Homework 5

Due: 17 Mar 2015

Problem 5.1

Consider a relation with schema $R(A, B, C, D, E)$ and FDs $A \to C$, $BC \to D$, $B \to E$, $CE \to A$, and $D \to E$.

As in the exercises we did in class: list all (*all*) the nontrivial FDs that follow from the given FDs, and then list all the keys and superkeys of R (and distinguish the keys from the non-keys). You may consolidate FDs that share left-hand sides, so e.g. if you had an FD $WX \to Y$ and another $WX \to Z$, you could write simply $WX \to YZ$.

Problem 5.2

Consider a relation with schema $R(A, B, C, D, E, F, G, H)$ and FDs $AB \to C$, $CD \to F$, $ABE \to FG$, and $D \to H$.

a. Indicate the BCNF violations, and decompose R into a collection of relations, all of which are BCNF.

b. Is your decomposition unique? If so, explain why/how you know; if not, indicate what you would have done differently to generate an alternate valid decomposition.

Handing in

We're back to on-paper, group-work, revision-able homework with this one. Bring your work at the start of class on Tuesday.