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ASSIGNMENT-3

[DBMS]

1) Consider a relation R with the schemas R(A, B, C, D, E, F) with a set of functional dependencies F as follows:

$$\{ AB \rightarrow C, BC \rightarrow AD, D \rightarrow E, CF \rightarrow B \}$$

Find the SuperKey for this relation.

Ans) Closures

$A^+ = \{A\}$
$B^+ = \{B\}$
$C^+ = \{C\}$
$D^+ = \{D, E\}$
$AB^+ = \{A, B, C\}$
$BC^+ = \{A, B, C, D, E\}$
$CD^+ = \{C, D, E\}$

SuperKey are BC and ABC

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2) Describe Normalisation in DBMS. Differenciate b/w 1NF & 2NF

Ans) Normalisation is a database design technique that organizes tables in a manner that reduces redundancy and dependency of data. It divides a large table into smaller tables and links them using relationships.

1st Normal Form	2nd Normal Form
1) Each table should contain a single value.	1) It should be in 1st normal form.
2) Each record should be unique.	2) Should not have partial dependency.

3) Consider a relation R (A, B, C, D, E, F, G) with functional dependencies :

$A \rightarrow BC$
$BC \rightarrow DE$
$D \rightarrow F$
$CF \rightarrow G$

Calculate closure of AB, AC, B, BD, ABC.

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3) $A^+ = \{A, B, C, D, E, F, G\} = R$

$B^+ = \{B\}$

$AC^+ = \{A, B, C, D, E, F, G\} = R$

$ABC^+ = \{A, B, C, D, E, F, G\} = R$

$BD^+ = \{B, D, F\}$

Super Key = A, AB, AC, ABC.