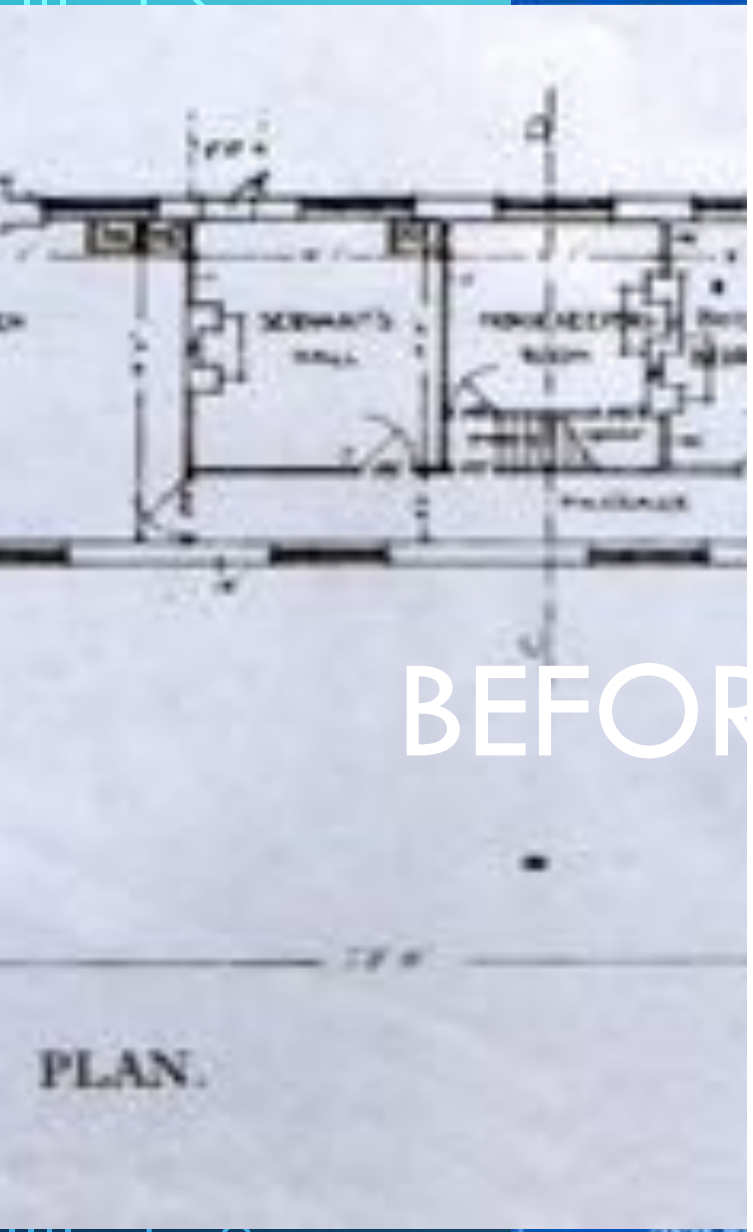
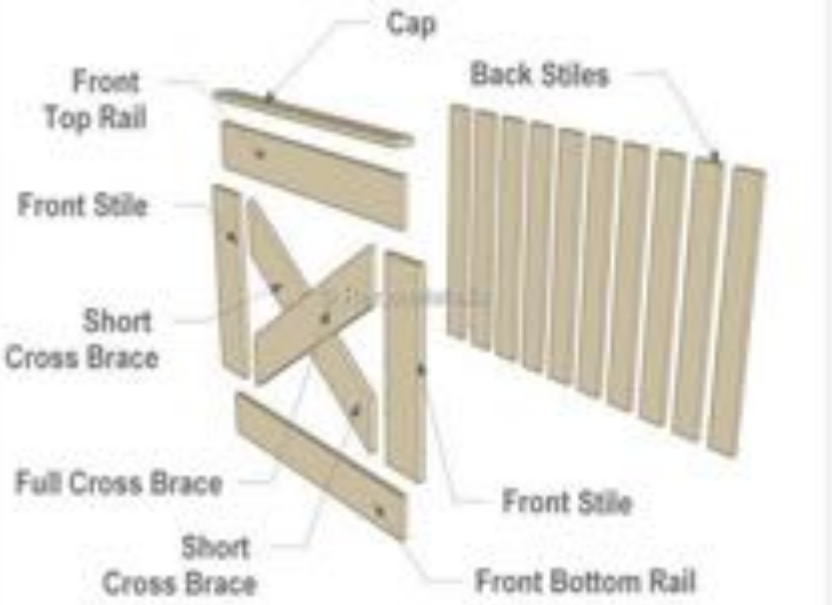
WEEK 1

