

# Lab 08

# Data Model

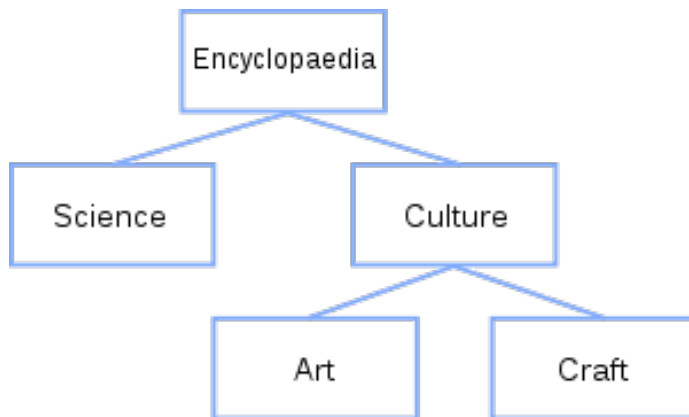
Software Studio

DataLab, CS, NTHU

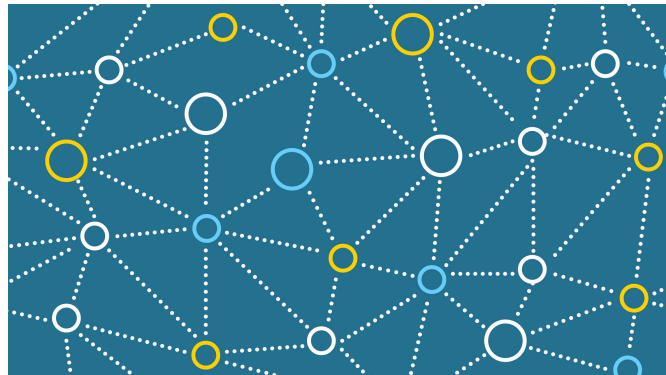
2017 spring

# 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

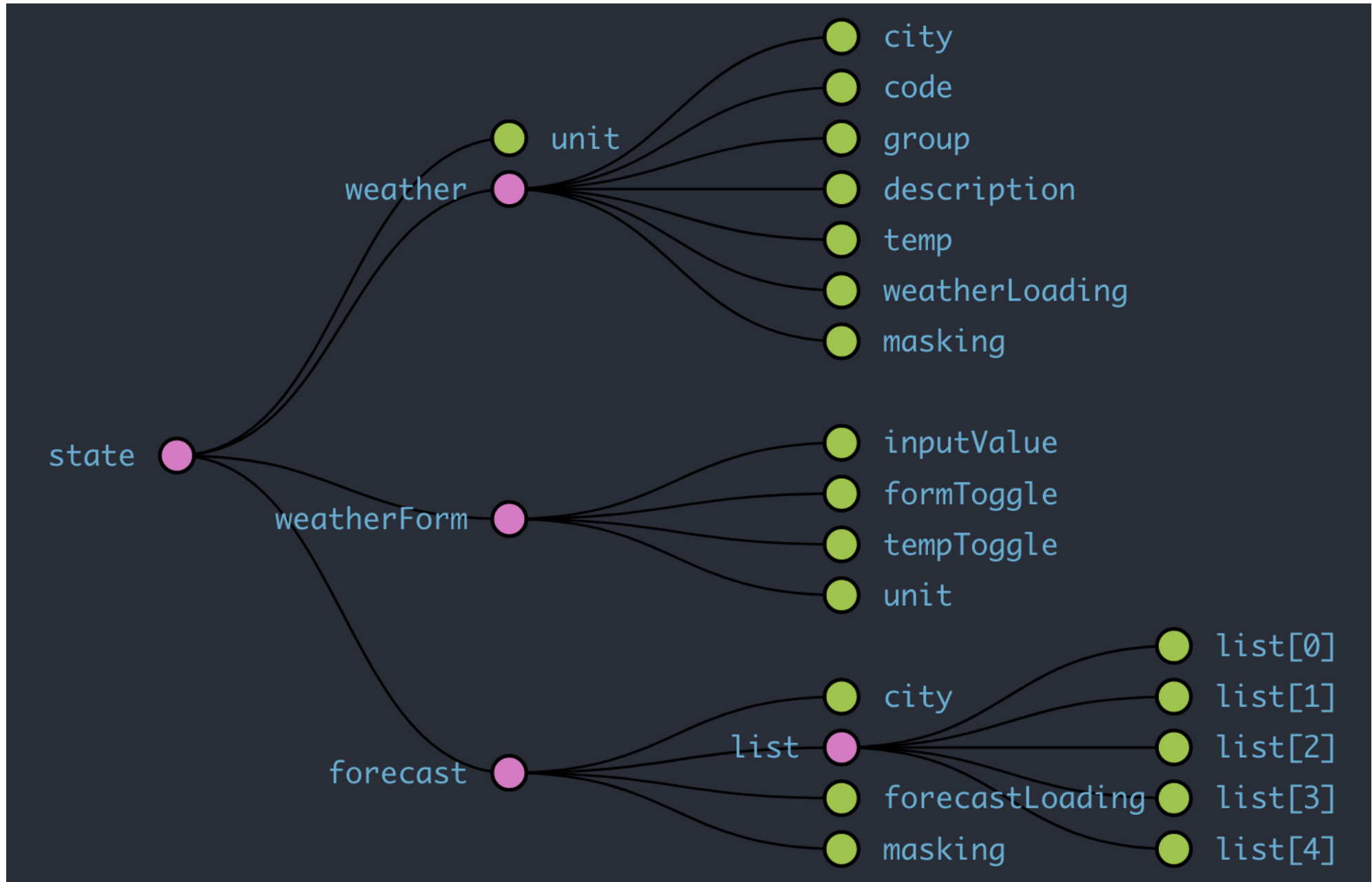
Relational data model

# Outline

- Hierarchical data model
- Relational data model
