

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

2. 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

3. Project the dependencies of Question 2 onto the relation $R'(A, B, C)$.

4. Decompose R as necessary to generate a BCNF schema. For each decomposition, indicate the used dependency and the projected dependencies for the decomposed relations.

5. Provide the smallest possible instance of a relation that *violates* the multivalued dependency $AB \twoheadrightarrow CD$.

6. Decompose, as needed, the schema of Question 5 to 4NF.

7. State *Armstrong's Axioms* for functional dependencies and prove their soundness from first principles.