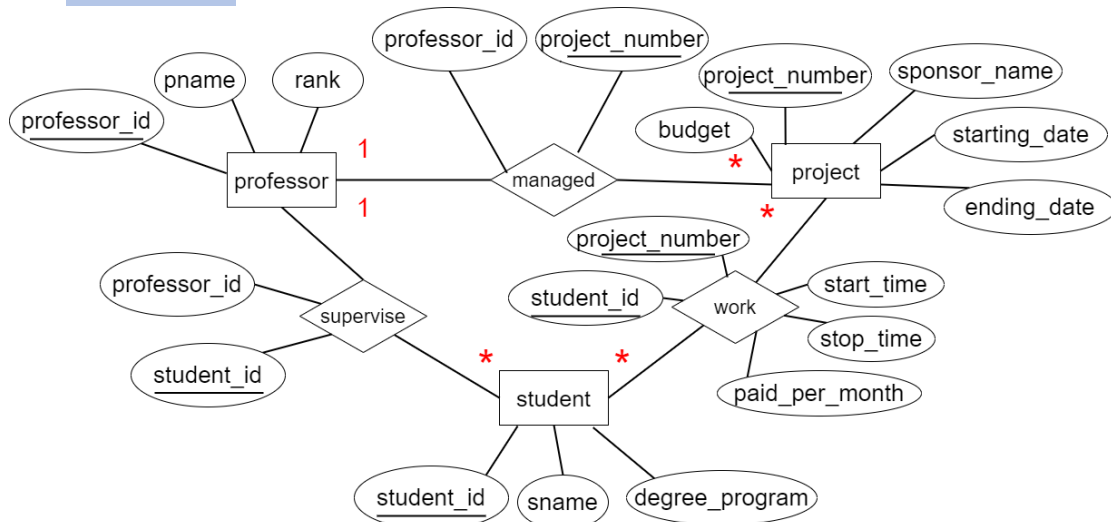


# 2020 Database

## 210510210\_assignment1\_report

### Problem 1:

#### ER-model:



我的 relation 都有兩個 primary key，因為可能一個學生會有多個 project，多個學生也會同時有一個 project

#### Relational-model:

```
CREATE TABLE Professor (  
    professor_id    INTEGER,  
    pname           VARCHAR(20),  
    rank            VARCHAR(20),  
    PRIMARY KEY (professor_id)  
);  
  
CREATE TABLE Project (  
    project_number  INTEGER,  
    sponsor_name    VARCHAR(20),  
    starting_date   DATE,  
    ending_date     DATE,  
    budget          INTEGER,  
    PRIMARY KEY (project_number)  
);
```

```
CREATE TABLE Student (  
    student_id      INTEGER,  
    sname           VARCHAR(20),  
    degree_program  VARCHAR(20),  
    PRIMARY KEY (student_id)  
);  
  
CREATE TABLE Managed (  
    professor_id     INTEGER,  
    project_number   INTEGER,  
    PRIMARY KEY (professor_id, project_number),  
    FOREIGN KEY (professor_id) REFERENCES Professor,  
    FOREIGN KEY (project_number) REFERENCES Project  
);  
  
CREATE TABLE Supervise (  
    professor_id     INTEGER,  
    student_id       INTEGER,  
    PRIMARY KEY (professor_id, student_id),  
    FOREIGN KEY (professor_id) REFERENCES Professor,  
    FOREIGN KEY (student_id) REFERENCES Student  
);  
  
CREATE TABLE Work (  
    project_number   INTEGER,  
    student_id       INTEGER,  
    start_time       DATE,  
    stop_time        DATE,  
    paid_per_month    INTEGER,  
    PRIMARY KEY (project_number, student_id),  
    FOREIGN KEY (project_number) REFERENCES Project,  
    FOREIGN KEY (student_id) REFERENCES Student  
);
```

### Problem 2:

為了滿足 3rd normal form 所以我把原本的 table 拆成 3 個

#### Forum\_type

forum_id	forum_name	popularity
1	Gossiping	164
2	News	62
3	Joke	23

第一個 table 的 primary key 是 forum\_id 因為他可以唯一決定每個 record

#### Post

post_id	forum_id	title	article
190	1	Girlfriend	How con I get girlfriend ?
236	1	Friends	I don't have a friend...
55	2	Wow	Why?
168	3	Computer	One minus one

第二個 table 的 primary key 是 post\_id 因為每個文章的 id 都是唯一的

#### Reply

reply_id	post_id	reply
1	190	"Haha"
2	190	"I don't know"
3	236	"Haha"
4	236	"I can be"
5	236	"QQ"
6	55	"Then?"
7	55	"What's the point ?"
8	168	"Hahaha"

第三個 table 的 primary key 是 reply\_id 我讓每個 reply 獨立存在一個 record 裡面，所以 reply\_id 可以唯一決定一個 record

### 總結及心得

在做這次作業的時候

針對第一個問題，我發現在畫 ER-model 的時候，一定要先搞清楚他們的關係是一對一、一對多、多對多，這樣不只方便我去定義他們中間的關係，primary 也可以一目瞭然

針對問題二，一開始我以為 3rd normal form 就是只要滿足自己的關係就好，但去找助教之後，才發現也要滿足 1st & 2nd 才可以，所以後來就又要再改成 3 個 table，根據助教的步驟，從第一個開始檢查，滿足第一個再去滿足第二個，依此類推，這樣做起來會比較容易一點