- ER model
- Today's mission

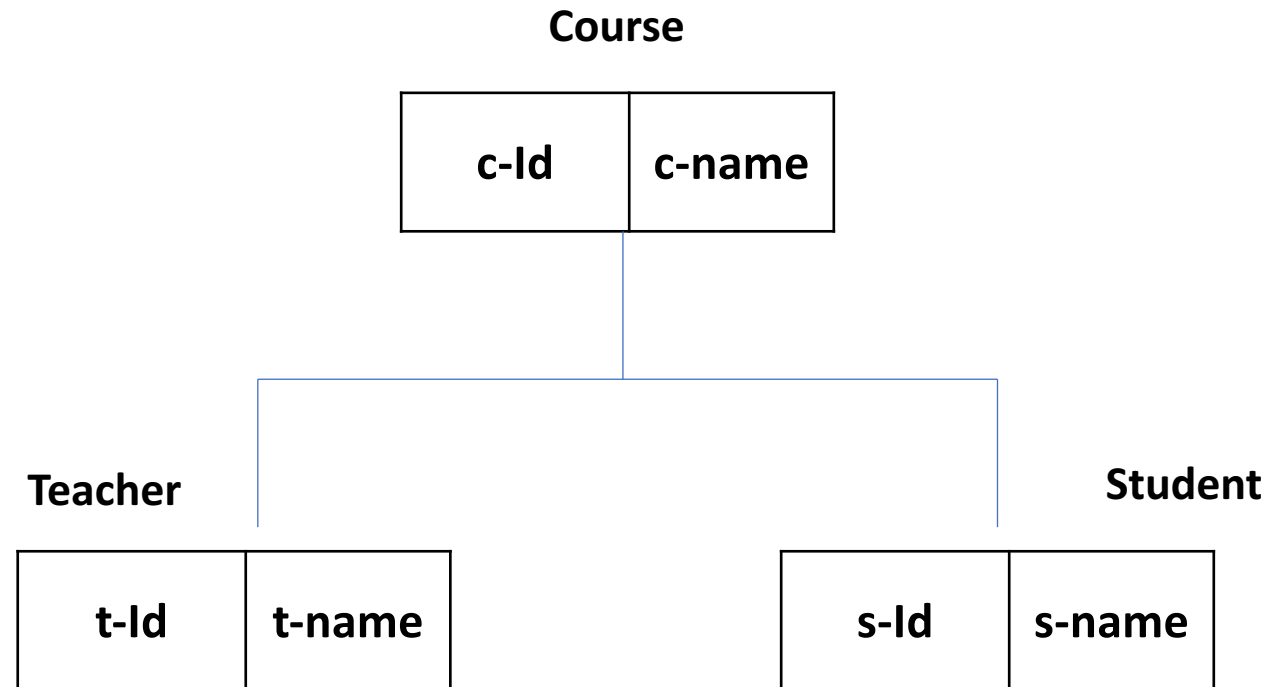
# Outline

- Hierarchical data model
- Relational data model
- ER model
- Today's mission

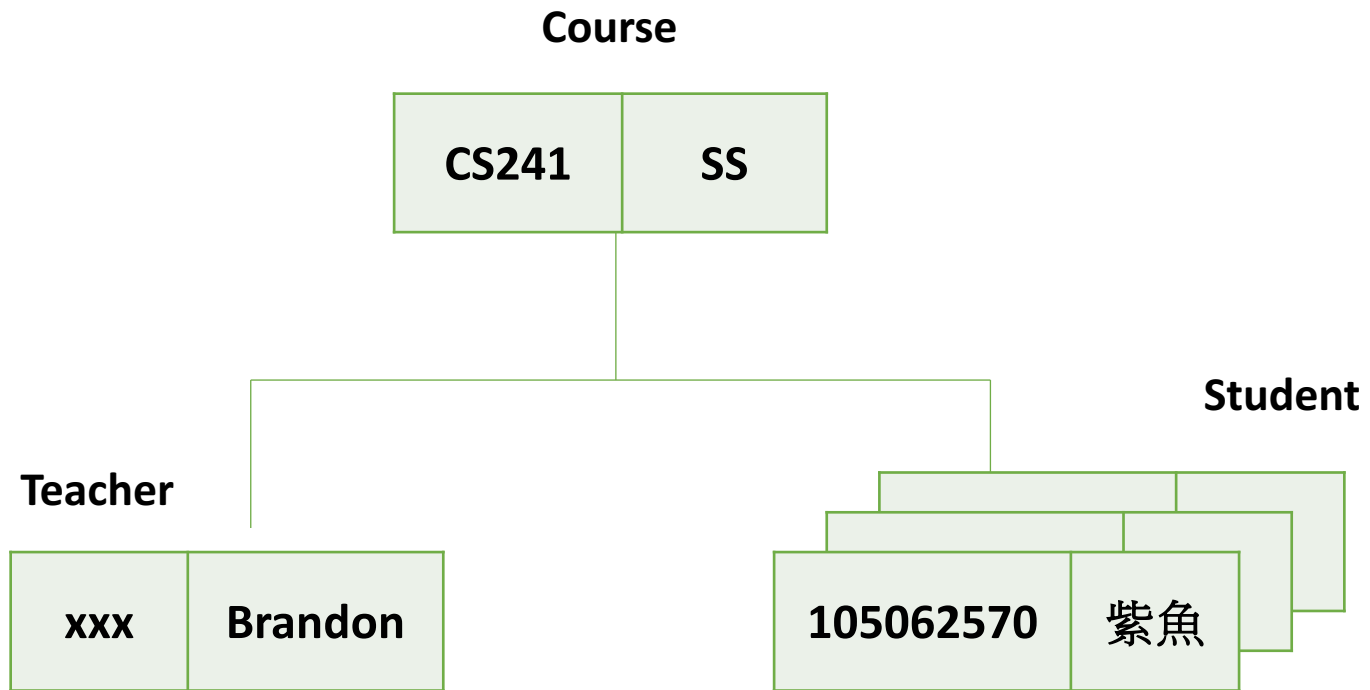


# Hierarchical data model

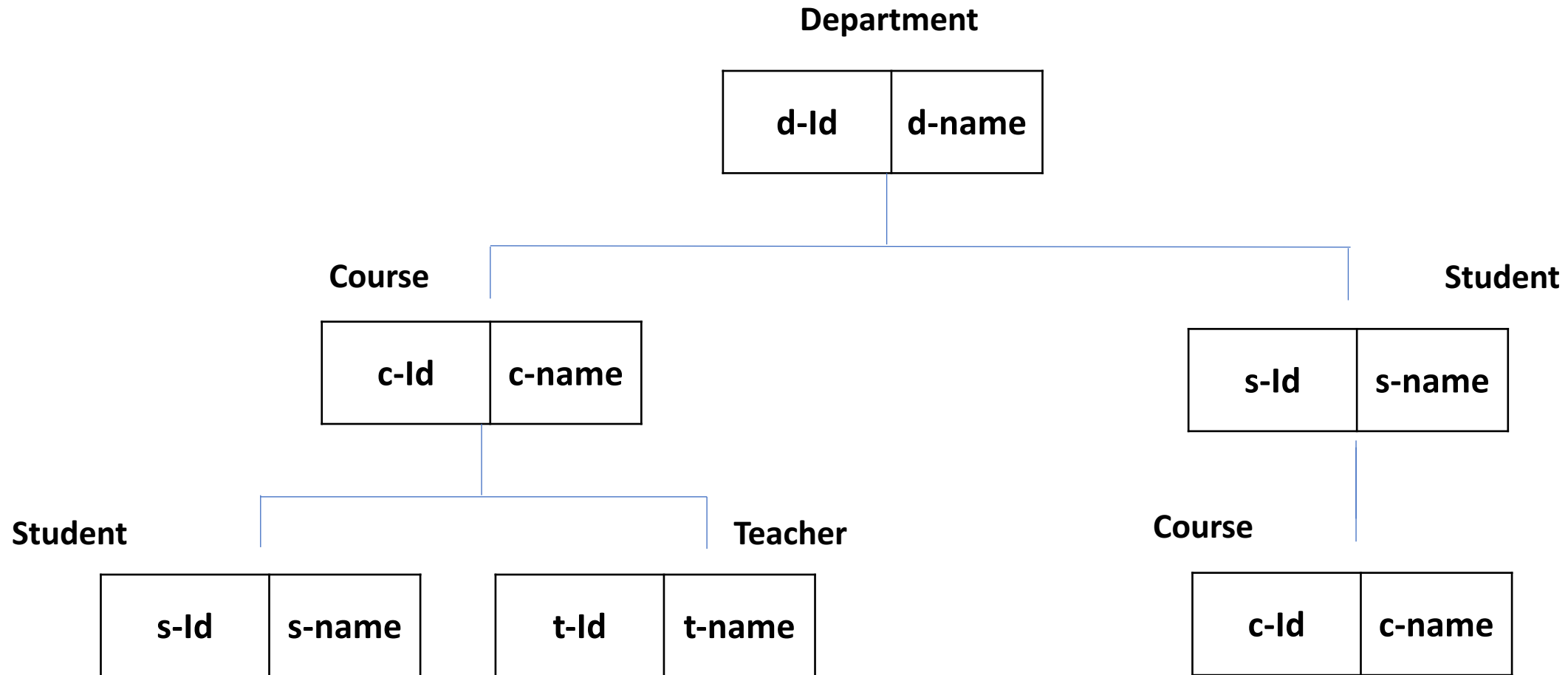
- Tree structure
- Suit for 1-many relation



