

Lab 09

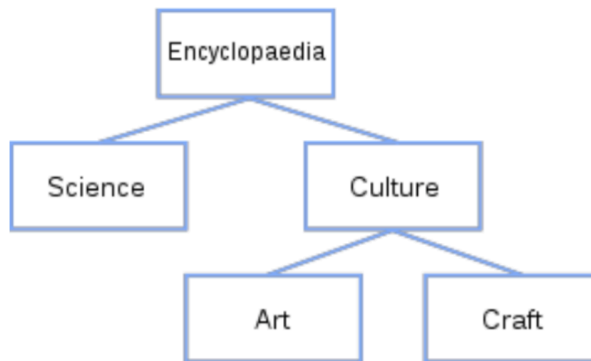
Data Model

Software Studio

DataLab, CS, NTHU

Data Model

- Definition: A data model is a framework for describing the structure of databases.



Hierarchical data model



Network data model

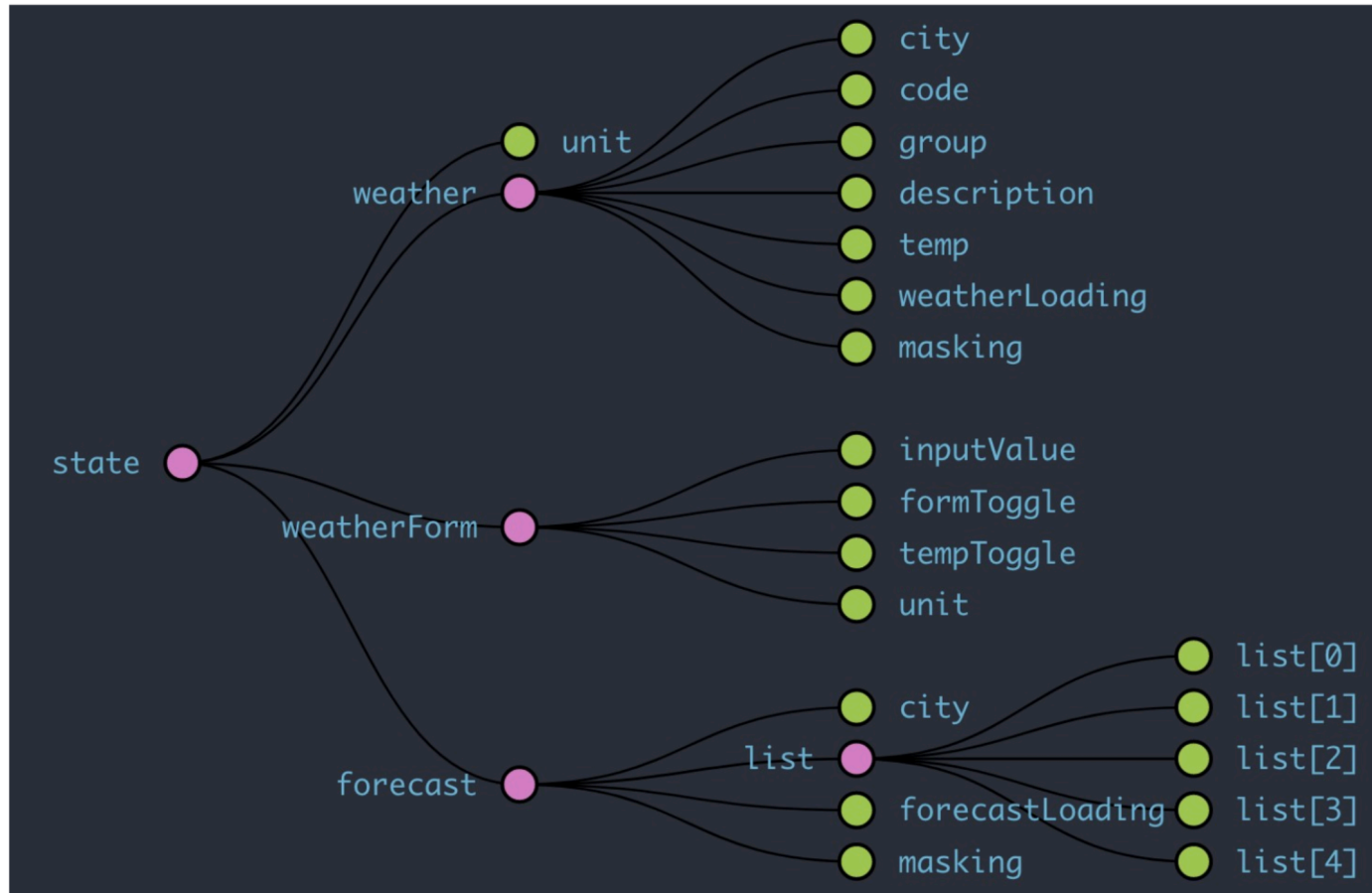
	Team Member 1		Team Member 2	
	Student ID	Name	Student ID	Name
1	104062312	白語彤	104062213	簡如謙
2	104062124	張嘉軒	104062102	林軒毅
3	103060003	吳宗憲	104061133	蕭丞佑
4	104000098	蔡樂津	104060004	游雅筑
5	104062108	王大維	104062105	黃聖富
6	103062239	彭冠復	104062209	林瀚埕
7	104062324	陳澔威	104062133	張育榮
8	104021219	鄭余玄	104021103	蔡孟宇

