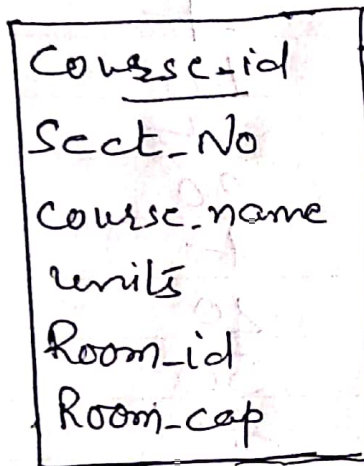
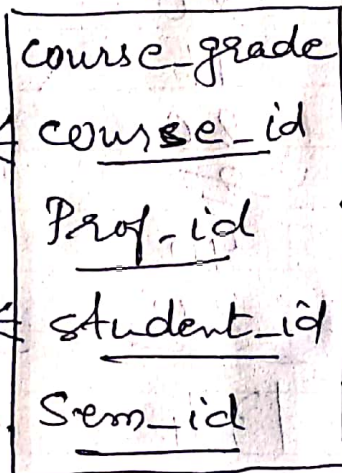


(a)

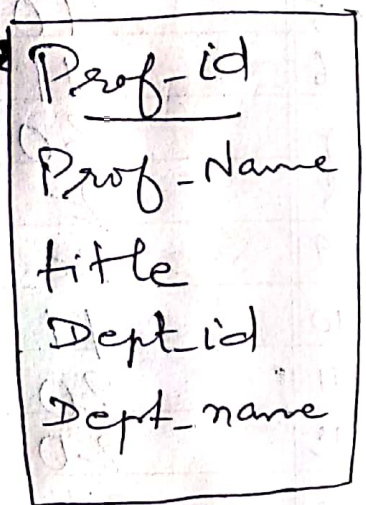
Course-Section
dimension



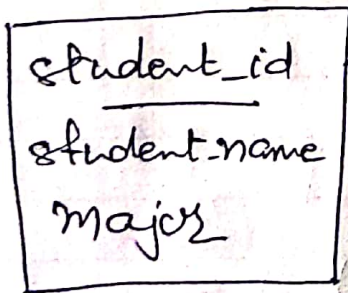
Grade-analysis-
fact



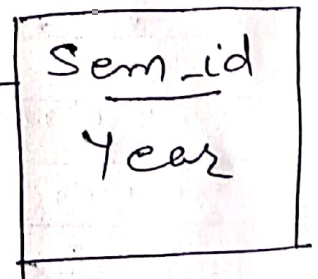
Professor
Dimension



Student
dimension



Period
dimension



(b) The DW contains data for 30 months

\therefore The number of semesters = $30 \div 6 = 5$

- The number of Course Sections offered in a semester = 500

- Each course section has 60 students.

- Each student is assigned a grade for each course section.

\therefore The number of grades to be recorded in each semester

$$= 500 \times 60 = 30,000$$

\therefore The total number of grades to be recorded in 5 semesters = 30000×5
 $= 1,50,000$

\therefore number of records in fact table = 1,50,000

size of each attribute = 5 bytes

no. of attributes in fact table = 5

\therefore size of each ~~and~~ fact record = $5 \times 5 = 25$ bytes

\therefore size of fact table = $1,50,000 \times 25 = 37,50,000$ bytes

(c) To convert star schema into snowflake schema, we need to identify the attributes in each dimension that are at low cardinality. Such attributes are separated & stored in a subtable.

- In the above star schema, course-section Δ professor dimensions have such attributes
- Room-id & Room-cap in course-section dimension are at low cardinality
- Similarly, Dept-id & Dept-Name attributes in professor dimension are at low cardinality.

