

Report for CSCI 585 Homework 1

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I use VISIO 2016 as tool to design the database. There are something I need to explain. First, every table's primary key attribute is mandatory but some trivial information can be optional. Such like the description for an assignment and student's age. There is no multi-valued attribute in the database because I think that it is hard to manage and distinguish from multi-valued record.

Because I want my database be easy to manage, so I choose to use weak relationship to connect each table. Although I have to assign a new primary key attribute for each table, I can make the management of the database more flexible.

To make it easier for database administrator to manage and organize data, I create some extra table to store some arbitrary data. For example, instead of just add an attribute for a table to store uploading file, I make a File table to specially store all the data uploaded by users. Though it will affect the performance of database, every data will be arranged in perfect order.

Some trivial attributes are omitted or are substituted with "content" field.

Table: Course

Description: This table is used to store different course information.



Table1 Name	Table2 Name	Relationship	Reason
Course	Couse_Staff	1:M	Every course has multiple staff and every record in the Course_Staff means a certain person plays a certain role in a certain course
Course	Assignment	1:M	Every course has many assignments and every assignment only can belong to one Course
Course	Material	1:M	Every course has many materials and every material only can belong to one Course
Course	Course_Time_Management	M:M	
Course	Teacher	M:1	One course can be created by one teacher, one teacher can create many courses
Course	Course_Management	1:M	One course has many management record to distinguish the permission assigned to different person
Course	Register	1:M	One course has many register record correspond to one student in a certain course.
Course	Lecture	1:M	Same reason as assignment table.

Course	Category	1:M	One course can only belong to one category, one category can have many courses
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Table: Category

Description: This table is used to record the different category. Each category contains many courses, but one course only has a certain category. The attribute “cat_name” and “cat_description” are meaning the name and description of a category

Category	
PK	cat_id
	cat_name
	cat_description

Table: Course_Time_Management

Description: The Course_Time_Management table is used to satisfy the requirement that “A course should start and end at certain time”. The field “isAvaliable” means that this course is opened and the correspond schedule time is fields “start_time” and “end_time”

Couse_Time_Management	
PK	cou_time_man_id
FK	cou_id
	isAvaliable
	start_time
	end_time

Table: Lecture

Description: This table is used to store the lecture information from a certain class.

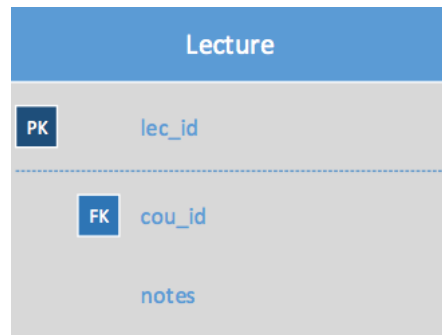


Table1 Name	Table2 Name	Relationship	Reason
Lecture	Lecture_Video	1:M	One lecture can have many video resources
Lecture	Lecture_Note	1:M	One lecture can have many notes
Lecture	Material	1:1	One lecture can be assigned as a certain material
Lecture	Lecture_Material	1:M	One lecture can have many general material
Lecture	Comments	1:M	One lecture can have many comments but one comment is specify for a lecture

Table: Lecture_Video

Description: This table is used to store videos for each lecture. Every record in the table means a video content for a lecture.



Table: Lecture_Note

Description: This table is used to store lecture note for a certain lecture.

Lecture_Note	
PK	lec_note_id
FK	lec_id
	note_content

Table: Material

Description: The material table store all the course material information. Every record contains a syllabus information and a textbook for corresponding course.

Material	
PK	mat_id
FK	lec_id
FK	cou_id
	syllabus
	textbook

Table: Couse_Staff

Description: This table stores every staff's information and each staff can only be responsible for one course.

File	
PK	file_id
FK	lec_material_id
FK	ass_id
	file_content

Table: Link

Description: This table stores link's information for lecture material.

Link	
PK	link_id
FK	lec_material_id
	link_content

Table: Assignment

Description: This table stores assignments for each courses. Each assignment has to be assigned to a course and has a deadline.

Assignment	
PK	ass_id
	description
	dealline
FK	cou_id

Table1 Name	Table2 Name	Relationship	Reason
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Assignment	File	1:M	One assignment has many files. File can only be assigned to one
Assignment	Comments	1:M	One assignment has many comments. Comment can only be assigned to one
Assignment	Grade	1:M	One assignment has many grade for every student who finished this assignment

Table: Grade

Description: This table stores the information of the grade for each student's one assignment.

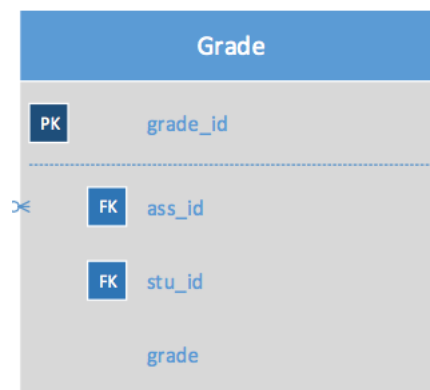


Table: Comments

Description: Comments table stores the comment posted by students and teachers for a certain assignment or a lecture.

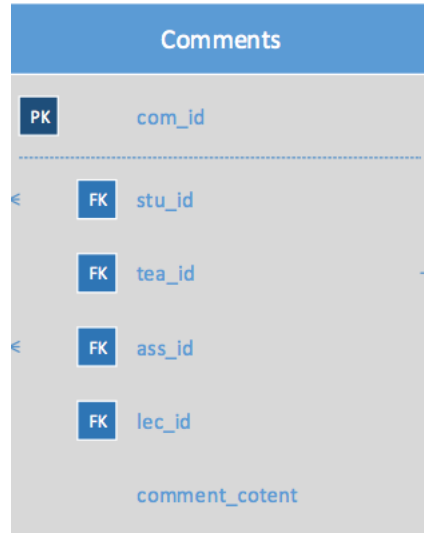


Table: Student

Description: This table stores every student's information like their name, age.

