CSE 132A **Homework# 2** **Winter 2023**

Due on Friday, March 3, 11:59pm (see instructions)

This is an individual assignment. What you turn in must be entirely your own work.

Let R be a relation with attributes ABCD. Consider the conjunctive SQL query:

select x.B, x.C, x.D
from R x, R y, R z
where x.B = y.B and z.B = 8 and x.A = x.C
and x.D = y.C and z.A = y.C and z.C = x.A

(i) (2 *points*) Construct the pattern corresponding to the query.

(ii) (2 *points*) Is the pattern constructed in (i) minimal? (Explain)

(iii) (5 *points*) Minimize the pattern in (i) knowing that the query is only applied to databases satisfying the FD's

$$B \to A, A \to C, C \to D$$

Show the intermediate steps.

(iv) (1 *point*) Construct from the minimized pattern a corresponding minimized SQL query.

What and how to turn in

- Write or print each answer on a separate page.
- Generate a pdf file with your assignment (if handwritten, scan and save in pdf).
- Upload the pdf file on Gradescope via Canvas.
- If you are tempted to typeset your homework in latex (like a real pro) you can use as a template the practice problem set on join minimization, which is also posted in latex on Canvas.