

Information System & Database Design

CS105

What is an **Information System?**

Storage and organization of data

Resource planning

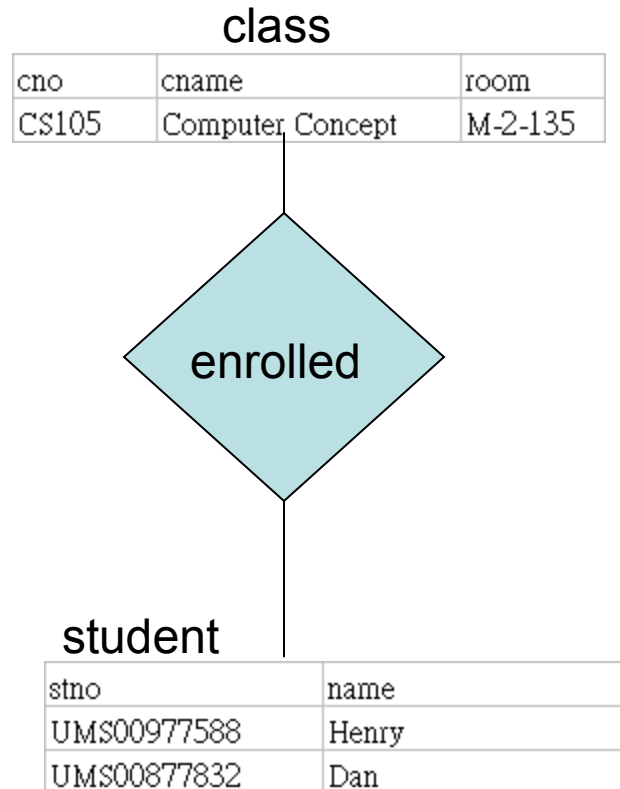
Customer relationship management (CRM)

Patient management

Information System vs. Filesystem Directory

- Information System

- Tables (in most database system)



- Filesystem Directory

- Hierarchy Structure (Tree)

- Class

- CS105
- Computer Concept
- M-2-135
- Students
 - Student
 - Henry
 - UMS00977588
 - Student
 - Dan
 - UMS00877832
 - Student
 - ...

Database Tables

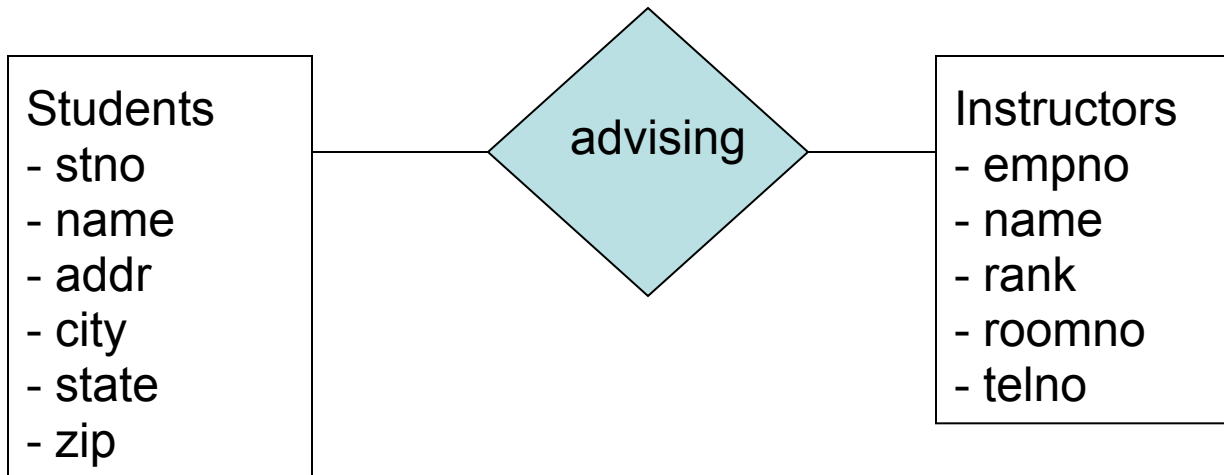
- Fields / Attributes (each column)
 - Key (unique identification)
 - cno
 - Data
 - cname, cr
- Records / Entries (each row)
 - 7 records

Courses

cno	cname	cr
cs110	Introduction to Computing	4
cs210	Computer Programming	4
cs240	Computer Architecture	3
cs310	Data Structures	3
cs350	Higher Level Languages	3
cs410	Software Engineering	3
cs460	Graphics	3

