

Normal Form Practical

1. If we have below student table, does it satisfy the 1NF? If not, please explain why and revise it accordingly to satisfy the 1NF.

Student
StuNo
StuName
Age
Age
Sex

2. If we have below StuGrade table, does it satisfy the 2NF? If not, please explain why and revise it accordingly to satisfy the 2NF.

StuGrade	
stuNo	
stuName	
age	
sex	
courseNo	
courseName	
credit	
score	

3. If we have below Employee table, does it satisfy the 3NF? If not, please explain why and revise it accordingly to satisfy the 3NF.

Employee	
emp_id	
emp_name	
emp_age	
dept_id	
dept_name	
dept_info	

4. Based on the results of Q.3, please write a SQL statement to retrieve the dept_info of employees.

Solution:

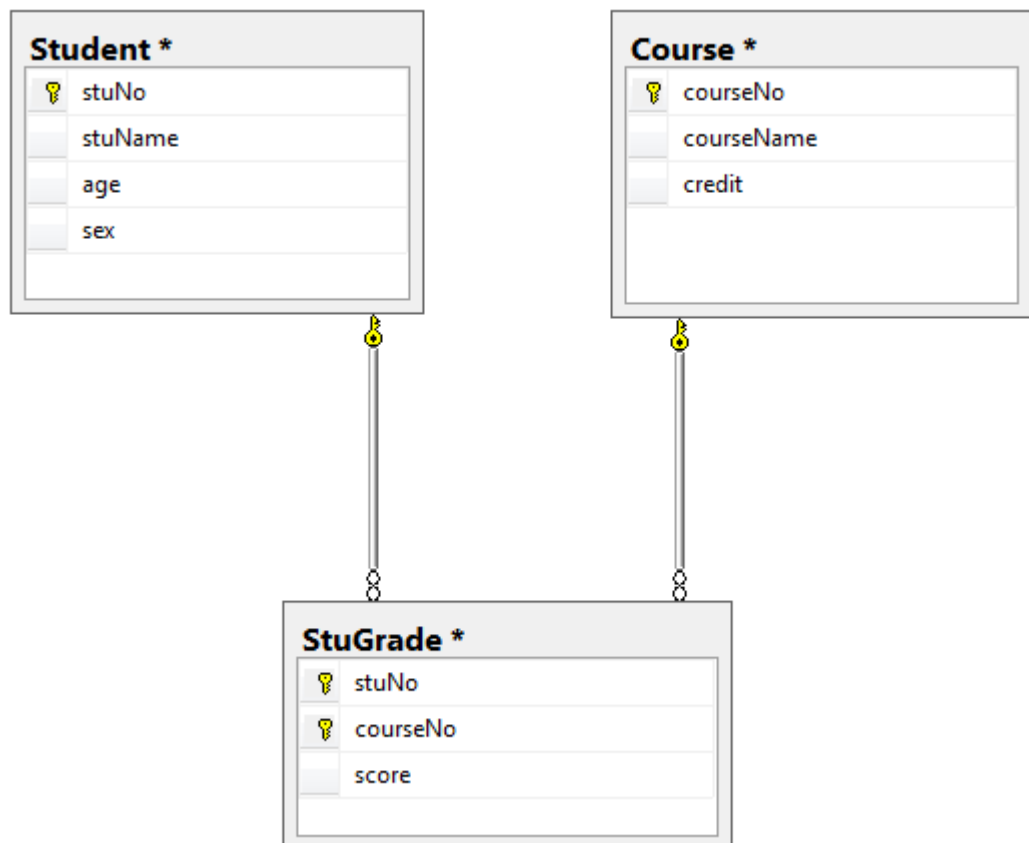
1. The original student table does not satisfy 1NF. This is because there is repeated column ("Age") in the table.

To make the student table satisfy 1NF, you can remove the repeated column of "Age" as shown below.

Student
StuNo
StuName
Age
Sex

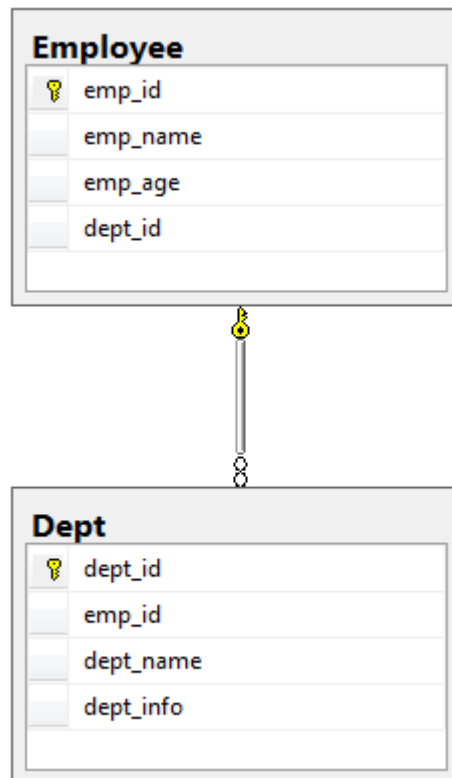
2. The original stud table does not satisfy 2NF. This is because 2NF asks for full functional dependency. Therefore, cannot exist an attribute only relies on partial of primary key. Please note that primary key may not be only one attribute. In some cases, it exists composite primary key.

To make the student table satisfy 2NF, you can revise it as below.



3. The original stud table does not satisfy 3NF. This is because 3NF is about transitive dependency. Therefore, we need to make sure that no non-primary-key attribute is transitively dependent on the primary key.

To make the student table satisfy 3NF, you can revise it as below.



4. `select e.emp_id,e.emp_name,d.dept_name, d.dept_info from Employee e, Dept d
where e.dept_id=d.dept_id`