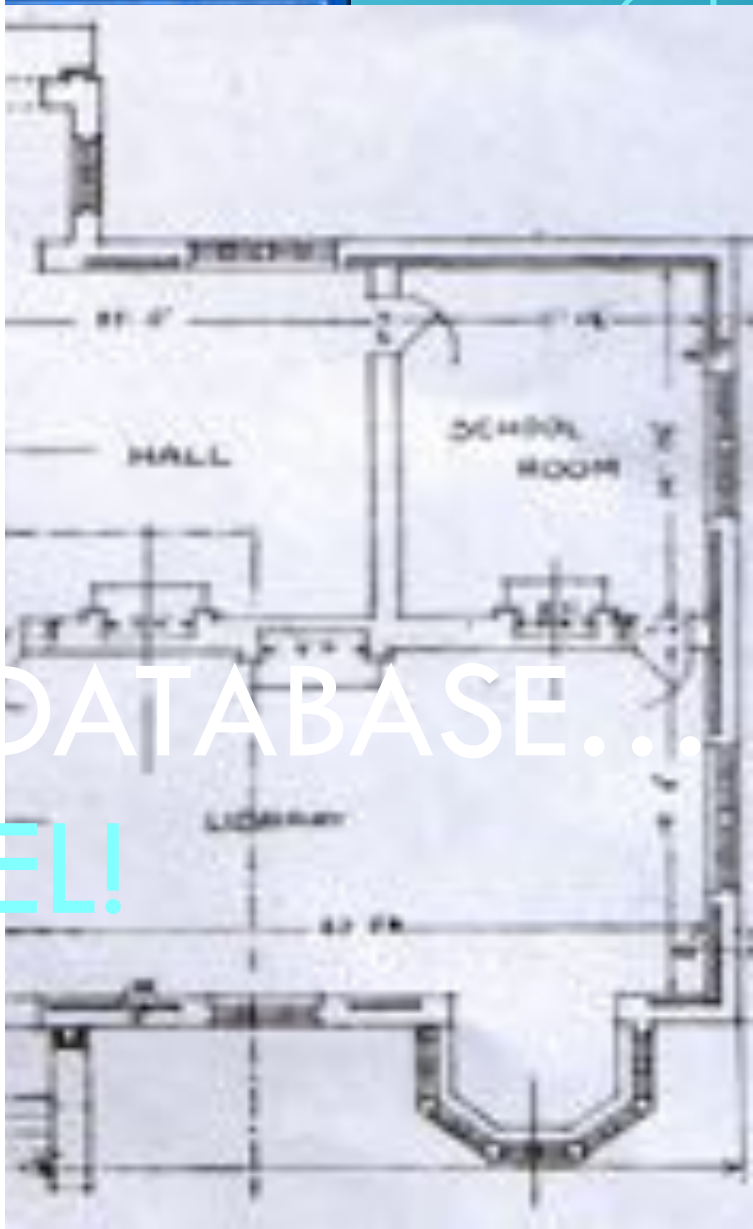
MODELLING DATA AND ENTITY RELATIONSHIP DIAGRAMS – PART 1

STUDENT OBJECTIVES

- Upon completion of this video, you should be able to:
  - List 2 of the steps required to build the requirements for a large system
  - Give the name of the model that we will use to visually represent our database for our mini-world
  - Give the name of the person who invented the visual model used for representing database
  - List at least 2 different pieces of software you could use to create the visual model







BEFORE CREATING A DATABASE...

BUILD A MODEL!

WHERE AND HOW DO WE START?

