

1. Understand real-world domain that you would like to model
2. Specify the domain using a "db design" model → E/R diagrams
3. Translate specifications to the model of the DBMS
4. Create schema using DBMS commands
5. Load data

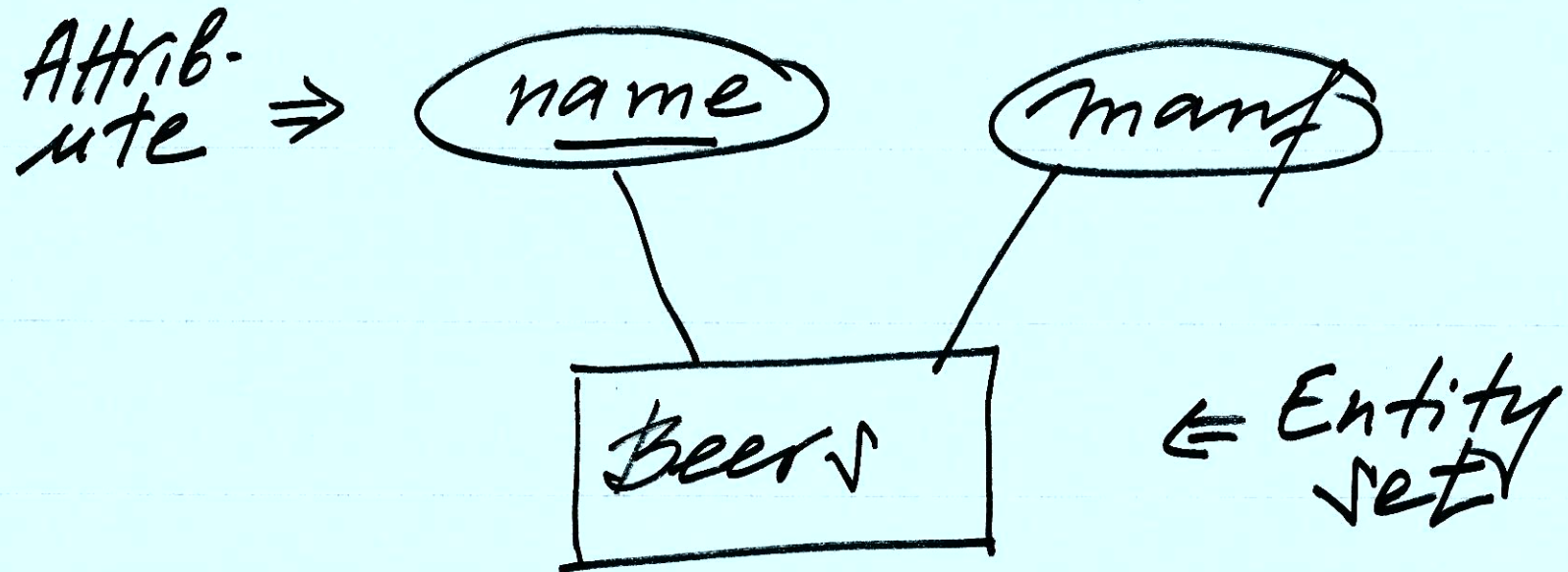


Textbook: Movies

Slides: beers and  
drinkers

My examples: the  
university  
world





