CSC343 A3 - Part 3

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1.a)

violate BCNF since the left sides are not super keys.

b)

For the first split of the relation I will be using the closure of CI in part (a):

:

The closures of C,D,F,G,J are trivial as the original FDs don’t have a single C,D,F,G,J on the left side, however the closure of I, , is not trivial and is not a super key of . I will split using the closure of I:

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All FDs are trivial here except for CI which is a super key. So this relation is done.

:

I is the super key and any closure including I is also a super key. Closure of D,F,G are trivial. as you can see the other attributes are all trivial with the exception of those that include I which is a super key. So this relation is done.

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The original FD is not a super key on the left side so I will split using this FD.

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Closures of B,I,J are trivial. BI is a super key of R, BJ and IJ is trivial, mainly because J does not appear at all on the left sides of any FD. So this relation is done.

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The original FD is not a super key on the left side so I will split on this FD:

This relation only has two attributes it is impossible to split further.

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All FDs including H is a super key of this relation. Since there are no A,C,E on the left sides of the original FDs, any and all FD combinations of these will be trivial. So this relation is done.

FINAL RELATIONS: