

# Homework 5

CS430 and CS630  
100 points

Due Date: **Tue, Aug 15, 2023, before 9 pm**

## **INSTRUCTIONS (please read carefully):**

All submissions must have one **PDF file (submitted on Gradescope in the Homework 5 assignment)** **MUST** be submitted before the due date following these instructions:

- **The PDF file will contain answers for Question 1** and has to be **uploaded on Gradescope in Homework 5 assignment** before the due date.

**No submission after the due date will be accepted. Homework must be typed (no handwritten homework will be accepted).**

**Submissions that do not follow the instructions from above and are not provided before the deadline will not be accepted and will receive no credit.**

**All the exercises are for both CS430 and CS630 students.**

## **Question 1) (100 points)**

Given the relation with the following attributes ACFSBDM.

Note that C is the key. This relation has this set of functional dependencies:  $FS \rightarrow B$ ,  $A \rightarrow D$ .

- a) Explain why this relation is not in BCNF. (20 points possible)
- b) Decompose this relation into BCNF. (80 points possible)