Relational data model

Outline

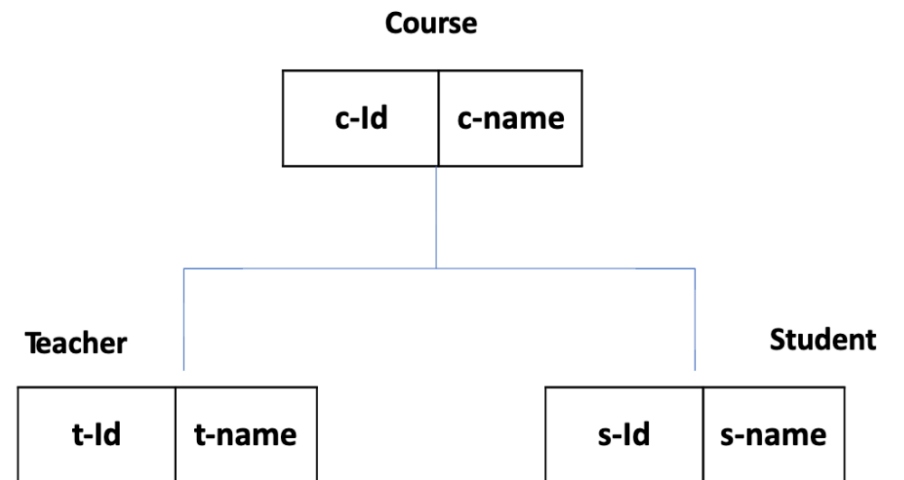
- Hierarchical data model
- Relational data model
- ER model

