Stevens Institute of Technology

Department of Computer Science

CS442: Database Management System

**Handout 5. Schema refinement**

1. Consider a relation R(A,B,C,D,E,F). It has FDs: AC → F, B → D, AB → CEF, ACE → B, and AEF → BC, answer the following questions:

* Find all candidate keys of R.
* Is relation R in the 3NF? If not, give an example of FD that violates the 3NF condition and explain why.
* Is relation R in BCNF? If not, give an example FD that violates the BCNF condition and explain why.
* If R does not satisfy BCNF, how to decompose R into BCNF tables?

1. Consider a relation R(ABCDE), and its FDs: ABCD→E, E→D, A→B, AC→D. Decompose R into 3NF tables.