

DBMS – ASSIGNMENT 2

M.Tech. (CS), First Year, 2019–2020

Deadline: April 30, 2020

Total: 10 marks

SUBMISSION INSTRUCTIONS

1. Submit all the solutions in a single file.
2. Naming convention for your submission file (assuming CS19xx is your roll number): CS19xx-assign3 (.rtf, .docx, .doc, .pdf, .tex, etc.).
3. To submit a solution file (say CS19xx-assign3.pdf), ensure that it is not password protected and mail to <assignisik@gmail.com> with the subject line as follows: DBMS M.Tech. (CS) 2019-21 CS19xx Assignment 3.

NOTE: All the solutions must be self-sufficient and to the point.

Q1. Prove that strict two-phase locking protocol only allows conflict serializable schedules.

Q2. Given a bitstream, count the number of 1's in the last k bits, where $k \leq N$ (the window size). Note that, a Naive approach could be storing the most recent N bits (of the stream) and count. However, this will consume $O(k)$ time and $O(N)$ space. Suggest a better approach that will consume $O(\text{polylog}N)$ space.