Consider a database with relations $\text{Students}(id, \text{name}, \text{year})$, $\text{Courses}(id, \text{title}, \text{ta})$, and $\text{Enrolls}(\text{student}, \text{course}, \text{credits})$. A tuple $(i, n, y) \in \text{Students}$ denotes a student with student-identifier $i$, name $n$, and year $y$. A tuple $(i, t, a) \in \text{Courses}$ denotes a course with course-identifier $i$, title $t$, and whose teaching assistant’s student-identifier is $a$. A tuple $(s, c, r) \in \text{Enrolls}$ 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 $\text{Students}$ relation that violates the functional dependency $id \rightarrow \text{name}, \text{year}$.

3. Provide the smallest possible instance of the $\text{Courses}$ relation that violates both the functional dependencies $id \rightarrow \text{title}$ and $\text{ta}, \text{title} \rightarrow id$. 


4. Provide simple English descriptions of the dependencies in Questions 2 and 3.

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

6. Compute \{title\}⁺ and \{id, ta\}⁺ given the dependencies of Question 3.
7. Consider $R(A, B, C, D, E)$ with dependencies

$AB \rightarrow C$
$BC \rightarrow A$
$D \rightarrow E$
$CE \rightarrow B$

List all keys of $R$

8. Project the dependencies of Question 7 onto the relation $R'(A, B, C)$.
9. Decompose $R$ as necessary to generate a BCNF schema.