CALNOC Benchmarking Report - Falls and HAPU3+ Incidence By Unit

Service Line : Adult Acute Care

From : JULY 2011 To SEPTEMBER 2011

PCN : 16

Unit Name : 1SURGICAL

Report Group : California

Average Daily Census : 100-199

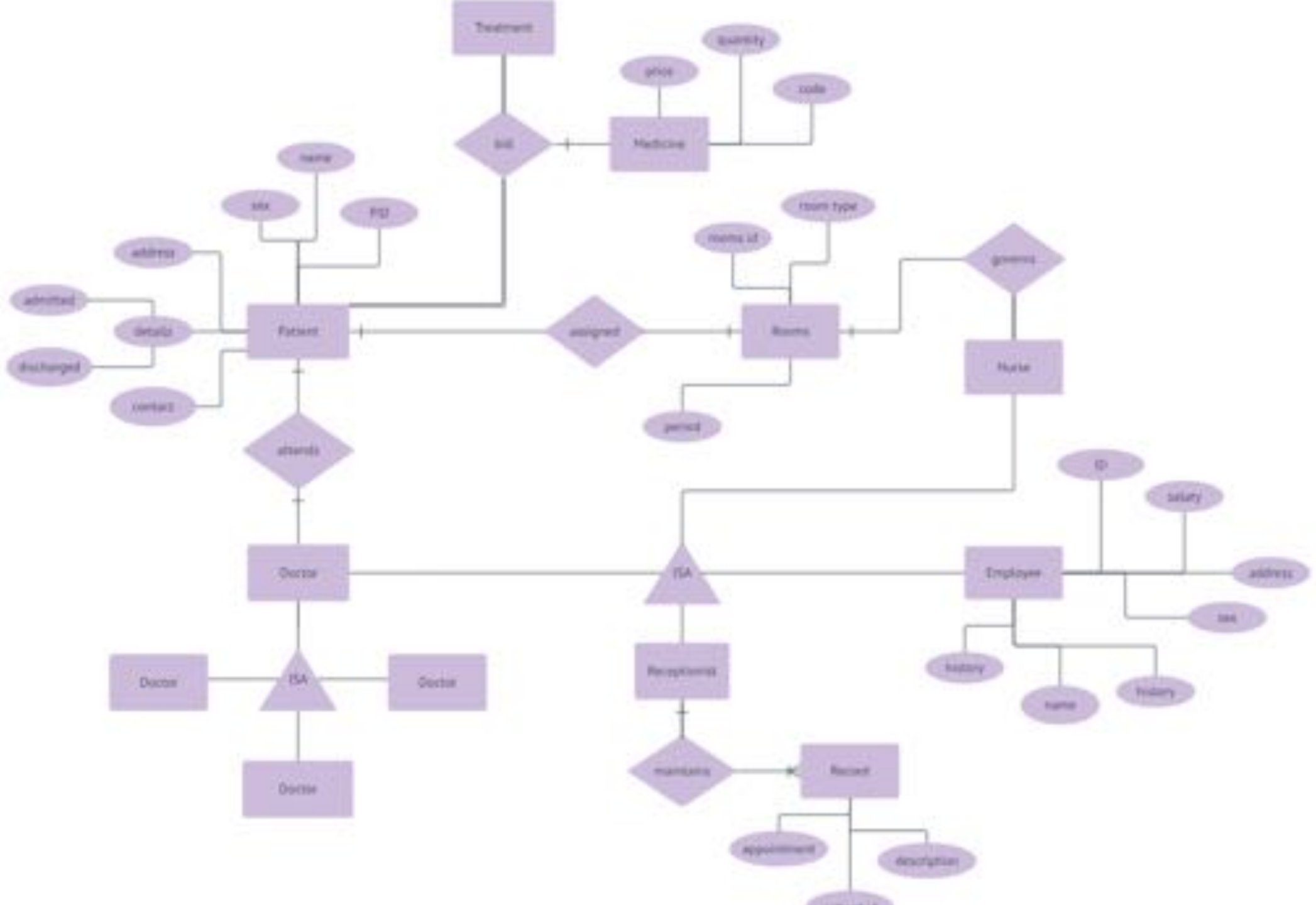
Date - 09/17/2012

Comparison Group Data

Unit/ Unit Type/ Measure	Year Unit	Unit Numerator*	Unit Denominator*	Facility Mean By Unit Type	California Like Hospital Mean Unit Type	California Mean By Unit Type	California 10th Percentile By Unit Type	California 25th Percentile (Lower Quartile) by Unit Type	California 50th Percentile (Median) by Unit Type	California 75th Percentile (Upper Quartile) by Unit Type	California 90th Percentile By Unit Type
1SURGICAL / Adult - Medical/Surgical											
Falls Incidence Measures											
1. Falls per 1000 Pt Days	2.48	7	2872	4.16	3.02	3.08	0.67	1.60	2.68	3.95	5.91
2. Unassisted Falls per 1000 Pt days	1.07	3	2872	3.67	2.41	2.53	0.31	1.25	2.19	3.26	4.84
3. All Injury Falls per 1000 Patient Days	0.37	1	2872	0.88	0.92	0.87	0.00	0.00	0.66	1.21	2.09
4. Moderate+ Injury Falls per 1000 Pt Days	0.37	1	2872	0.11	0.08	0.08	0.00	0.00	0.00	0.00	0.29
5. Percent of Reported Falls Resulting in Moderate+ Injury	8.33	1	7	2.78	2.48	2.79	0.00	0.00	0.00	0.00	8.33
Falls Descriptive Measures											
6. Percent of Falls Coded Accidental					44.78	39.33	0.00	0.00	30.00	75.00	100.00
7. Percent of Falls Coded Unanticipated Physiologic					1.01	1.13	0.00	0.00	1.00	1.00	3.00
8. Percent of Falls Coded Anticipated Physiologic					37.69	41.97	0.00	0.00	40.00	77.78	100.00
9. Percent of Falls Observed	66.67	4	7	11.94	19.45	19.99	0.00	0.00	14.29	33.33	50.00
10. Percent of Falls Assisted	66.67	4	7	11.94	18.48	16.55	0.00	0.00	5.00	26.32	50.00
11. Percent of Falls with Restraint in Use	8.33	1	7	11.25	5.33	4.27	0.00	0.00	0.00	0.00	14.29
12. Percent of Repeat Falls Same Unit	16.67	1	7	12.94	3.36	4.42	0.00	0.00	0.00	0.00	16.67
13. Percent of Repeat Falls Any Unit	0.00	0	7	0.00	3.16	2.79	0.00	0.00	0.00	0.00	8.33