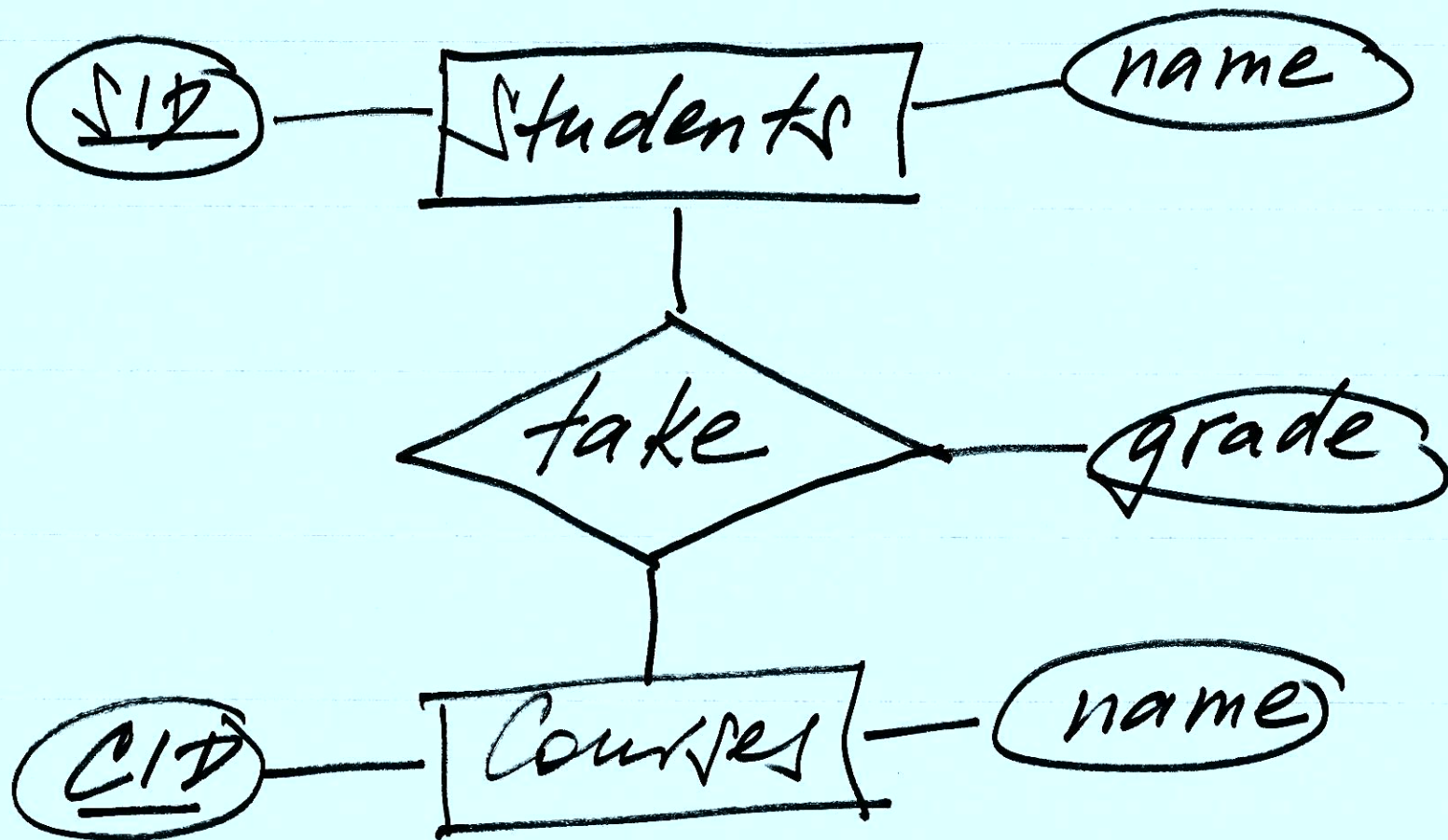
$\Rightarrow$  leads to relation  
 $\text{Beers}(\underline{\text{name}}, \text{manf})$   
 "Entities" in the Beers entity set:  
 ('Guinness', 'GM')





Students are identified by student IDs and have names.

Courses are identified by course IDs and have names (titles). Students take courses and get a grade in each course.