# Example



# More complex?







Department

62	CS
----	----

Course

CS241	SS
-------	----

Student

10506257 0	紫魚
---------------	----

Student

10506257 0	紫魚
---------------	----

Teacher

xxx	Brandon
-----	---------

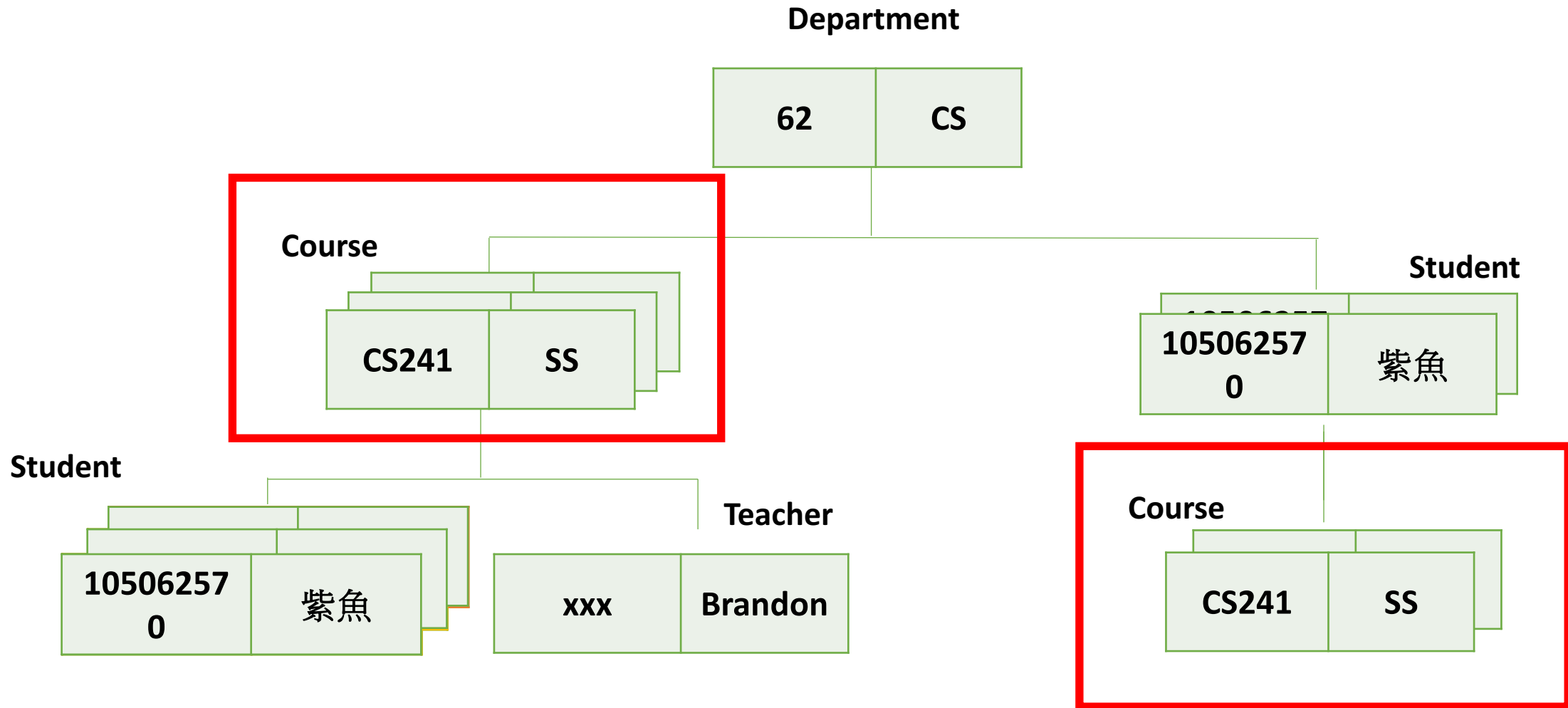
Course

CS241	SS
-------	----

# Some constraint

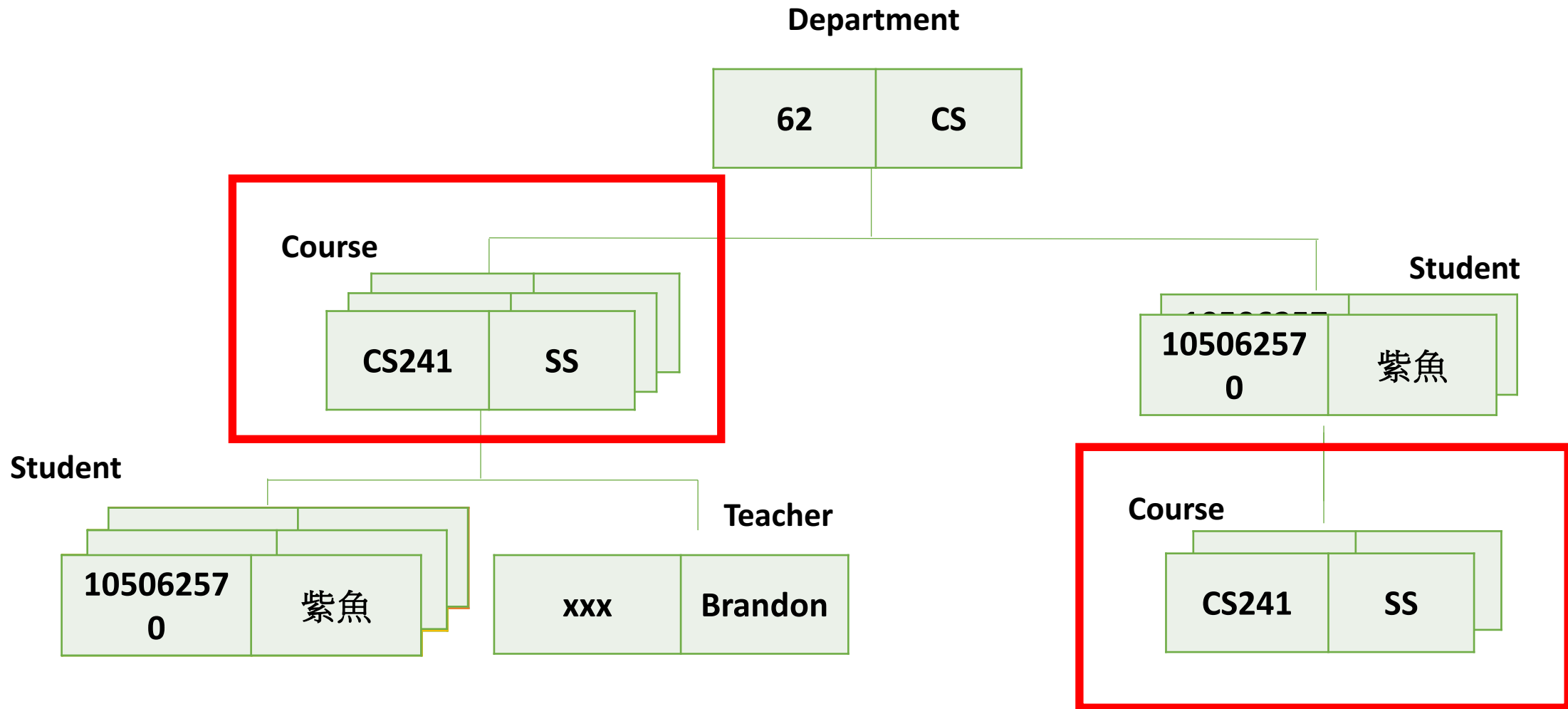
- Not suitable for many-many relation
  - **Cause data redundant**

