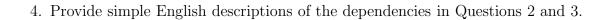
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Consider a database with relations Students(id, name, year), Courses(id, title, ta), and Enrolls(student, course, credits). A tuple  $(i,n,y) \in$  Students denotes a student with student-identifier i, name n, and year y. A tuple  $(i,t,a) \in$  Courses denotes a course with course-identifier i, title t, and whose teaching assistant's student-identifier is a. A tuple  $(s,c,r) \in$  Enrolls denotes the enrollment of the student with identifier s in the class with identifier c, for r credits.

1. List the members of your group below. Underline your name.

2. Provide the smallest possible instance of the Students relation that *violates* the functional dependency id→name, year.

3. Provide the smallest possible instance of the Courses relation that *violates* both the functional dependencies id—title and ta, title—id.



5. List all superkeys and all keys of Courses, given the dependencies in Question 3.

6. Compute  $\{\mathtt{title}\}^+$  and  $\{\mathtt{id},\mathtt{ta}\}^+$  given the dependencies of Question 3.

7. Consider R(A,B,C,D,E) with dependencies

$$\begin{array}{ccc} AB & \rightarrow & C \\ BC & \rightarrow & A \\ D & \rightarrow E \\ CE & \rightarrow B \end{array}$$

List all keys of R

8. Project the dependencies of Question 7 onto the relation R'(A,B,C).

9.	Decompose	R as neccessar	ry to generate a BCl	NF schema.