NORMALIZATION

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Group 1

NORMALIZATION

1. Organize the data in the database
2. Reduce data redundancy
3. Eliminate data anomalies.
4. 1NF, 2NF, 3NF, BCNF

1NF

1. It cannot have multivalued attributes

2. It removes repeating groups from the table

1NF- EXAMPLE

EMPLOYEE ID	EMPLOYEE NAME	PHONE NUMBER
EID100	X	9512345841, 9012345855
EID200	Y	9512000087

EMPLOYEE ID	EMPLOYEE NAME	PHONE NUMBER
EID100	X	9512345841
EID100	X	9012345855
EID200	Y	9512000087

2NF

1. Must be in 1NF
2. No partial dependencies
3. It identifies each set of related data with the primary key

2NF- EXAMPLE

CUSTOMER ID	STORE ID	LOCATION
CID100	SID111	Kolkata
CID200	SID222	Kerala
CID300	SID111	Kolkata

CUSTOMER ID	STORE ID
CID100	SID111
CID200	SID222
CID300	SID111

STORE ID	LOCATION
SID111	Kolkata
SID222	Kerala

3NF

1. Must be in 2NF
2. No transitive dependency for non-prime attributes
3. Ensure data integrity

3NF- EXAMPLE

BOOK ID	GENRE ID	GENRE TYPE	PRICE
BID100	7	Fiction	400
BID200	9	Autobiography	300
BID300	7	Fiction	800

BOOK ID	GENRE ID	PRICE
BID100	7	400
BID200	9	300
BID300	7	800

GENRE ID	GENRE TYPE
7	Fiction
9	Autobiography

BCNF

1. Must be in 3NF

2. For every functional dependency A -> B, A has to be the super key of that particular table

BCNF- EXAMPLE

STUDENT ID	SUBJECT	PROFESSOR
SID111	SQL	Prof. A
SID222	PYTHON	Prof. B
SID222	JAVA	Prof. C
SID333	PYTHON	Prof. B

BCNF- EXAMPLE

STUDENT ID	PROFESSOR ID
SID111	PID1
SID222	PID2
SID222	PID3
SID333	PID2

PROFESSOR ID	SUBJECT	PROFESSOR
PID1	SQL	Prof. A
PID2	PYTHON	Prof. B
PID3	JAVA	Prof. C
PID2	PYTHON	Prof. B

THANK YOU!