⇒ Take(SID, CID, grade)



1NF: first normal form

— each attribute for an item described has at most one value at a time

Students (SID, name, phone)



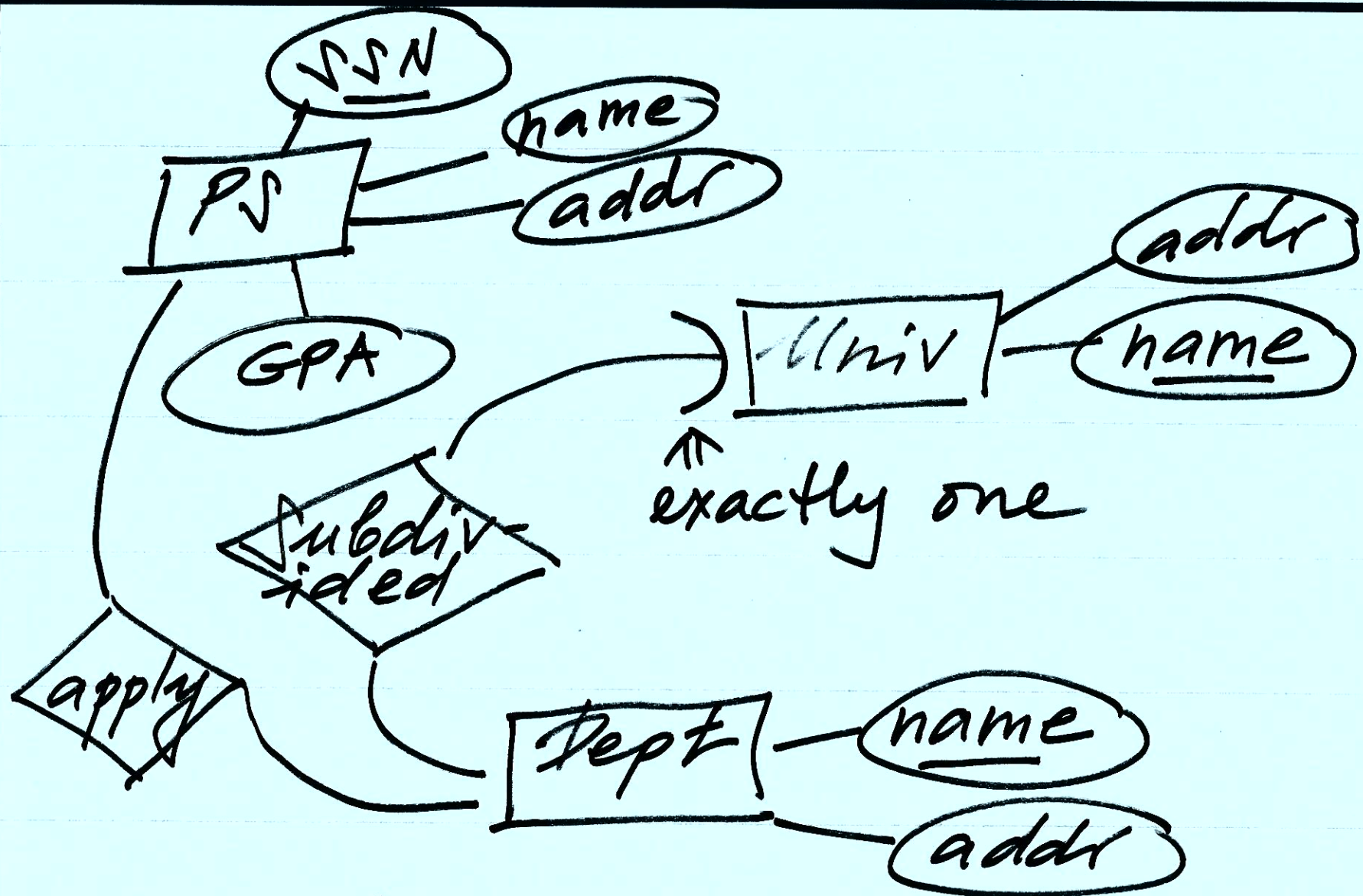


Universities are identified by names; each university has an address. Universities are sub-divided into departments; each department is associated with exactly one university. Globally, each department has a unique name and has an address.

Prospective students apply to departments. A prospective

Student is identified by a SSN, and has a name and address. Each prospective student has a GPA for the courses taken (in previous stage of the education).





' → 'means 'at most one'

