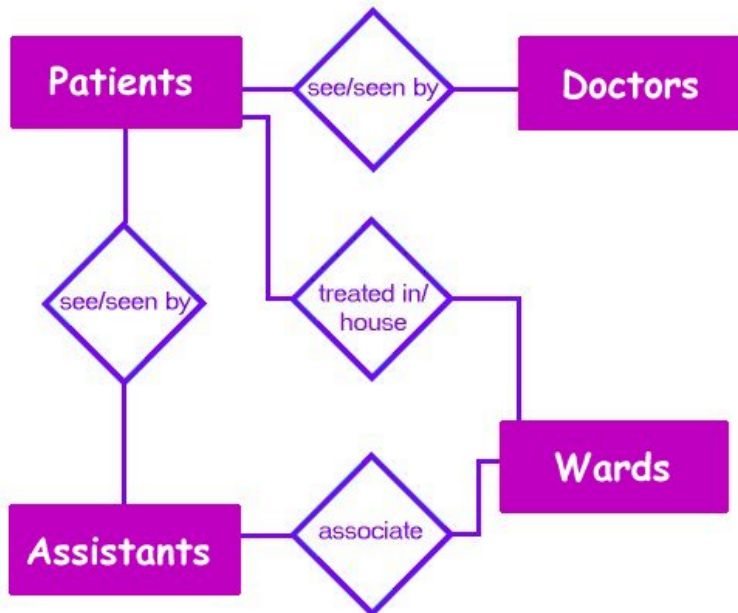
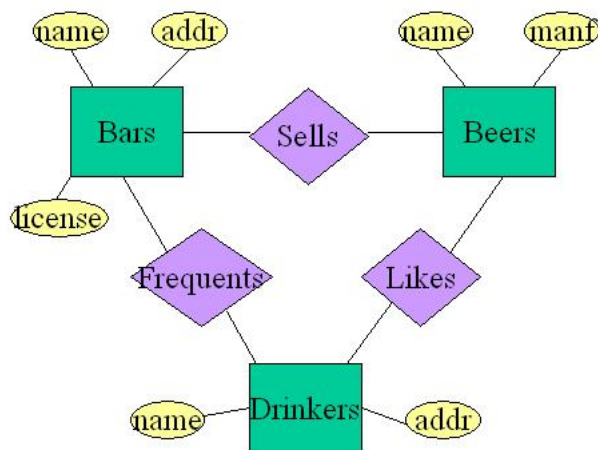


### A Hospital Case:

Patients are treated in a single ward by the doctors assigned to them. Usually each patient will be assigned a single doctor, but in rare cases they will have two. Healthcare assistants also attend to the patients, a number of these are associated with each ward.



### Drinking Example



## University Database

"A lecturer, identified by his or her number, name and room number, is responsible for organising a number of course modules. Each module has a unique code and also a name and each module can involve a number of lecturers who deliver part of it. A module is composed of a series of lectures and because of economic constraints and common sense, sometimes lectures on a given topic can be part of more than one module. A lecture has a time, room and date and is delivered by a lecturer and a lecturer may deliver more than one lecture. Students, identified by number and name, can attend lectures and a student must be registered for a number of modules. We also store the date on which the student first registered for that module. Finally, a lecturer acts as a tutor for a number of students and each student has only one tutor."

### Entities (**bold face**)

**Lecturer:**

**Student**

**Module**

**Lecture**

### Relationships (*italics*)

A lecturer is responsible for organising a number of course modules

**Lecturer-Module** (1:N) *is responsible for*

Each module can involve a number of lecturers who deliver part of it.

**Lecturer-Module** (N:M) *lectures*

A Module is composed of a series of Lectures and Lectures on a given topic can be part of more than one Module

**Module-Lecture** (N:M) *is part of*

A Lecture is delivered by a Lecturer and a lecturer may deliver more than one lecture.

**Lecturer-Lecture** (1:N) *delivers*

Students, can attend Lectures

**Student-Lecture** (N:M) *attend*

and a Student must be registered for a number of Modules

**Student-Module** (N:M) *registers*

Lecturer acts as a tutor for a number of Students and each Student has only one tutor

**Lecturer-Student** (1:N) *tutors*

### Attributes (**key attributes**)

**Lecturer:** (Number, Name, Office)

**Student** (Number, Name)

**Module** (Code, Name)

**Lecture** (Room, Date, Time)

*Registers* (Date)

## Bus Company

A Bus Company owns a number of busses. Each bus is allocated to a particular route, although some routes may have several busses. Each route passes through a number of towns. One or more drivers are allocated to each stage of a route, which corresponds to a journey through some or all of the towns on a route. Some of the towns have a garage where busses are kept and each of the busses are identified by the registration number and can carry different numbers of passengers, since the vehicles vary in size and can be single or double-decked. Each route is identified by a route number and information is available on the average number of passengers carried per day for each route. Drivers have an employee number, name, address, and sometimes a telephone number.

### Entities (**bold face**)

- **Bus** - Company owns busses and will hold information about them.
- **Route** - Buses travel on routes and will need described.
- **Town** - Buses pass through towns and need to know about them
- **Driver** - Company employs drivers, personnel will hold their data.
- **Stage** - Routes are made up of stages
- **Garage** - Garage houses buses, and need to know where they are.

### Relationships (*italics*)

A bus is allocated to a route and a route may have several buses.

- **Bus-Route** (m:1) *is serviced by*

A route comprises of one or more stages.

- **Route-Stage** (1:m) *comprises*

One or more drivers are allocated to each stage.

- **Driver-Stage** (m:1) *is allocated*

A stage passes through some or all of the towns on a route.

- **Stage-Town** (m:n) *passes-through*

A route passes through some or all of the towns

- **Route-Town** (m:n) *passes-through*

Some of the towns have a garage

- **Garage-Town** (1:1) *is located in*

A garage keeps buses and each bus has one 'home' garage

- **Garage-Bus** (m:1) *is garaged*

## Attributes (key attributes)

- **Bus** (reg-no,make,size,deck,no-pass)
- **Route** (route-no,avg-pass)
- **Driver** (emp-no,name,address,tel-no)
- **Town** (name)
- **Stage** (stage-no)
- **Garage** (name,address)