Hierarchical data model

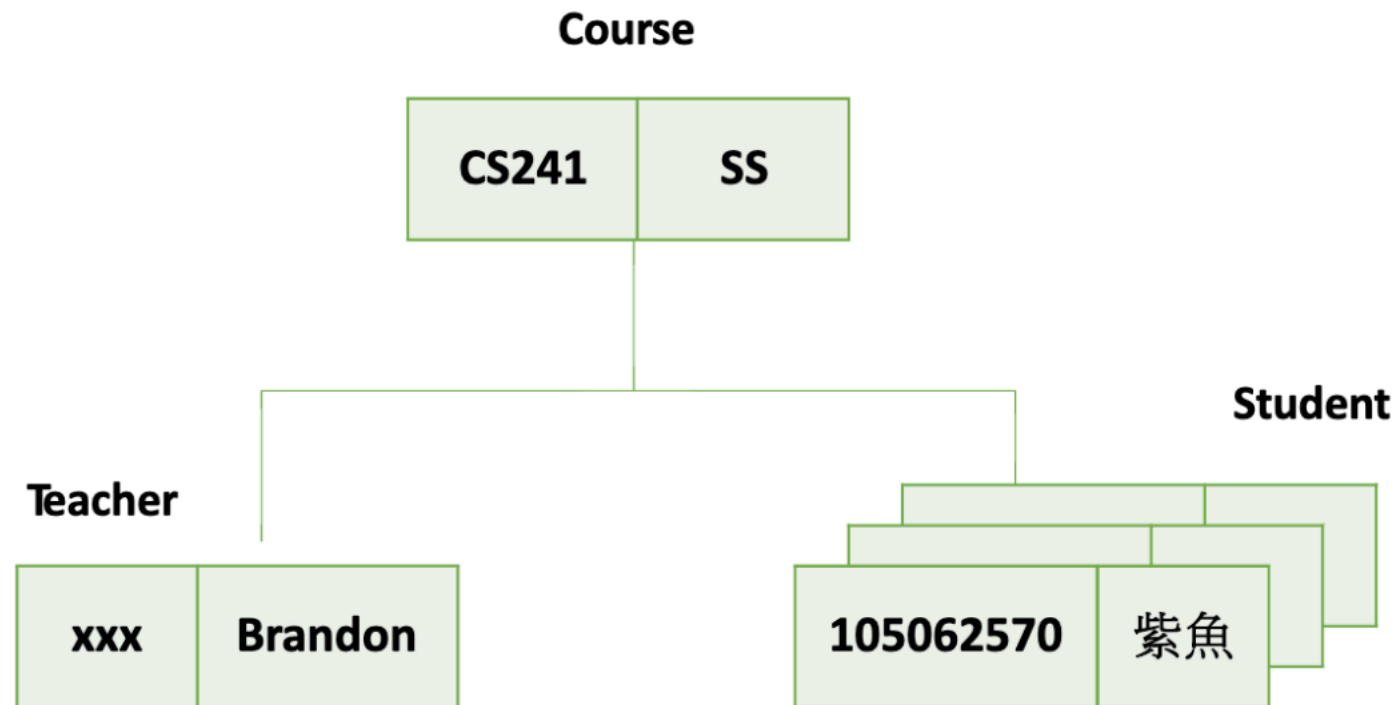


Hierarchical data model

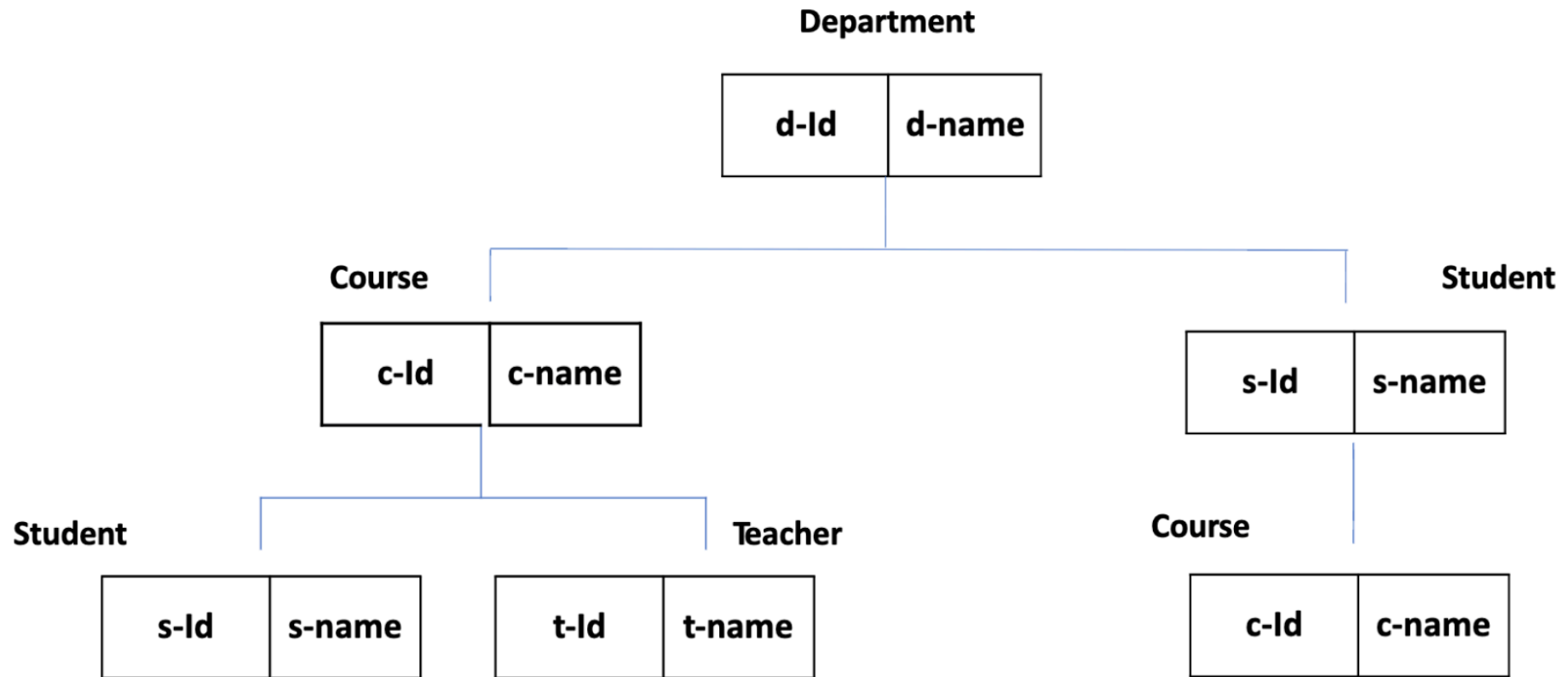
- Tree structure
- Suit for 1-many relation

