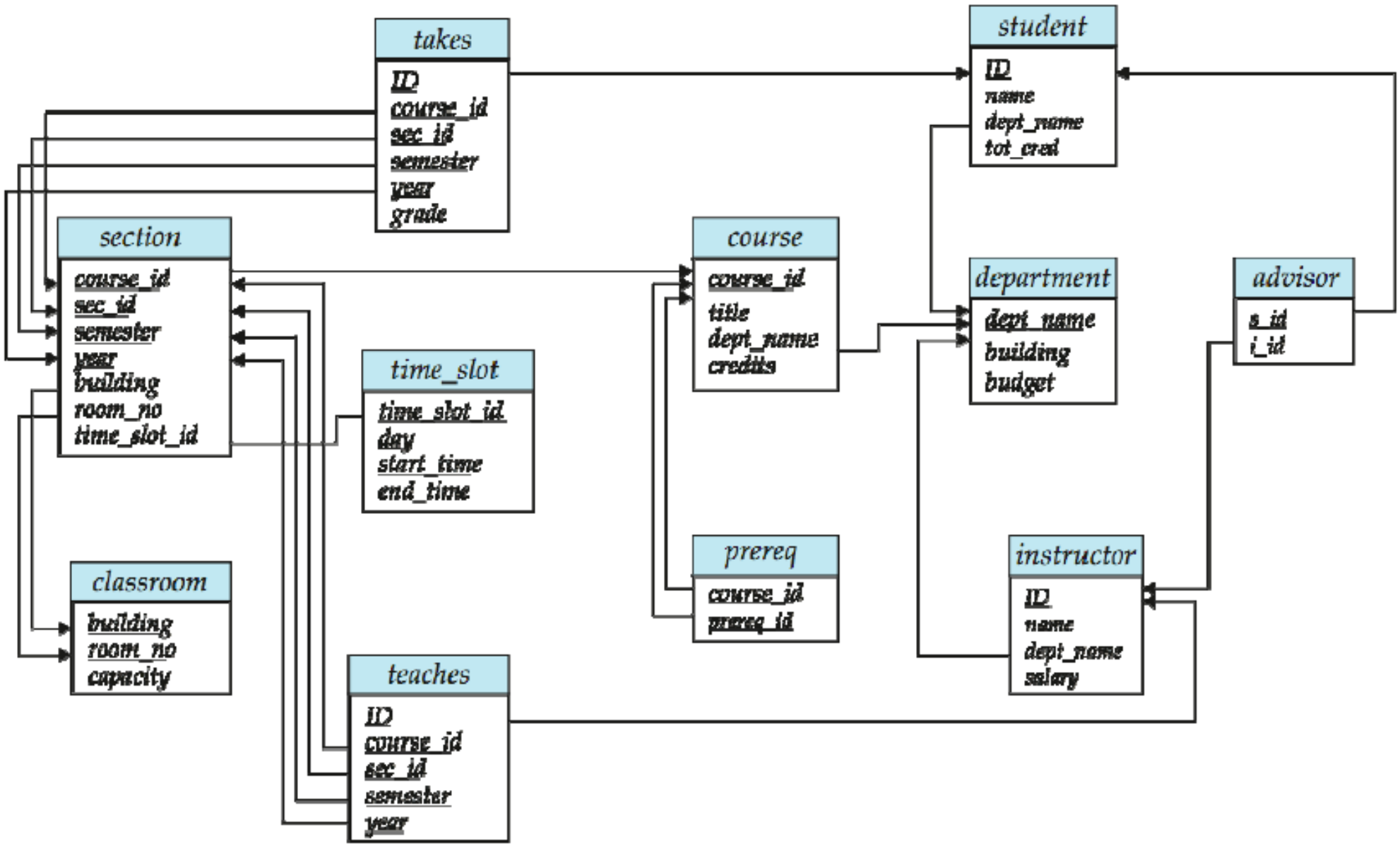
Below I am including the PRIMARY KEY, FOREIGN KEY and CHECK constraints you should impose:

Referencing Table	Primary Key	Referenced Table	Primary Key	FK Constraint Attribute(s)	CHECK constraint(s)
NA	NA	classroom	building, room_number	none	none
NA	NA	department	dept_name	none	none
course	course_id	department	dept_name	dept_name	none
instructor	ID	department	dept_name	dept_name	salary > 29,000
section	course_id, sec_id, semester, year	course	course_id	course_id	semester in ('Fall', 'Winter', 'Spring', 'Summer')
section	course_id, sec_id, semester, year	classroom	building, room_number	building, room_number	year > 1701 and year < 2100
teaches	ID, course_id, sec_id, semester, year	section	course_id,sec_id, semester, year	course_id,sec_id, semester, year	none
student	ID	department	dept_name	dept_name	tot_cred >= 0
takes	ID, course_id, sec_id, semester, year	section	course_id,sec_id, semester, year	course_id,sec_id, semester, year	none
advisor	i_ID	instructor	ID	ID	none
advisor	s_ID	student	ID	ID	none
time_slot	time_slot_id, day, start_hr, start_min	none	none	none	start_hr >= 0 and start_hr < 24
time_slot	time_slot_id, day, start_hr, start_min	none	none	none	start_min >= 0 and start_min < 60
time_slot	time_slot_id, day, start_hr, start_min	none	none	none	end_hr >= 0 and end_hr < 24

time_slot	time_slot_id, day, start_hr, start_min	none	none	none	end_min >= 0 and end_min < 60
prereq	course_id, prereq_id	course	course_id	course_id	none
prereq	course_id, prereq_id	course	course_id	course_id	none


classroom
building: varchar(15)
room_number: varchar...
capacity: decimal(4, 0)
section
course_id: varchar(8)
sec_id: varchar(8)
semester: varchar(6)
year: decimal(4, 0)
building: varchar(15)
room_number: varchar...
time_slot_id: varchar(4)
takes
ID: varchar(5)
course_id: varchar(8)
sec_id: varchar(8)
semester: varchar(6)
year: decimal(4, 0)
grade: varchar(2)
course
course_id: varchar(8)
title: varchar(50)
dept_name: varchar(20)
credits: decimal(2, 0)
prereq
course_id: varchar(8)
prereq_id: varchar(8)
teaches
ID: varchar(5)
course_id: varchar(8)
sec_id: varchar(8)
semester: varchar(6)
year: decimal(4, 0)
student
ID: varchar(5)
name: varchar(20)
dept_name: varchar(20)
tot_cred: decimal(3, 0)
advisor
s_ID: varchar(5)
i_ID: varchar(5)
instructor
ID: varchar(5)
name: varchar(20)
dept_name: varchar(20)
salary: decimal(8, 2)
department
dept_name: varchar(20)
building: varchar(15)
budget: decimal(12, 2)


time_slot
time_slot_id: varchar(4)
day: varchar(1)
start_hr: decimal(2, 0)
start_min: decimal(2, 0)
end_hr: decimal(2, 0)
end_min: decimal(2, 0)


takes
ID
course_id
sec_id
semester
year
grade
student
ID
name
dept_name
tot_cred
section
course_id
sec_id
semester
year
building
room_no
time_slot_id
course
course_id
title
dept_name
credits
department
dept_name
building
budget
advisor
s_id
i_id
time_slot
time_slot_id
day
start_time
end_time
prereq
course_id
prereq_id
classroom
building
room_no
capacity
instructor
ID
name
dept_name
salary
teaches
ID
course_id
sec_id
semester
year