# Redundant data



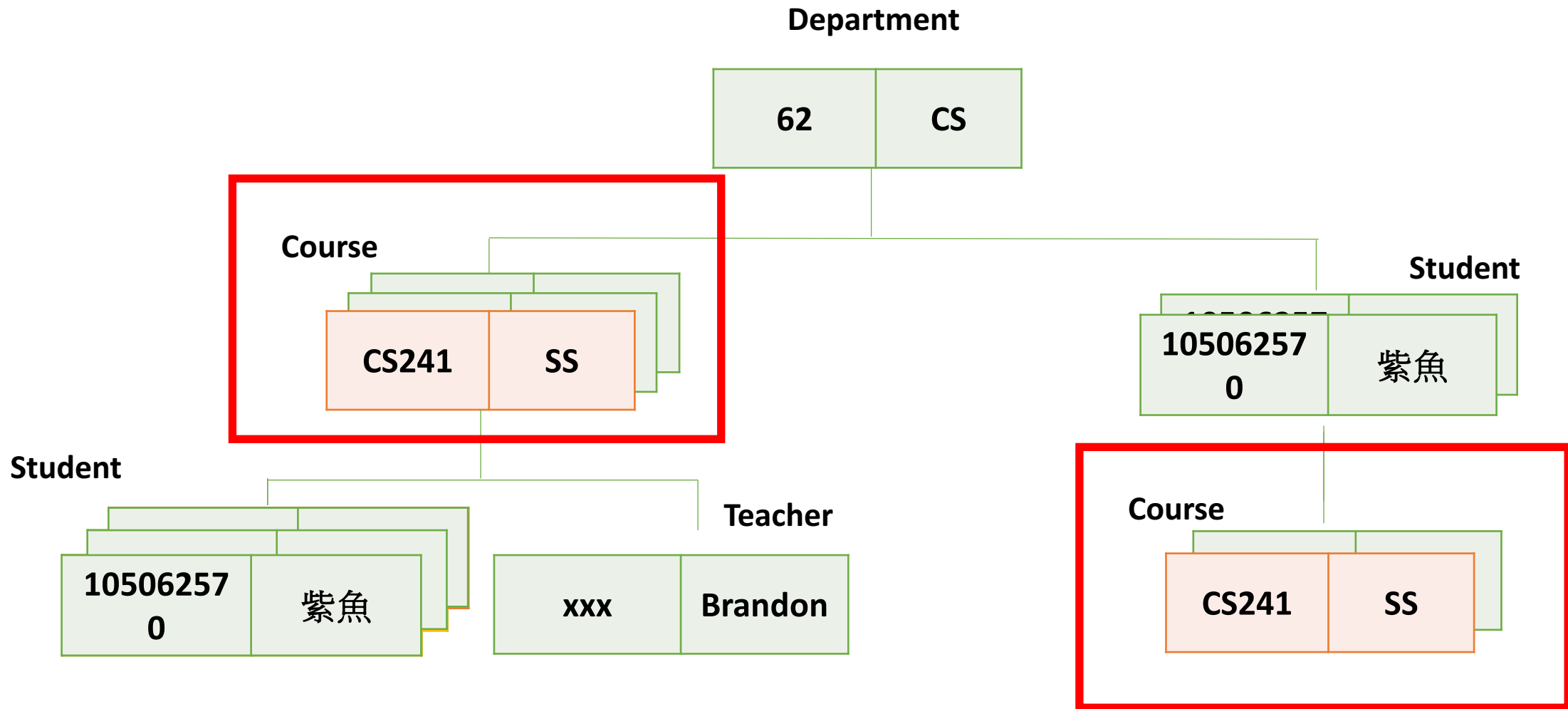
# Redundant data

If we want modify Course Info



# Redundant data

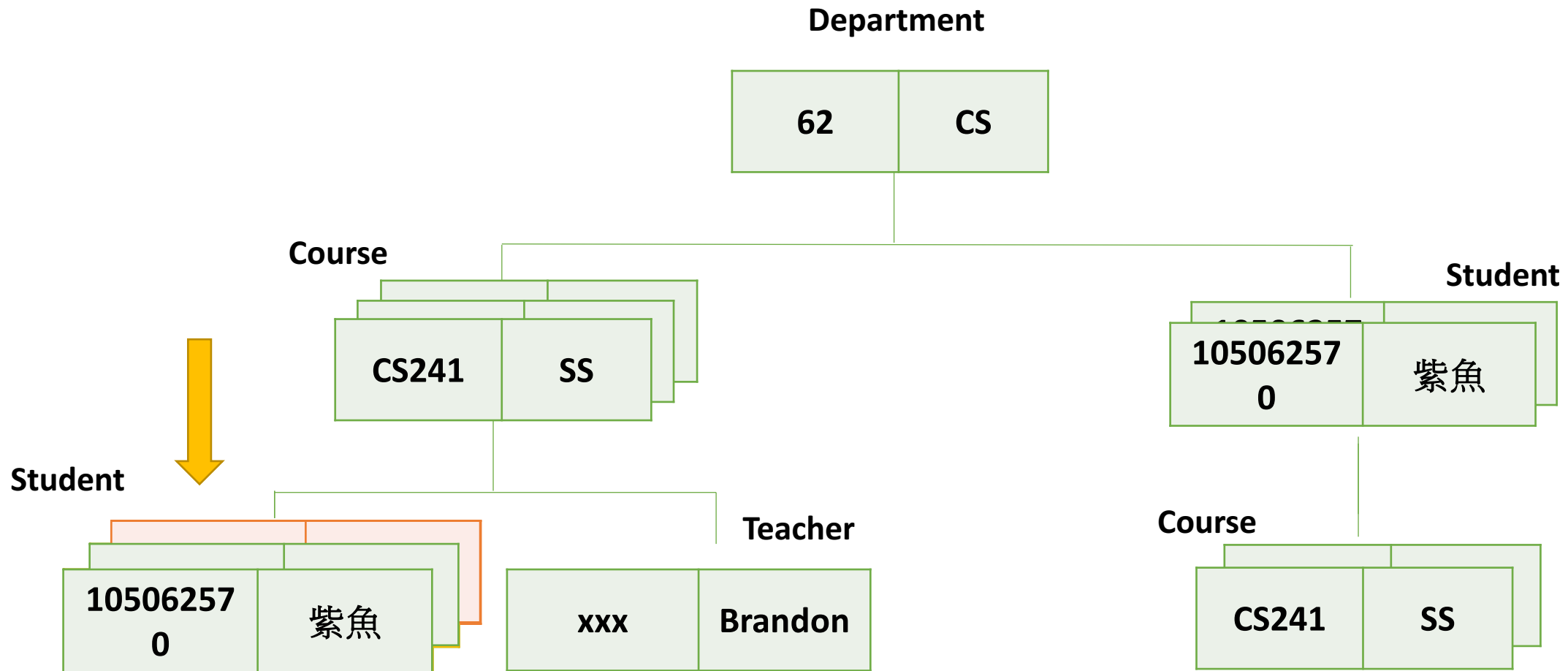
If we want modify Course Info



# Some constraint

- Not suitable for many-many relation
  - **Cause data redundant**
- SELECT cost
  - Must through parent to child

# If we want SELECT



## Department

62

CS

## Course

CS241

SS

## Student

10506257  
0

紫魚

## Student

10506257  
0

紫魚

## Teacher

xxx

Brandon

## Course

CS241

SS



## Department

62	CS
----	----

## Course

CS241	SS
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## Teacher

xxx	Brandon
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## Course

CS241	SS
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## Department

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## Course

CS241	SS
-------	----

## Student

10506257 0	紫魚
---------------	----

GET!