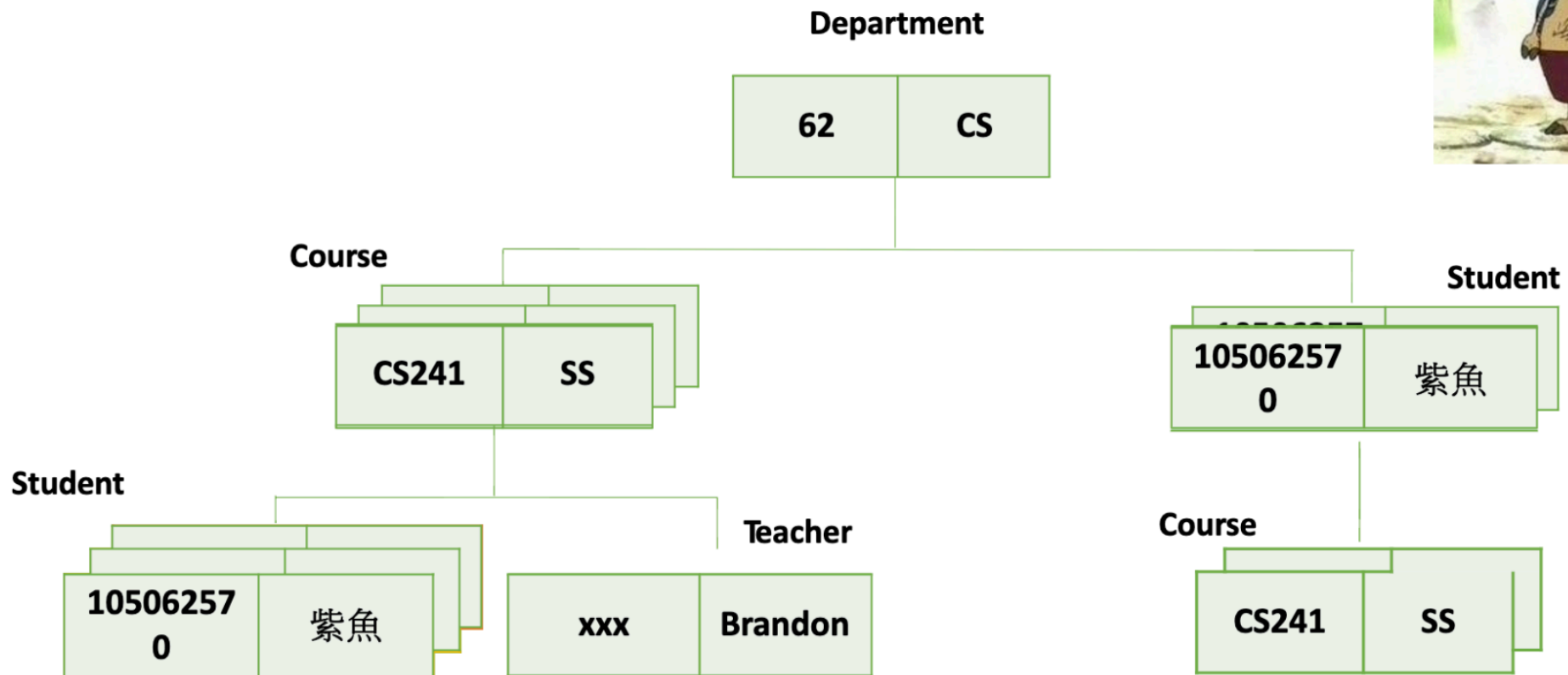


Example



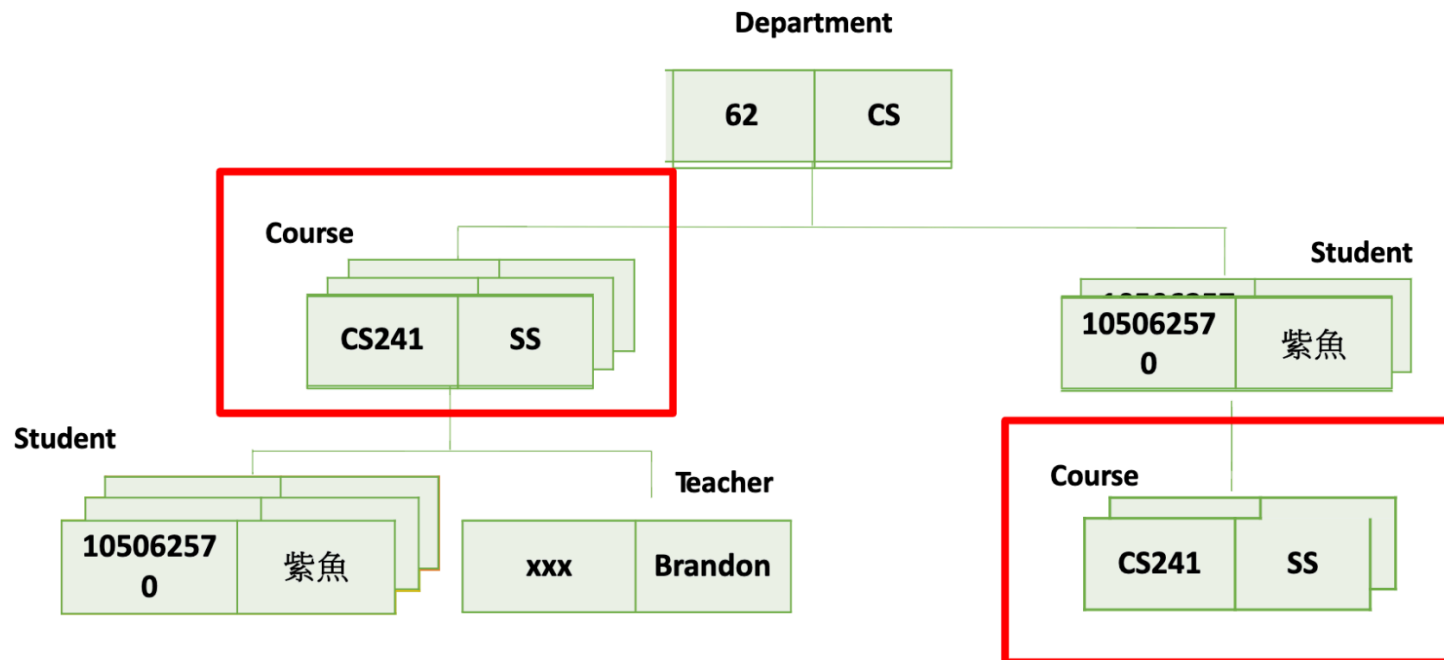
More complex?





