Assignment 2 – CIS4301, Fall 2018

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- **Due Date:** October 5th, 2018 (before exam)
- Submit paper copy

Problem 1

Consider a relatin `R(A,B,C,D)`. Let the functinal dependencies of `R` be: `AC->B`, `B->A` and `D->C`. Answer the following questions (show your work):

1. What are all the keys of `R`?
2. Find a minimal bases for the given functional dependencies (or prove the given one is minimal)
3. Perform a (possibly non-dependency preserving) BCNF decomposition of `R`
4. Use the 3NF synthesis algorithm to find a loseless-join dependency-preserving decomposition of `R` into 3NF.

Problem 2

Consider a relation `R(B,O,I,S,Q,D)`. Let the functional dependencies for `R` be: `I->O`, `S->D`,`I->B`, `IS->Q`, `B->O`. Answer the same questions as Problem 1.