## Student

10506257 0	紫魚
---------------	----

## Teacher

xxx	Brandon
-----	---------

## Course

CS241	SS
-------	----

# Outline

- Hierarchical data model
- **Relational data model**
- ER model
- Today's mission

# 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**

↓

	c-id	c-name	d-name	s-id	s-name
<b>Record</b>	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

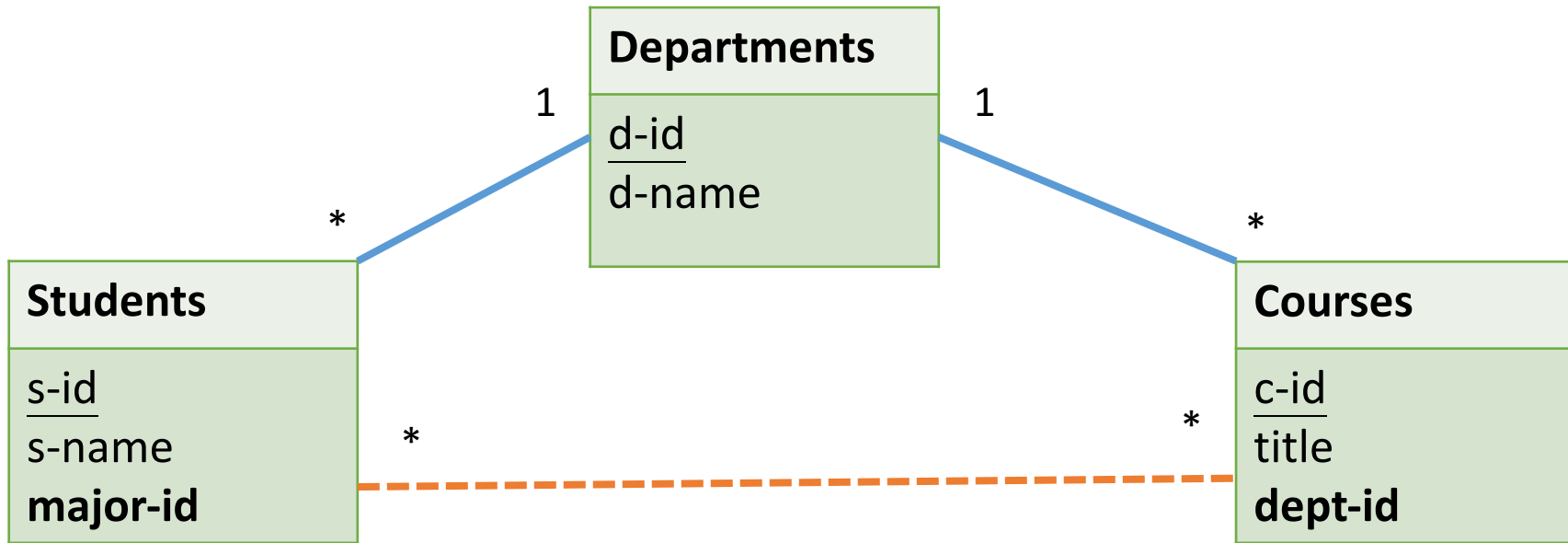
# Outline

- Hierarchical data model
- Relational data model
- **ER model**
- Today's mission

