

$f(a) \rightarrow b$

A	B
1	ABC
2	DEF
3	GHI
4	JKL

Table T

DETERMINANT

DEPENDANT

A \longrightarrow **B**

IS A FUNCTIONAL DEPENDENCY

A FUNCTIONAL DEPENDENCY IS A CONSTRAINT THAT SPECIFIES THE RELATIONSHIP OF ONE ATTRIBUTE TO ANOTHER ATTRIBUTE IN A RELATION OR A TABLE.

STUDENT TABLE

Roll_No	Student_Name	Dept_Name	Dept_Building
2	abc	CS	A4
3	pqr	IT	A3
4	xyz	CS	A4
5	xyz	IT	A3
6	mno	EC	B2
7	jkl	ME	B2

FUNCTIONAL DEPENDENCY

ROLL_NO \longrightarrow { **STUDENT_NAME**, **DEPT_NAME**
DEPT_BUILDING }

VALID FUNCTIONAL DEPENDENCY

3

\longrightarrow { **PQR**, **IT**, **A3** }

Determinant	Dependant
1	a
2	b

FUNCTIONAL DEPENDENCY

Roll_No	Student_Name	Dept_Name	Dept_Building
2	abc	CS	A4
3	pqr	IT	A3
4	xyz	CS	A4
5	xyz	IT	A3
6	mno	EC	B2
7	jkl	ME	B2

DEPT_NAME \longrightarrow **DEPT_BUILDING**

VALID FUNCTIONAL DEPENDENCY

making IT **CS** simple

\longrightarrow

A4

making IT simple

CS

\longrightarrow

A4

Determinant	Dependant
1	a
1	a

VALID F.D.

Roll_No	Student_Name	Dept_Name	Dept_Building
2	abc	CS	A4
3	pqr	IT	A3
4	xyz	CS	A4
5	xyz	IT	A3
6	mno	EC	B2
7	jkl	ME	B2

FUNCTIONAL DEPENDENCY

DEPT_NAME \longrightarrow **DEPT_BUILDING**

VALID FUNCTIONAL DEPENDENCY

EC



B2

ME



B2

making IT simple

Roll_No	Student_Name	Dept_Name	Dept_Building
2	abc	CS	A4
3	pqr	IT	A3
4	xyz	CS	A4
5	xyz	IT	A3
6	mno	EC	B2
7	jkl	ME	B2

