Fall 2007 CS186 Discussion Section: Week 12, 11/12 - 11/16

Your friendly TAs

November 13, 2007

1 Attribute Closure

Consider the attribute set R = ABCDE and the FD set F = {AB→C, A→D, D→E, and AC→B}. Compute the attribute closure for each of A, AB, B, and D.

2 Schema Decomposition

Decompose the following attribute sets, R, and FD sets, F, into (a) BCNF and (b) 3NF:

- **R = ABCEG; F = {AB→C, AC→B, BC→A, E→G}.**
- **R = ABCDE, F = {AB→C, DE→C, and B→D}.**
- **R = ABCDEFG, F= {AB→CD, C→EF, G→A, G→F, CE→F}.**
- **R = ABCDEFGH, F = {ABH→C, A→DE, BGH→F, F→ADH, BH→GE}.**

3 Lossless? Dependency Preserving?

Which of the following decompositions of R = ABCDEG, with F = {AB→C, AC→B, AD→E, B→D, BC→A, E→G}is (i) dependency-preserving? (ii) lossless-join?

- **AB, BC, ABDE, EG**
- **ABC, ACDE, ADG**