Falls Prevention Measures											
14. Percent Patients Assessed at Risk	83.33	5	6	91.37	81.62	79.52	44.44	66.67	88.89	100.00	100.00

DRAW A MODEL BEFORE CREATING THE DATABASE!

- Entity Relationship Model (ER Diagram)
- Created by Peter Chen in 1976
- VISUAL representation of your data
- Map your ER Diagram/Model to a currently used model for implementing a database (we will map to the Relational Model)


Treatment
quantity
price
code
Medicine
bill
name
sex
PID
address
admitted
details
discharged
contact
Patient
assigned
room type
rooms id
Rooms
governs
Nurse
period
attends
Doctor
ISA
Employee
ID
salary
address
sex
history
name
history
Doctor
ISA
Doctor
Doctor
Receptionist
maintains
Record
appointment
description

CASE STUDY – CREATING AN ER DIAGRAM

- Suppose we plan to model a company which is organized into departments.
- Each department has a unique name, number and employee who manages it (we want to keep track of when the employee started managing the department)
- A department may have several locations
- A department controls a bunch of projects, each project has a unique number, name and a single location
- Each employee has a name, ssnumber, address, salary, sex and birthdate
- An employee is assigned to only one department but may work on several projects which are not necessarily from the same department
- Keep track of the number of hours each employee works on each project.
- Keep track of the direct supervisor of each employee
- Keep track of the dependents of each employee (name, sex, birthdate and relation)

HOW CAN WE REPRESENT THE PREVIOUS SLIDE AS A MODEL?

- We must incorporate all the information of the mini-world we described!
- We will represent it visually
- Several programs you could use to create ER Diagrams, for example:
  - Microsoft Visio → https://support.office.com/en-us/article/video-what-is-visio-421b0c94-7ecf-4e62-8072-d27e04d24fe6
  - Draw IO → https://www.draw.io/
  - smartdraw → https://cloud.smartdraw.com/
  - Lots of other ones!