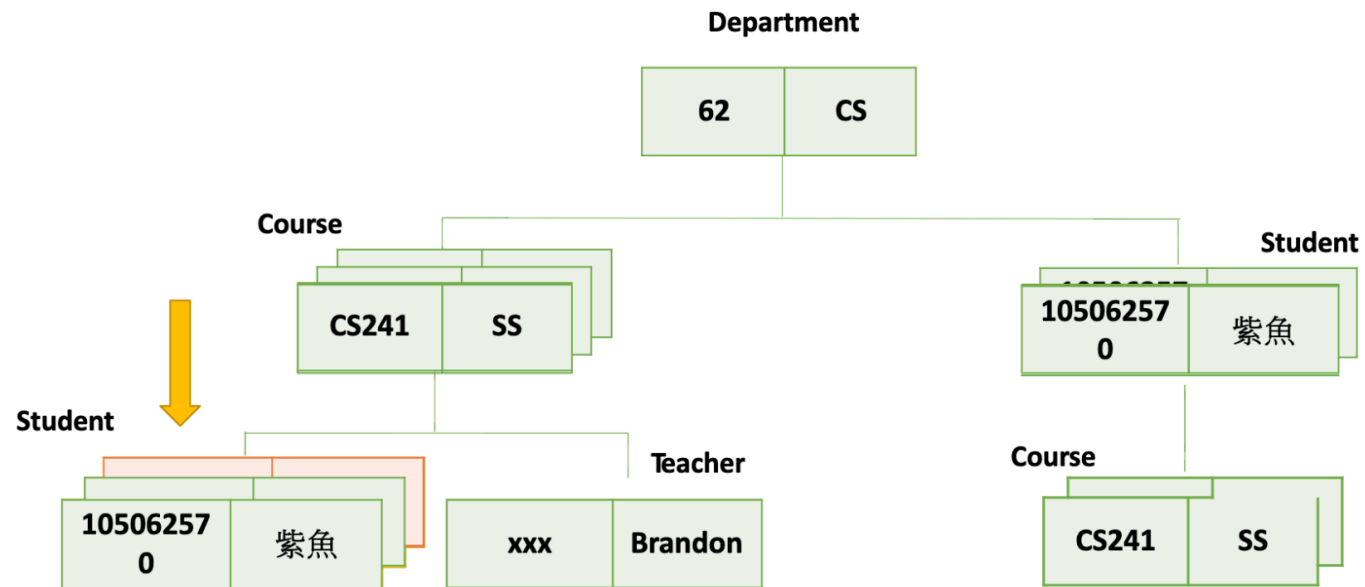
Some constraint

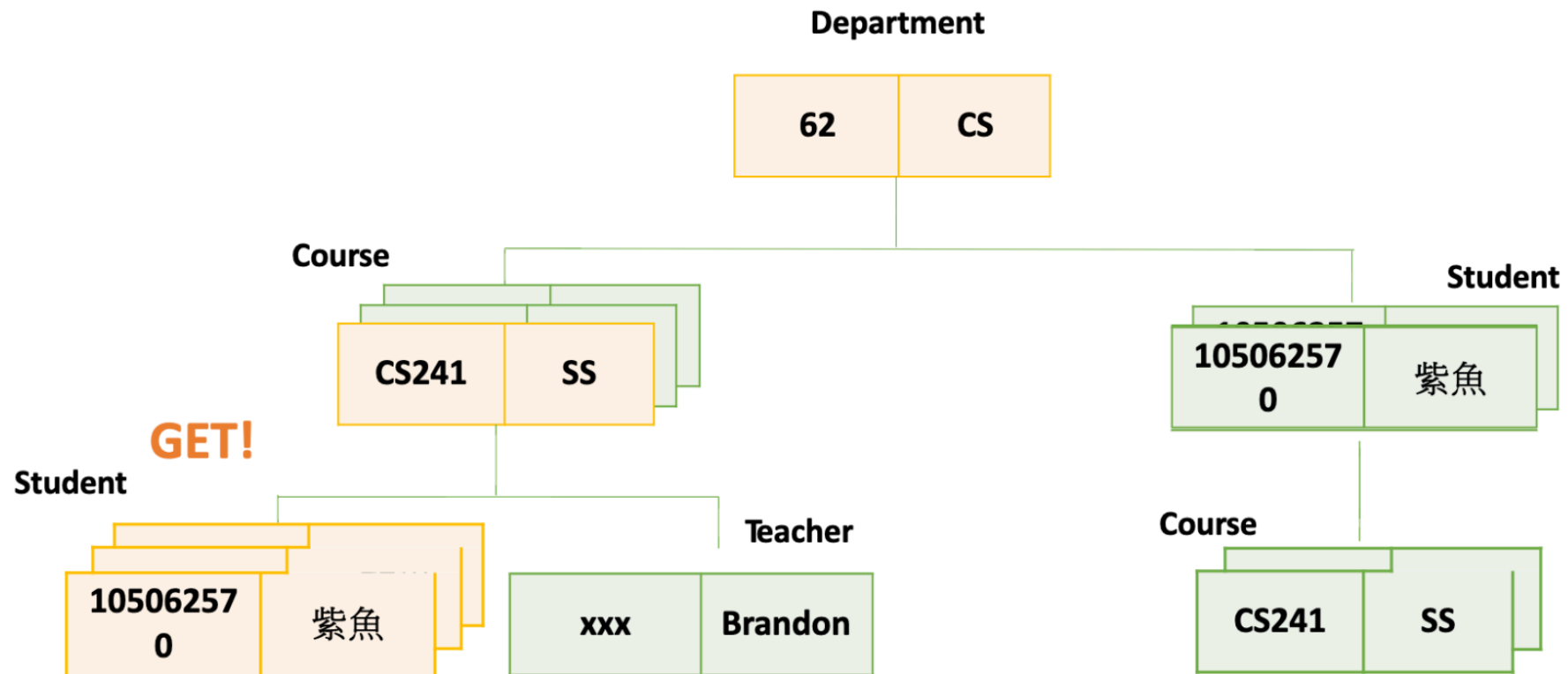
- Not suitable for many-many relation
 - Cause data redundant