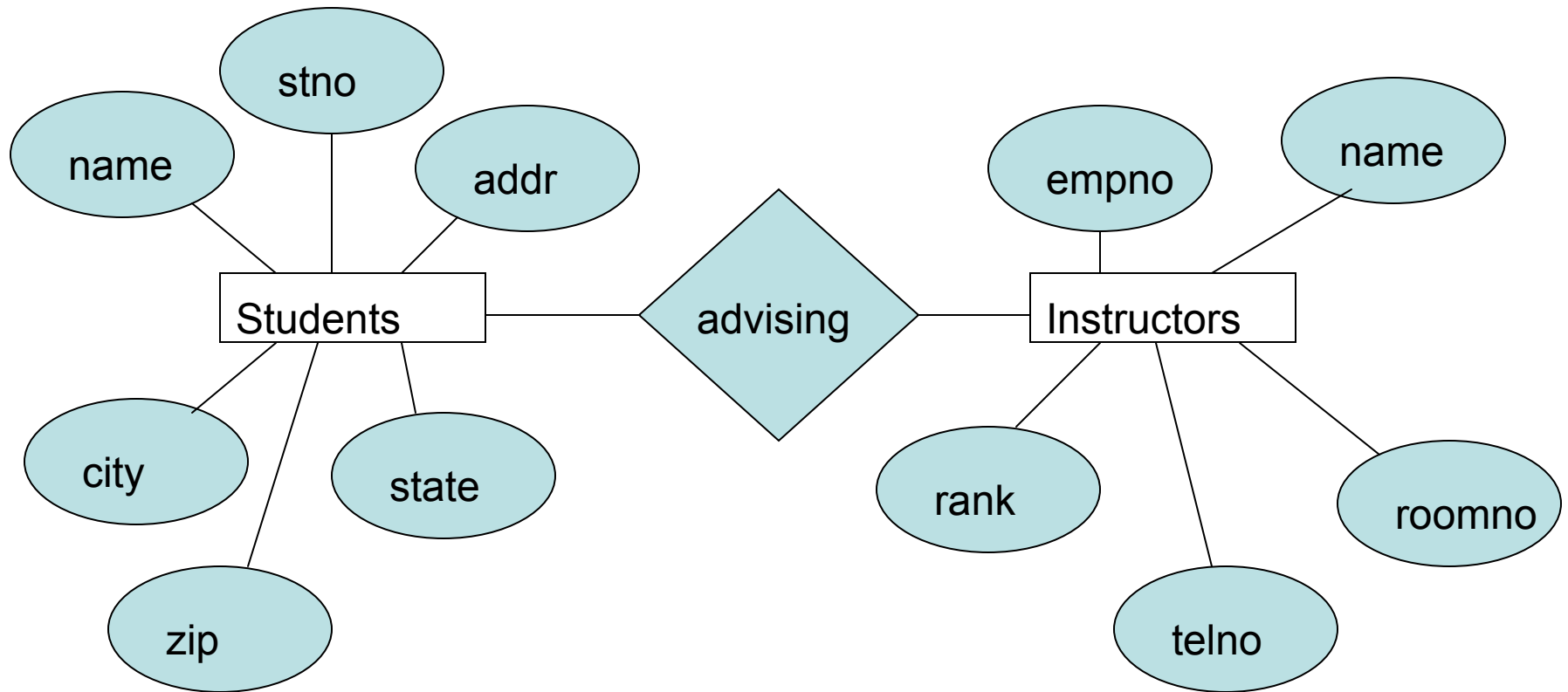
Entity- Relationship (ER) Model

- Database **Schema**
- ER Modeling / Diagram
 - An **instructor** is *advising* one or more **students**



Entity- Relationship (ER) Model

•ER Modeling / Diagram



Course DB

- Entity

- Students
- Courses
- Instructors

- Relationships

- Advising
- Grades

Example in Textbook: Movie Rental

- Entity

- Movie

- MovieId, Title, Genre, Rating

- Customer

- CustomerId, Name, Address, CreditCardNumber (CCN)

- Relationship

- Rents

- CustomerId, MovieId, DateRented, DateDue

What you need to do

- Find a partner
- You should draw an ER diagram with
 - 2 Tables for Entities
 - 1 Table for Relationship
 - All tables should contain
 - at least 1 **key** and 3 data **fields**.
- You should have a short description
- Turn in the diagram with your signatures after class.