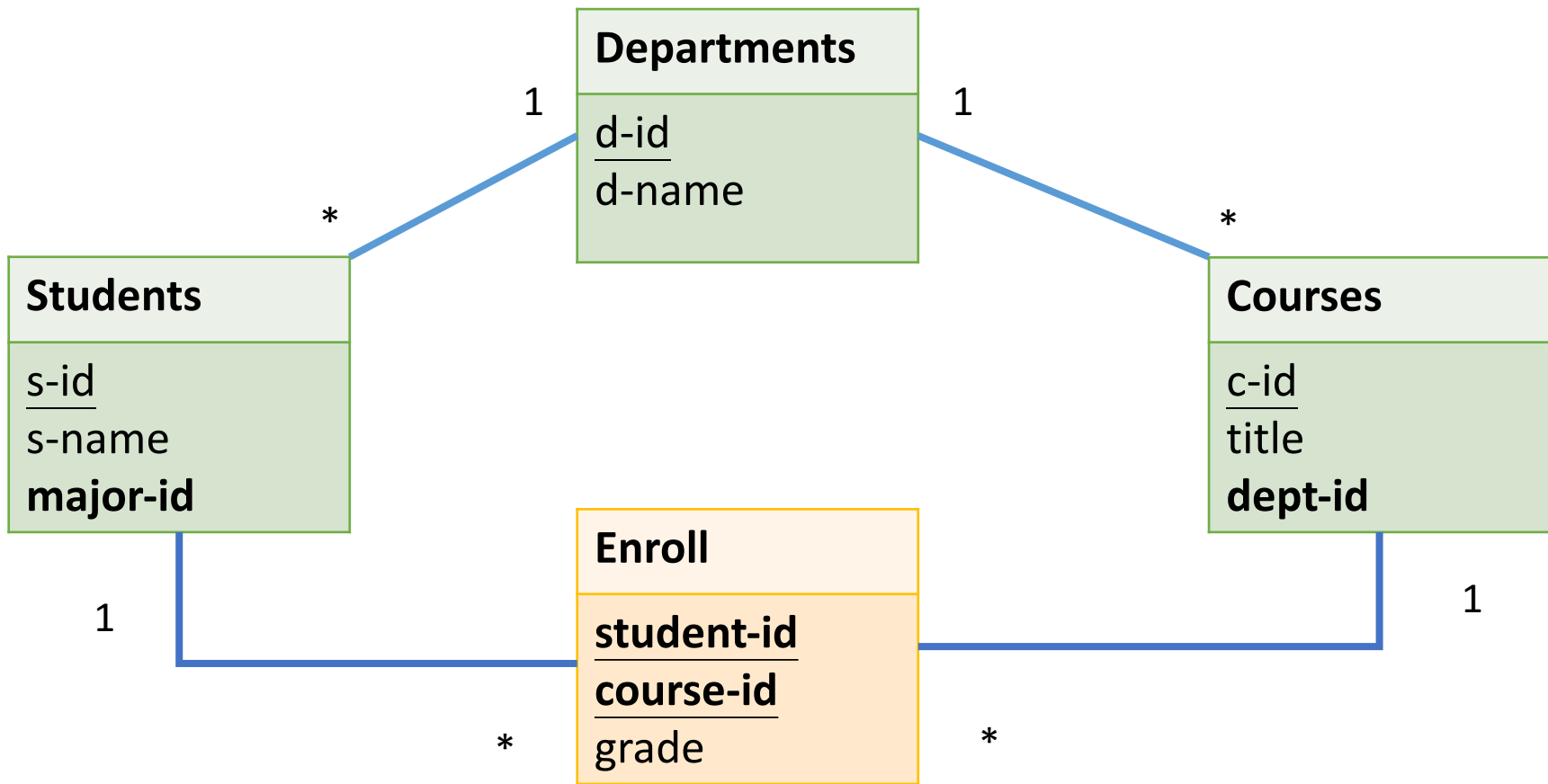


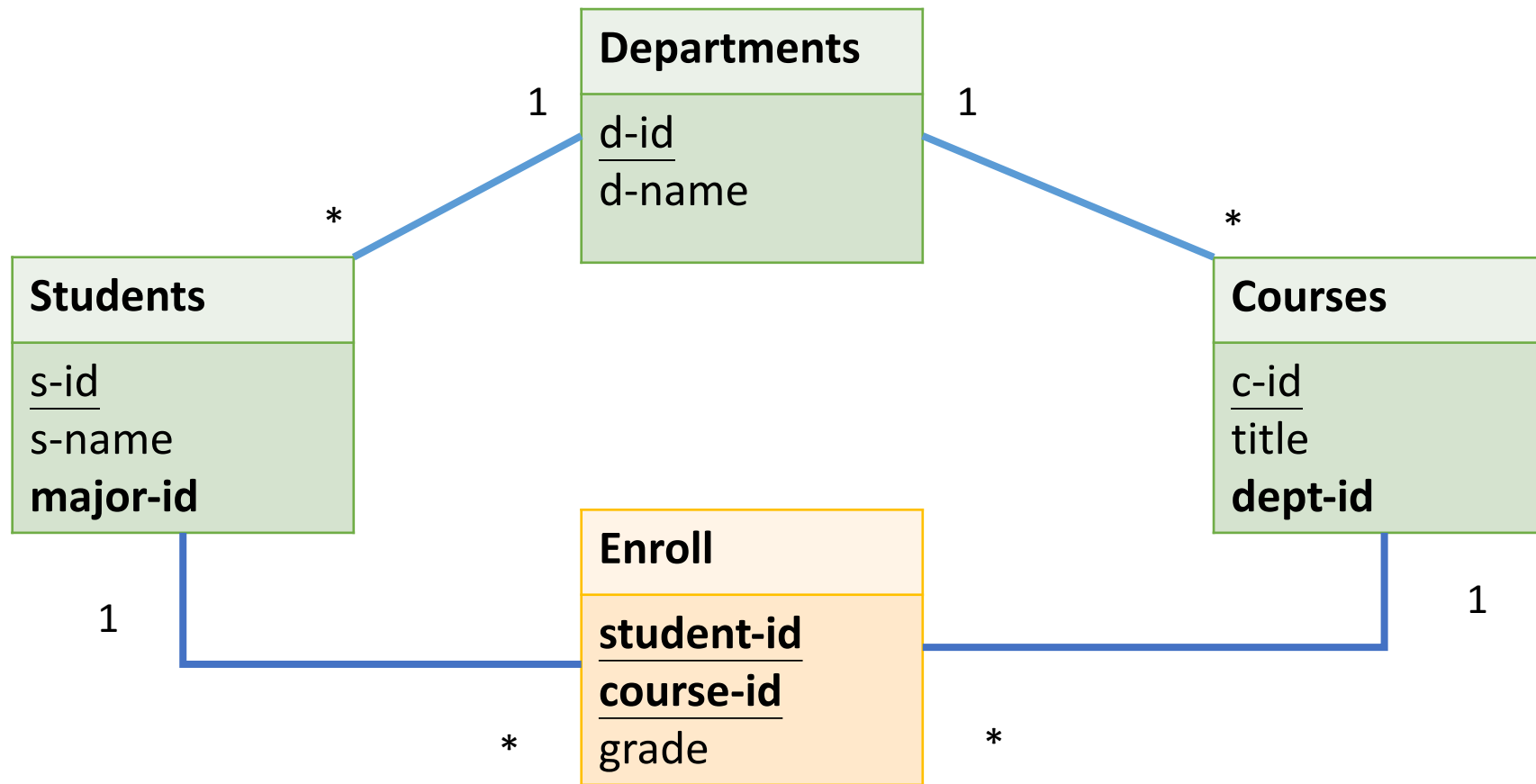
# ER model

- 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** between entities
  - 1-1, 1-many, many-many

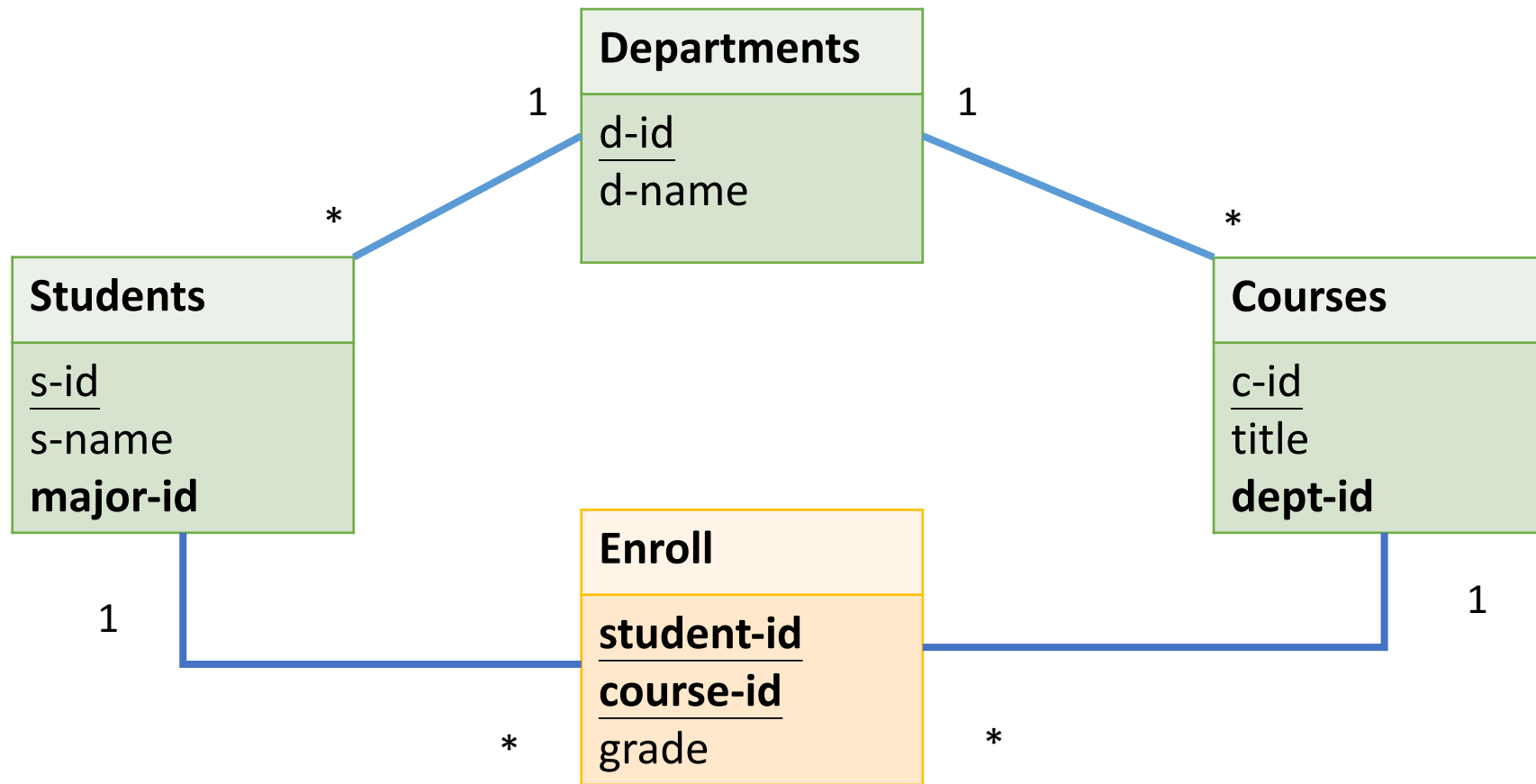


How?