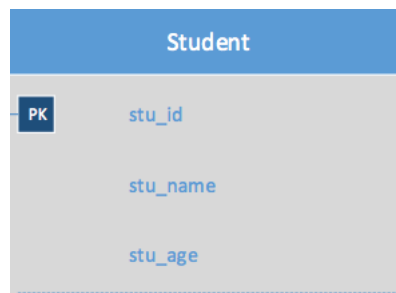


Table1 Name	Table2 Name	Relationship	Reason
Student	Comments	1:M	One student can post many comments
Student	Grade	1:M	One student has different grade for different courses and assignments
Student	Register	1:M	One student can register many courses

Table: Teacher

Description: This table stores every teacher's information.

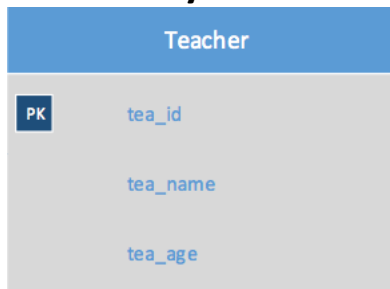


Table1 Name	Table2 Name	Relationship	Reason
Teacher	Comments	1:M	One teacher can post many comments
Teacher	Course_Management	1:M	

Table: Course_Management

Description: This table is used to assign different permission and role to each teachers which were involved in a course.

Table: Register:

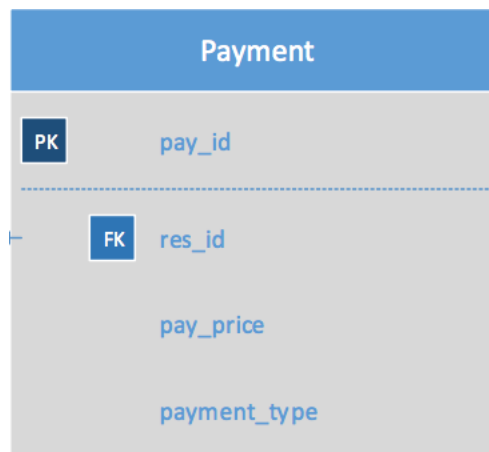
Description: This table record every student's course enrolling information. What's more, student's rate about the course will be recorded in this table.

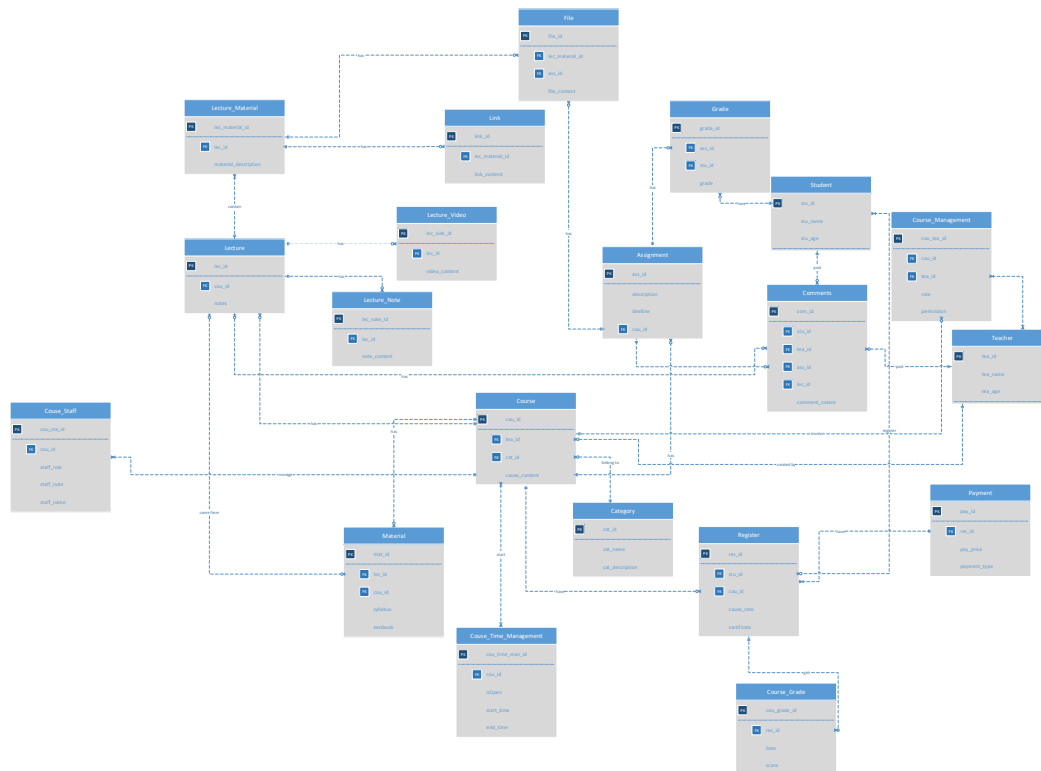


Table1 Name	Table2 Name	Relationship	Reason
Register	Course_Grade	1:M	One student in one course has many grade in different items.
Register	Payment	1:M	Different student may use different payment way because of different price.

Table: Payment

Description: This table stores every payment record generated by students. The field **pay_price** means the price that student pays for a certain course and the **payment_type** is the payment method that student chooses.





Please zoom in to see the details.