Solutions to Homework 1
15-415
Question 1: Votes Database

- **Senator**
  - State
  - Name
  - Title

- **Sponsors**
  - 1:N with Senator
  - 0:M with Bill

- **Bill**
  - BName
  - DateofVote
  - PassedorFailed

- **Votes**
  - 1:N with Senator
  - 1:M with Bill

- **How**
• create table Senator(name varchar(50), title varchar(50), state varchar(20), primary key name);

• create table Bill(bname varchar(50), dateofvote varchar(10), passedorfailed binary, primary key bname);

• create table Sponsors(name varchar(50), bname varchar(50), primary key (name, bname), foreign key (name) references Senator, foreign key (bname) references Bill);

• create table Votes(name varchar(50), bname varchar(50), how varchar(4), primary key (name, bname), foreign key (name) references Senator, foreign key (bname) references Bill);
Question 2: Garage Database

- **Customer**
  - Name
  - Ph.No.
  - Addr.

- **Vehicle**
  - VIN
  - Make
  - Model
  - Year

- **Part**
  - PNum
  - Cost

- **Job**
  - Date
  - Desc.
  - Cost

- **Involves**
  - 0:N

- **Owns**
  - 1:1

- **Has**
  - 1:1

- **1:N**
• create table Customer(name varchar(50), addr varchar(50), phno integer, primary key name);

• create table Vehicle(vin integer, make varchar(10), model varchar(10), year integer primary key vin);

• create table Job(vin integer, desc varchar(200), date varchar(10), cost float, primary key (vin, date), foreign key (vin) references Vehicle);

• create table Part(pnum integer, pname varchar(50), cost integer, primary key (pnum));

• create table Owns(name varchar(50), vin integer, primary key (name, vin), foreign key (name) references Customer, foreign key(vin) references Vehicle);

• create table Involves(vin integer, pnum integer, date varchar(10), primary key(vin, pnum, date), foreign key(vin) references Vehicle, foreign key(pnum) references Part, foreign key(date) references Job);
Question 3: Social Network

User
- Uname
- Name
- Addr

Friends
- 0:N

Posting
- TimeS
- Text
- Owns
- Writes

Appears
- 1:N

Appearance
- X
- Y
- TimeS

Approaches
- 0:N

Write
- 1:1

Owns
- 1:1

Detection
- 0:N
create table User(uname varchar(10), addr varchar(50), name varchar(50), primary key uname);

create table Posting(author varchar(10), owner varchar(10), text varchar(100), times varchar(10), primary key (author, owner, times), foreign key (author) references User.uname, foreign key(owner) references User.uname);

create table Appearance(x float, y float, times varchar(10), uname varchar(10), primary key (times, uname), foreign key(uname) references User);

create table Friend(uname varchar(50), friend varchar(50), primary key (uname, friend), foreign key(uname) references User, foreign key(friend) references User.uname);
Question 4: Movie Ratings

4.1 select distinct movie from recommendation where rating = 5;

4.2 select customer from recommendation where movie = “Gone with the wind”;

4.3 Output of Q4.1

Gone with the wind
Fight Club
4.4 Output of Q4.2
John Doe
Rob Smith
Jane Matthew
Bob Miller
Kate Brown

4.5 select count(*) from recommendation where rating = 5;

4.6 select count(*) from recommendation where rating = 1 and movie = “Gone with the wind”;
4.7 Output of Q4.5
2191

4.8 Output of Q4.6
28

4.9/4.10 Easy. Ask TA if in doubt.