

DBMS – ASSIGNMENT 2

BSDS, Second Year, 2025–2026

Deadline: March 15, 2026

Total: 5 marks

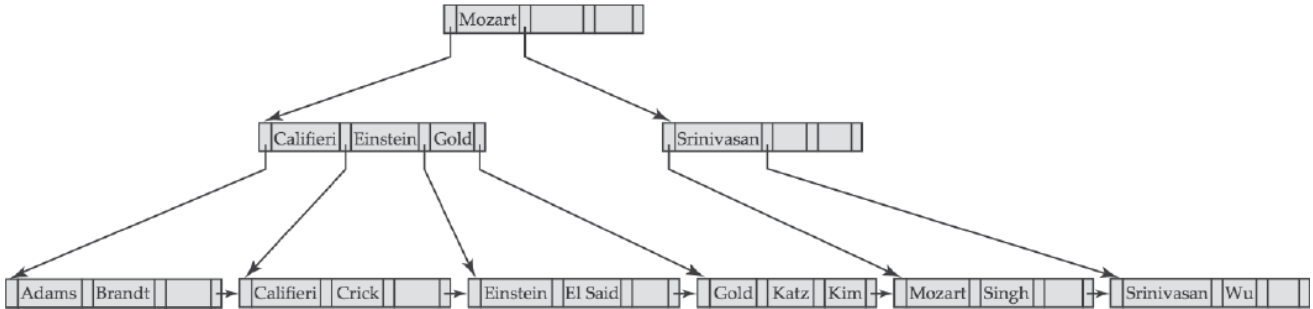
SUBMISSION INSTRUCTIONS

1. Submit all the solutions in a single file.
2. Naming convention for your submission file (assuming BSD-BG/CC/DD-24xx is your roll number): BSD-BG/CC/DD-24xx-assign2 (.rtf, .docx, .doc, .pdf, .tex, etc.).
3. To submit a solution file (say BSD-BG/CC/DD-24xx-assign2.pdf), ensure that it is not password protected and mail to <assignisik@gmail.com> with the subject line as follows: DBMS BSDS 2024-28 BSD-BG/CC/DD-24xx Assignment 2.

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

Q1. Consider the following B⁺-tree of order 4 that lexicographically organizes some data items. Delete the following data items in the given order and show the B⁺-trees that get constructed in the intermediate steps:

- (a) Only “Srinivasan”.
- (b) Both “Singh” and “Wu”.



Q2. Let there be a relation $R = \langle A, B, C, D, E \rangle$ having all the attributes as atomic and holding the functional dependencies $FD = \{A \rightarrow BC, C \rightarrow B, D \rightarrow E\}$. What is the candidate key of R ? What is the highest normal form that R satisfies? If R violates 3NF, provide a 3NF decomposition of R .