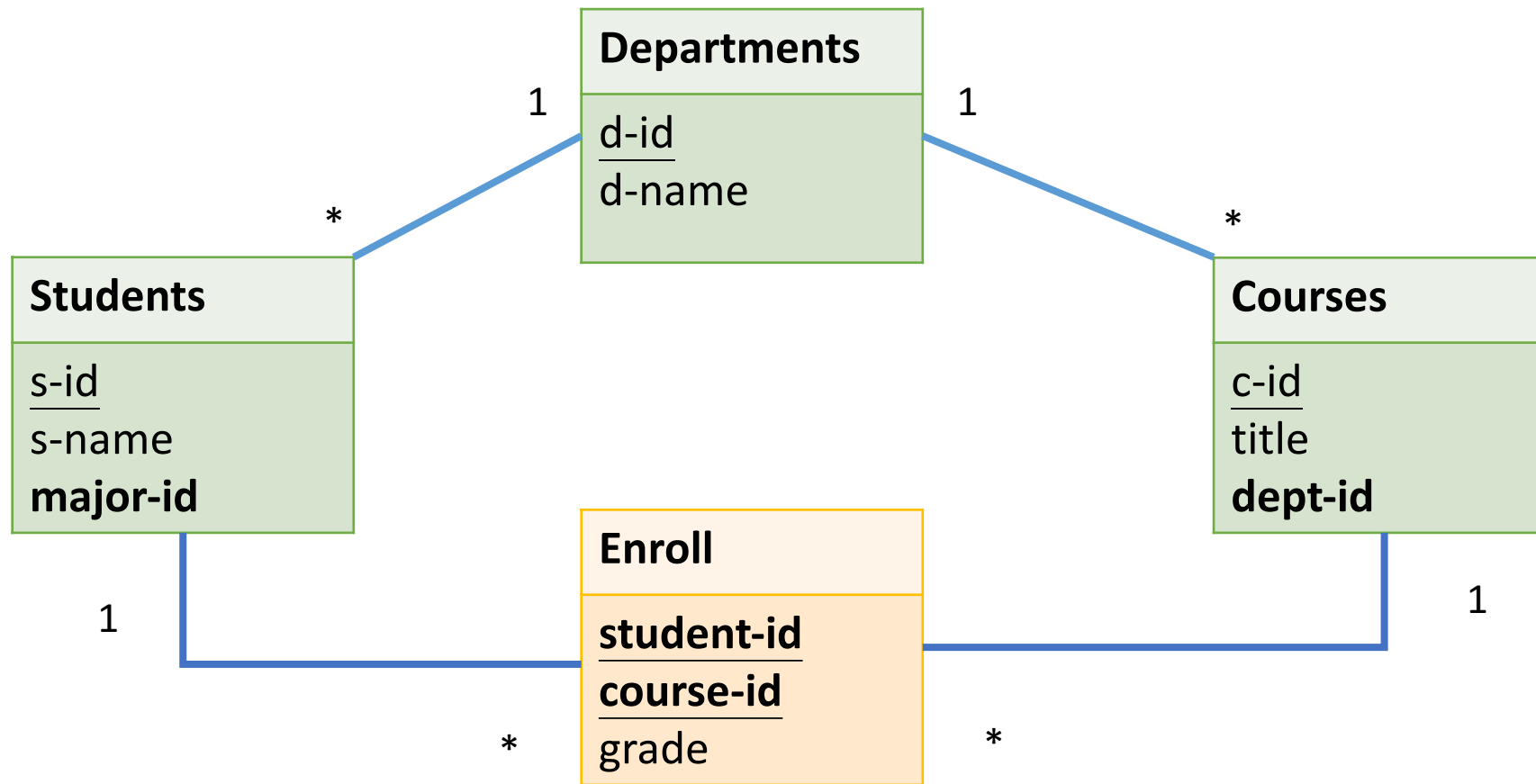




- Table
  - Realization of entity group / relational ship



- Primary key
  - Unique ID field for each table



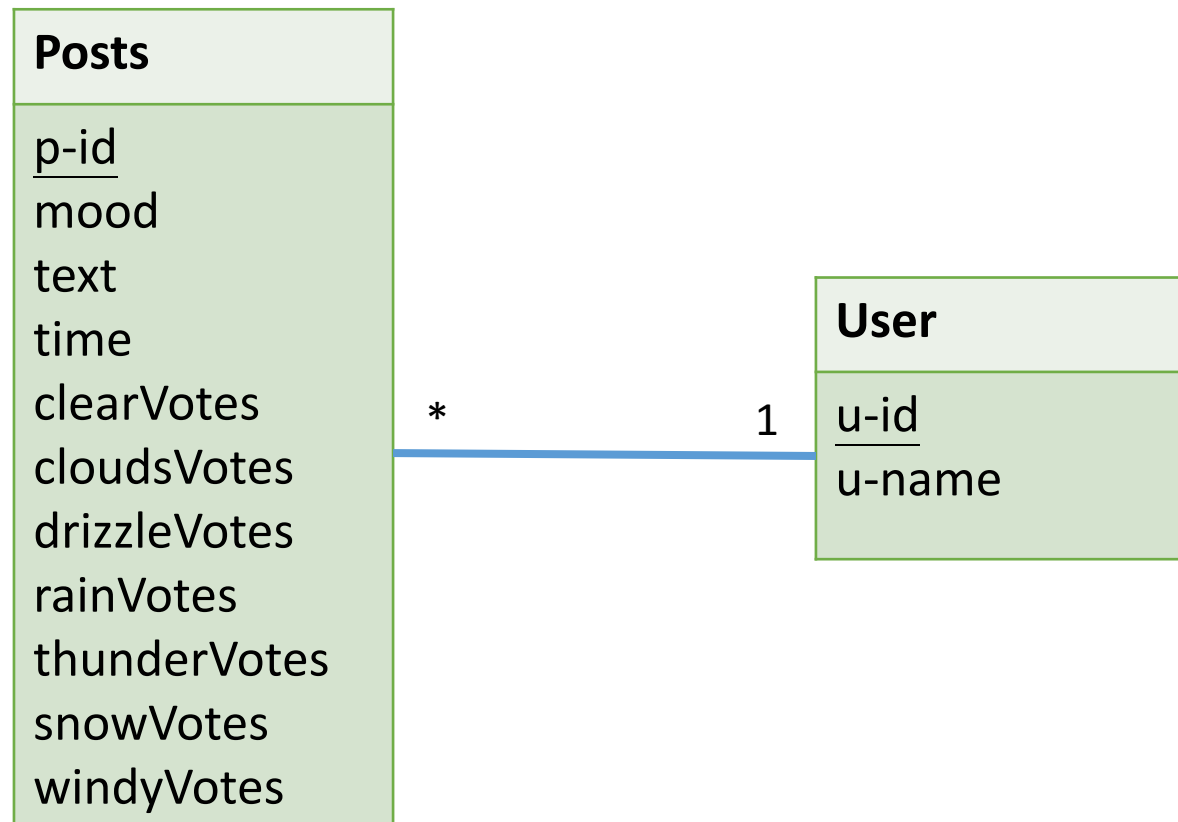
- Foreign key
  - Implement the relationship
  - Point to the primary key of other record
  - Only 1-1 1-many

