Boyce/Codd Normal Form

- Boyce Codd normal form (BCNF)

- BCNF is the advance version of 3NF. It is stricter than 3NF.

- A table is in BCNF if every functional dependency $X \rightarrow Y$, X is the super key of the table.

- For BCNF, the table should be in 3NF, and for every FD, LHS is super key.

Boyce Codd normal form (BCNF): Example

EMPLOYEE table:

EMP_ID	EMP_COUNTRY	EMP_DEPT	DEPT_TYPE	EMP_DEPT_NO
264	India	Designing	D394	283
264	India	Testing	D394	300
364	UK	Stores	D283	232
364	UK	Developing	D283	549

Functional dependencies are as follows:

- EMP_ID → EMP_COUNTRY

- EMP_DEPT → {DEPT_TYPE, EMP_DEPT_NO}

Boyce Codd normal form (BCNF): Example

To convert the given table into BCNF, we decompose it into three tables:

EMP_COUNTRY table:

EMP_ID	EMP_COUNTRY
264	India
264	India

EMP_DEPT table:

EMP_DEPT	DEPT_TYPE	EMP_DEPT_NO
Designing	D394	283
Testing	D394	300
Stores	D283	232
Developing	D283	549

Boyce Codd normal form (BCNF): Example

EMP_DEPT_MAPPING table:

EMP_ID	EMP_DEPT
D394	283
D394	300
D283	232
D283	549

Functional dependencies:

- EMP_ID → EMP_COUNTRY

- EMP_DEPT → {DEPT_TYPE, EMP_DEPT_NO}