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Task 1

Every conversion into BCNF may not be dependency preserving
Proof:

We only need to give a counter example: Consider the

following schema; a b c and c->b

Clearly the above schema is in 3NF, because ab->c is a superkey dependency and ,from c->b we can see that b-c=b, which is a subset of the primary key (such dependency is also allowed in 3NF).

But, the above schema is not in BCNF because c->b is neither super-key

nor trivial dependency. So we decompose above schema , keeping it

lossless.

Only possible lossless decomposition is: ac and cb. (because their intersection c is primary key for the 2nd table).

Task 6

The three design goals are lossless-join decompositions, dependency preserving decompositions, and minimization ofrepetition of information. They are desirable so we can maintain an accurate database, check correctness of updates quickly, and use the smallest amount of space possible.

Undesirable

Lack of Data Redundancy

- Lack of Data Redundancy is also known as a **Repetition of Information.**
- The proper decomposition should not suffer from any data redundancy.
- The careless decomposition may cause a problem with the data.
- The lack of data redundancy property may be achieved by Normalization process.

Desirable

Lossless Decomposition

- Decomposition must be lossless. It means that the information should not get lost from the relation that is decomposed.

- It gives a guarantee that the join will result in the same relation as it was decomposed.