# Outline

- Hierarchical data model
- Relational data model
- ER model
- **Today's mission**

# Today's mission

- For now, on Weathermood-post the ER model will look like :





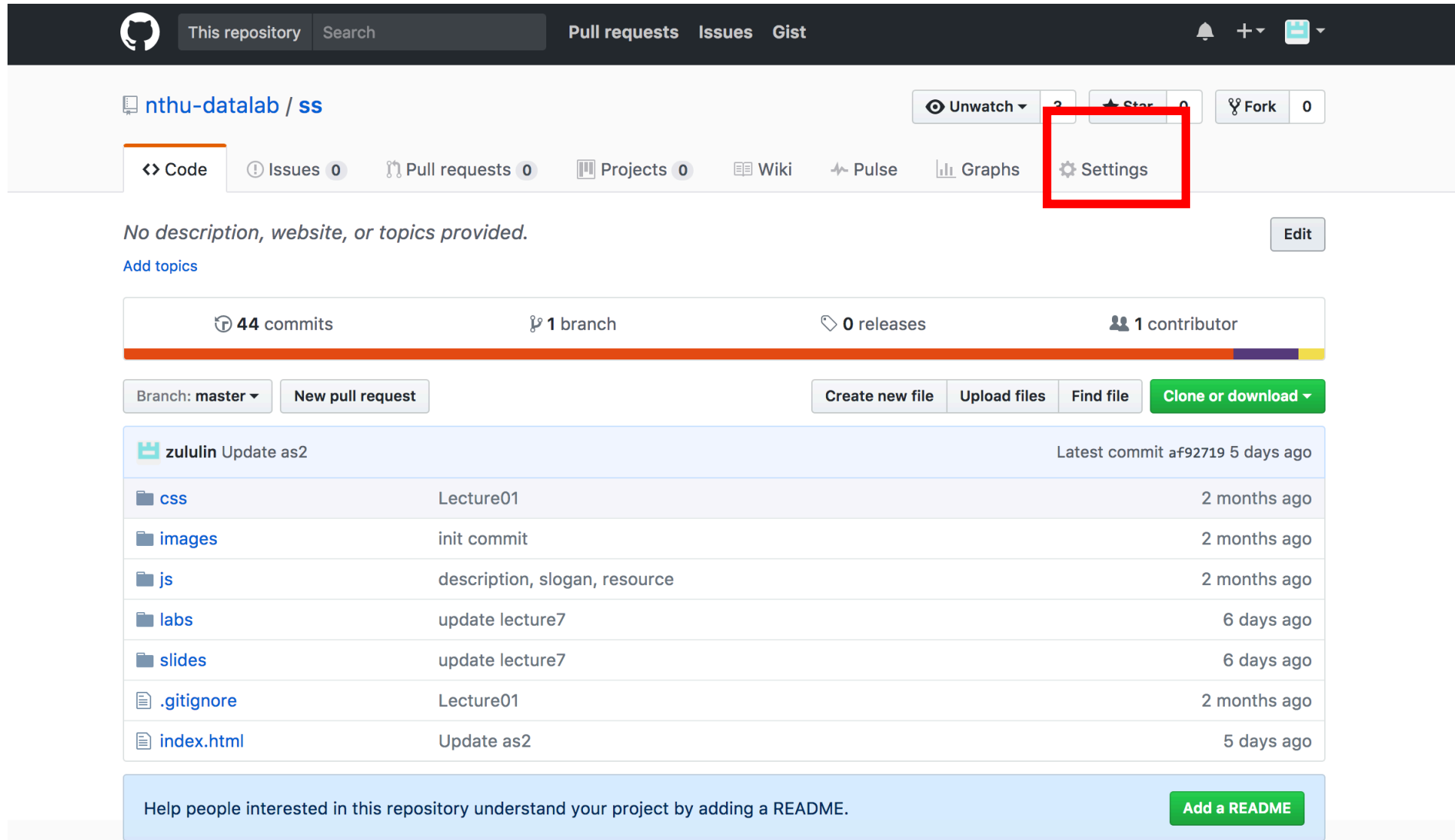
# Today's mission

- For now, on Weathermood-post the ER model will look like :
- Please use ER model to decide how to structure the data such that can prevent repeat vote.
- Deadline 4/25 23:59

# Some reminder

- Landing page
  - How to deal with user feedback will be graded in midterm project.
  - You can publish your site on GitHub Page.

# GitHub Page



This repository Search Pull requests Issues Gist

Unwatch 2 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Pulse Graphs **Settings**

No description, website, or topics provided. Edit

Add topics

44 commits 1 branch 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find file Clone or download

zululin Update as2		Latest commit af92719 5 days ago
css	Lecture01	2 months ago
images	init commit	2 months ago
js	description, slogan, resource	2 months ago
labs	update lecture7	6 days ago
slides	update lecture7	6 days ago
.gitignore	Lecture01	2 months ago
index.html	Update as2	5 days ago

Help people interested in this repository understand your project by adding a README. Add a README

☒ **Allow merge commits**

Add all commits from the head branch to the base branch with a merge commit.

☒ **Allow squash merging**

Combine all commits from the head branch into a single commit in the base branch.

☒ **Allow rebase merging**

Add all commits from the head branch onto the base branch individually.

## GitHub Pages

[GitHub Pages](#) is designed to host your personal, organization, or project pages from a GitHub repository.

### Source

GitHub Pages is currently disabled. Select a source below to enable GitHub Pages for this repository. [Learn more.](#)

None ▾

Save

### Theme chooser

Select a theme to build your site with a Jekyll theme using the `master` branch. [Learn more.](#)

Choose a theme

## Danger Zone

### Make this repository private

Please [upgrade your plan](#) to make this repository private.

Make private

### Transfer ownership

Transfer this repository to another user or to an organization where you have the ability to

Transfer

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None ▾

Save

Select source



**master branch**

Use the master branch for GitHub Pages.

**master branch /docs folder**

Use only the /docs folder for GitHub Pages.

☒ **None**

Disable GitHub Pages.

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## GitHub Pages

Your site is ready to be published at <https://zululin.github.io/test/>.

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### Source

Your GitHub Pages site is currently being built from the `master` branch. [Learn more.](#)

master branch ▾

Save

### Theme chooser

Select a theme to build your site with a Jekyll theme. [Learn more.](#)

Choose a theme

### Custom domain

Custom domains allow you to serve your site from a domain other than `zululin.github.io`. [Learn more.](#)

Save

☒ **Enforce HTTPS** — Required for your site because you are using the default domain (`zululin.github.io`)

# Some reminder

- Landing page
  - Will be graded in midterm project based on user feedback
  - You can publish your site on GitHub Page.
- Draw a lottery to decide present order
  - 5/16 : 1~16
  - 5/18 : A~P