FUNCTIONAL DEPENDENCY

STUDENT_NAME \longrightarrow **DEPT_NAME**

INVALID FUNCTIONAL DEPENDENCY

XYZ \longrightarrow **CS**

XYZ \longrightarrow **IT**

making IT simple

TYPES OF FUNCTIONAL DEPENDENCY

FUNCTIONAL DEPENDENCY

PARTIAL DEPENDENCY



TRIVIAL FUNCTIONAL DEPENDENCY

NON TRIVIAL FUNCTIONAL DEPENDENCY

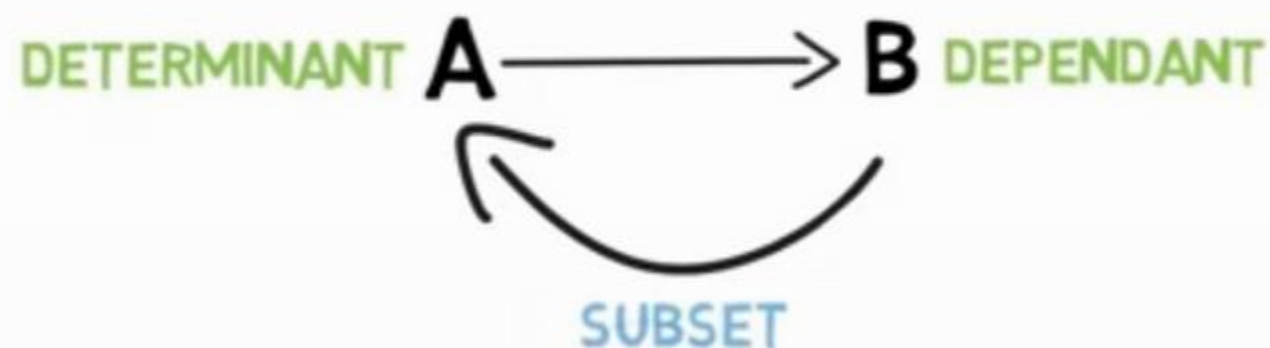
MULTI VALUED FUNCTIONAL DEPENDENCY

TRANSITIVE FUNCTIONAL DEPENDENCY

FULLY FUNCTIONAL DEPENDENCY

TRIVIAL FUNCTIONAL DEPENDENCY

Press Esc to exit full screen



Emp_ID	Name	Age
1	XYZ	54
2	MNO	25
3	ABC	28
4	RST	25
5	ABC	35
6	GHI	22

Employee Table



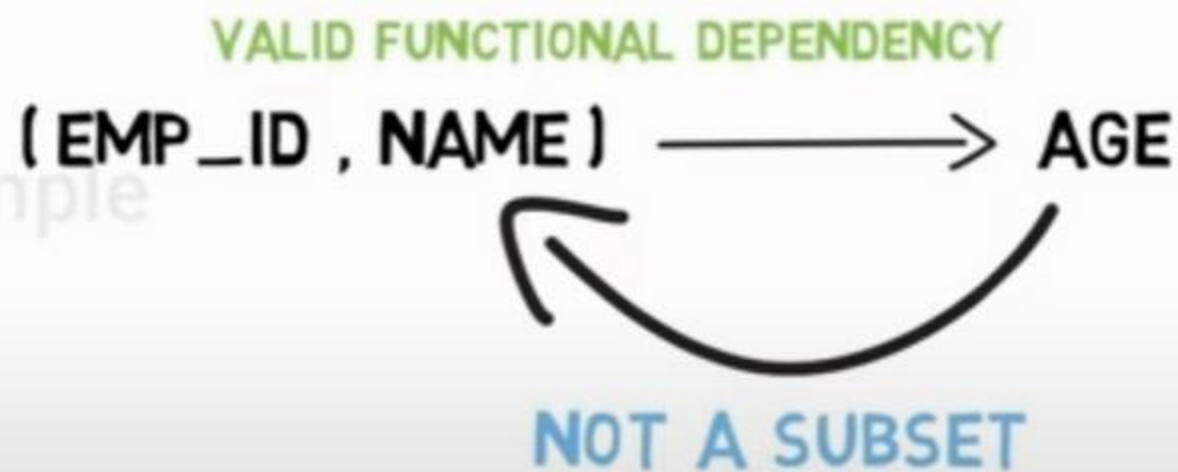
TRIVIAL FUNCTIONAL
DEPENDENCY

NON TRIVIAL FUNCTIONAL DEPENDENCY



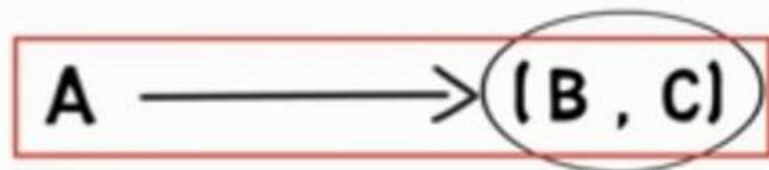
Emp_ID	Name	Age
1	XYZ	54
2	MNO	25
3	ABC	28
4	RST	25
5	ABC	35
6	GHI	22

Employee Table



NON TRIVIAL FUNCTIONAL DEPENDENCY

MULTI VALUED FUNCTIONAL DEPENDENCY



B \longrightarrow C

C \longrightarrow B

MULTI VALUED FUNCTIONAL DEPENDENCY

Emp_ID	Name	Age
1	XYZ	54
2	MNO	25
3	ABC \longrightarrow	28
4	RST	25
5	ABC \longrightarrow	35
6	GHI	22

Employee Table



TRANSITIVE FUNCTIONAL DEPENDENCY

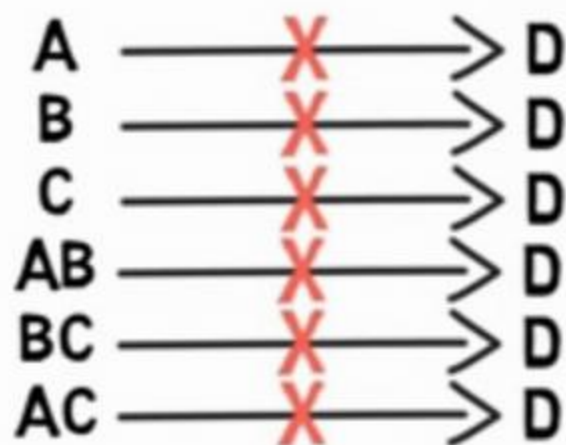


Emp_ID	Name	Dept_Name	Dept_Buliding
1	XYZ	R & D	Building A
2	MNO	Design	Building B
3	ABC	Production	Building C
4	RST	Accounts	Building D

FULLY FUNCTIONAL DEPENDENCY

$(A, B, C) \longrightarrow D$

PROPER SUBSETS:



Student_ID	Course_ID	Marks
1	A	87
1	B	82
1	C	91
2	A	77
2	B	81
2	C	75

Marks Table

$(\text{STUDENT_ID}, \text{COURSE_ID}) \longrightarrow \text{MARKS}$

~~X~~ $\text{STUDENT_ID} \longrightarrow \text{MARKS}$

~~X~~ $\text{COURSE_ID} \longrightarrow \text{MARKS}$

FULLY FUNCTIONAL DEPENDENCY