Some constraint

- SELECT cost
 - Must through parent to child





Relational Data Model

- Table structure

c-id	c-name	d-name	s-ld	s-name
CS 241	SS	CS	105062570	紫魚
CS 241	SS	CS	105062558	朕鮪
CS 321	Computer Networks	CS	105062570	紫魚
CS 321	Computer Networks	CS	105062521	計網概助教

Relational Data Model

- Table structure

Field

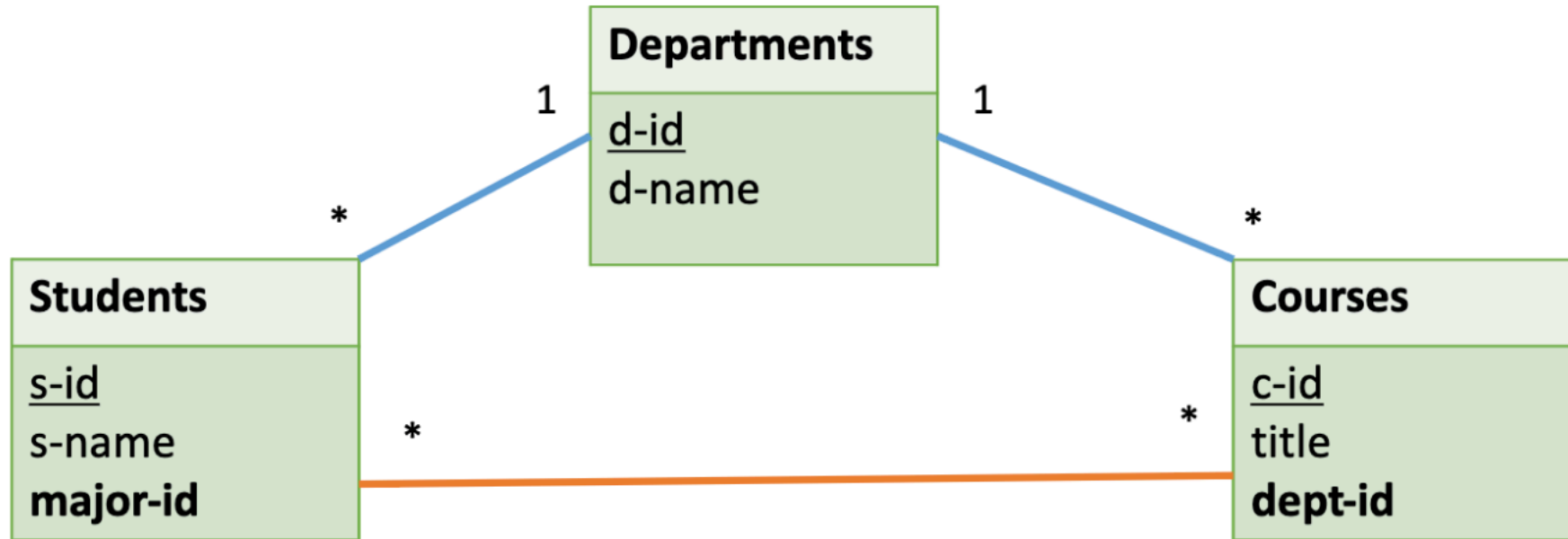
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c-id	c-name	d-name	s-ld	s-name
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CS 241	SS	CS	105062558	朕鮪
CS 321	Computer Networks	CS	105062570	紫魚
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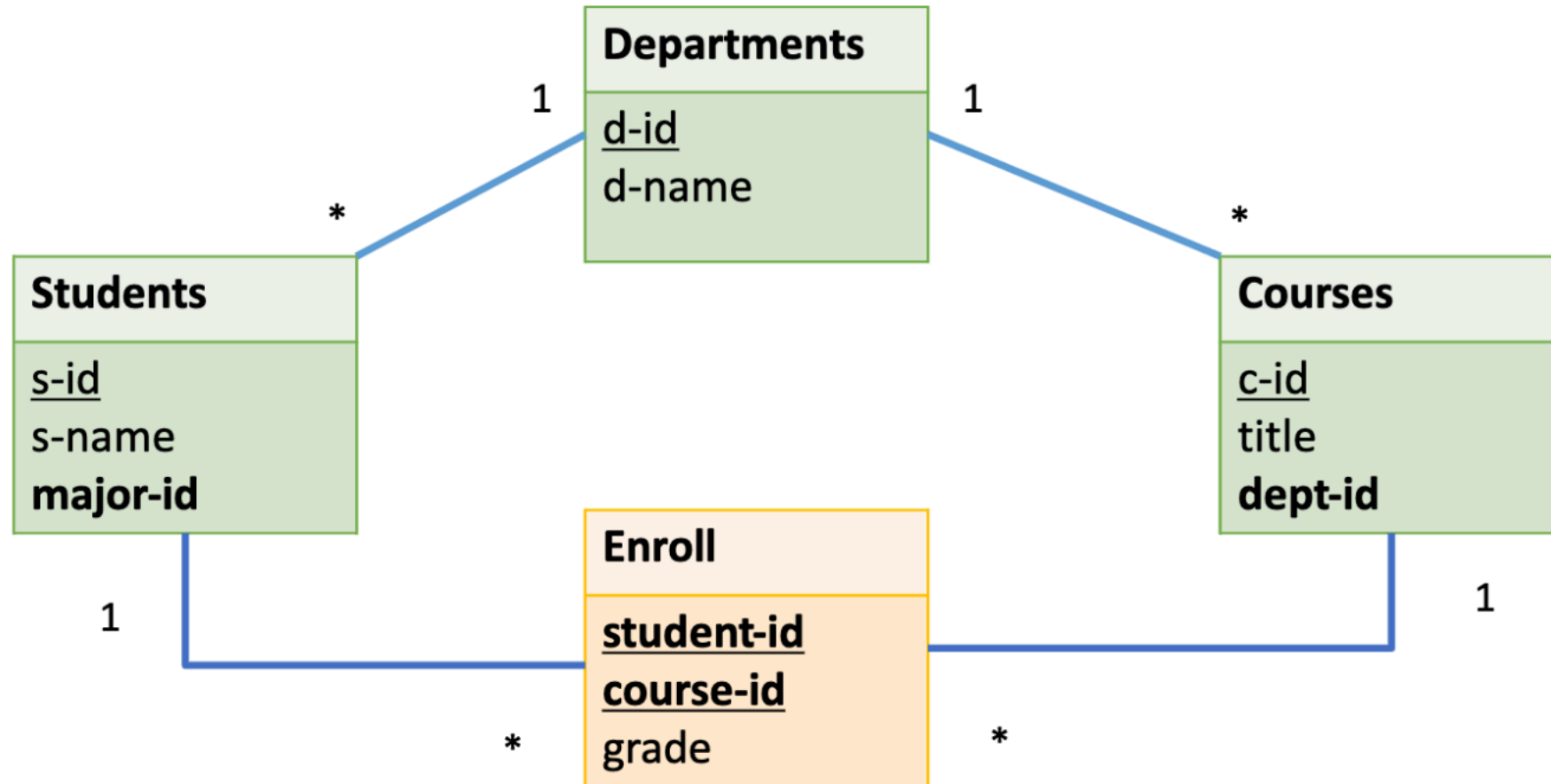
Record

