

Tutorial 3 Solutions

CSN-351/AID-523 Database Management Systems

1. Redundancies among values across different attributes :

Customer ID → Customer Name

Eg. 15 → Raj

Product ID → Product Name

Eg. ABC-13 → Amul Milk (500ml)

Possible decomposition :

Customer(Customer ID, Customer Name)

Product(Product ID, Product Name)

Purchase(Customer ID, Product ID, Time)

2. a. No redundancy, Lossless, Dependency Preserving.
b. Normalization.
c. Update anomaly , Insertion anomaly , Deletion anomaly.

3. Lossy decomposition. As the common attribute B is not a super key of any of the tables.

Possible lossless decomposition : R1(AB), R2(AC)

A	B
1	2
2	2
3	1

A	C
1	1
2	2
3	2

4. a. Lossless :: C is a superkey in R2
b. Lossy
c. Lossy
d. Lossless :: B is superkey between R1, R2 and C is super key between R12, R3

5. R1(ABC), R2(ACDE), R3(ADG)

6. Yes, this is a dependency preserving decomposition.

7. No, this is not dependency preserving decomposition. As $AB \rightarrow C$ is not possible to make from this decomposition. Hence $AB \rightarrow CD$ will not be recovered.