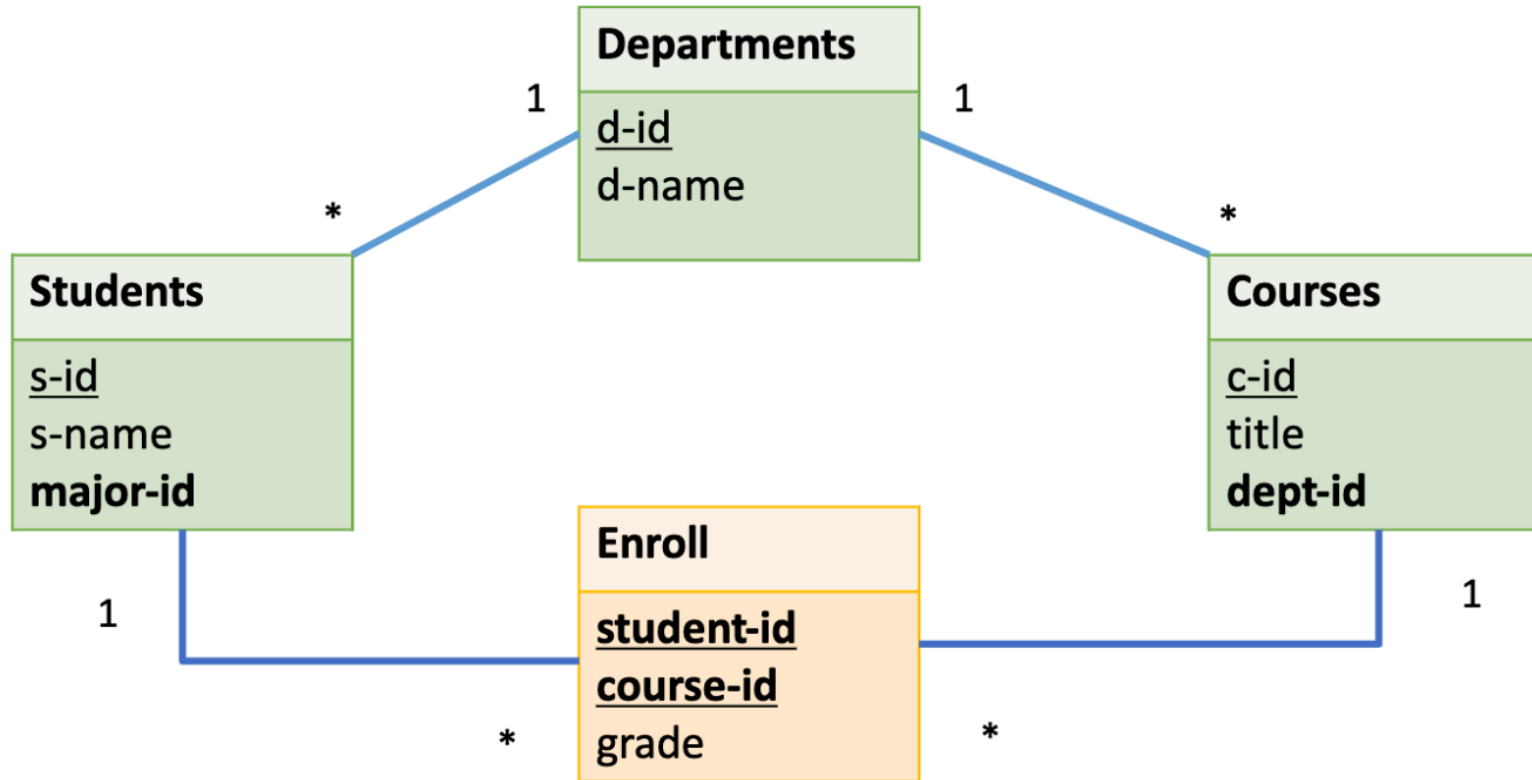
ER Model

- Allows thinking how to structure your data in a proper way
- Entity
 - A record with fields
- Entity group
 - A table
 - Define unique ID field for each entity
- Relationship
 - 1-1, 1-many, many-many

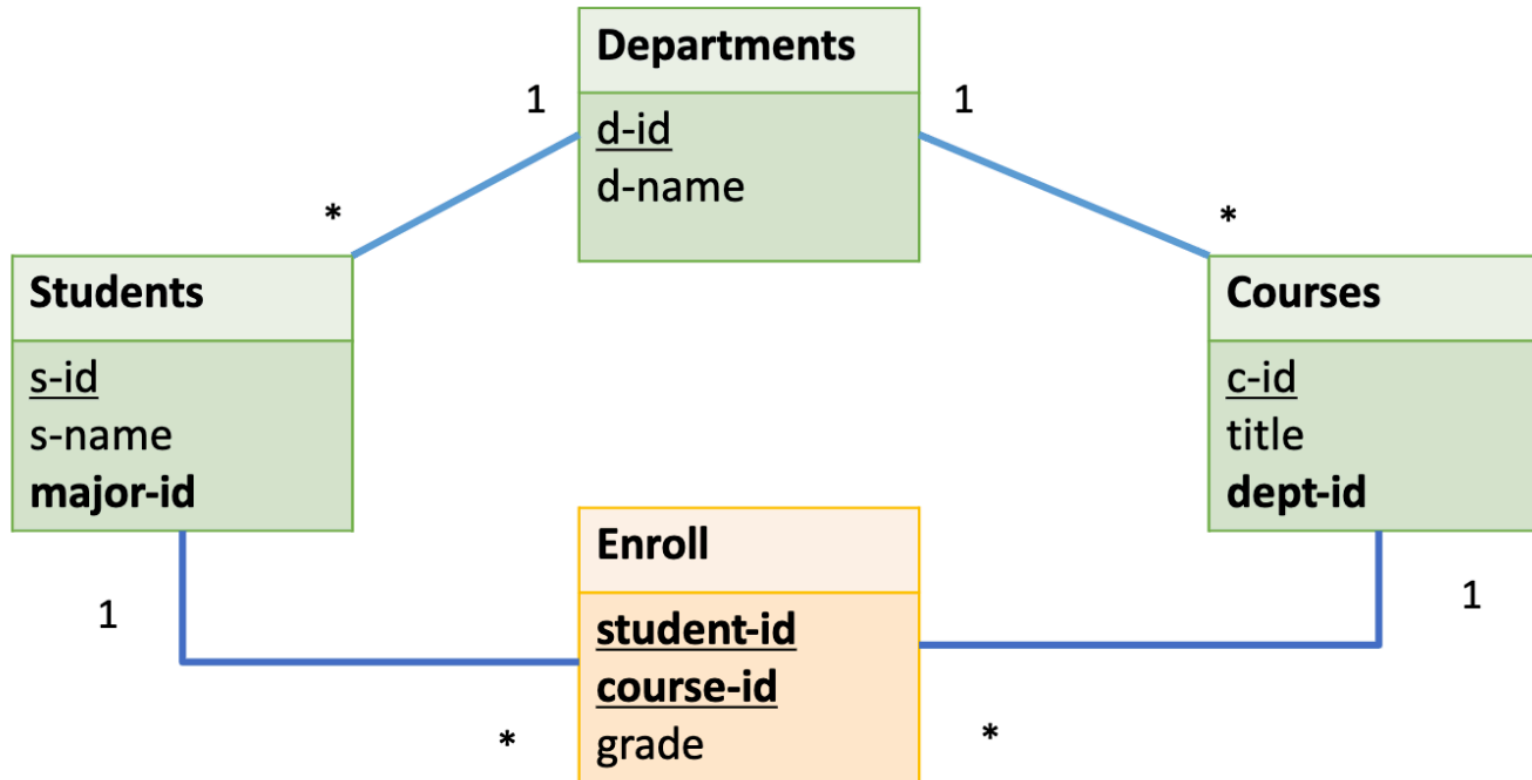


How?





- Primary key
 - Unique ID field for each table



- Foreign key
 - Implement the relationship
 - Point to the primary key of other record
 - Only 1-1 1-many