A Functional dependency is a relationship between attributes.
In functional dependency we can obtain the value of another attribute from given attribute.

For example,
If we know the value of student roll number, we can obtain student address, marks etc. By this, we say that student address and marks is functionally dependent on student roll number.

Types of functional dependency:

1. Single Valued Functional Dependency
2. Fully Functional Dependency
3. Partial Functional Dependency
4. Transitive Functional Dependency
5. Trivial Functional Dependency

1) Single Valued Functional Dependency

A simple example of single value functional dependency is when Roll_Number is the primary key of an entity and Student_Name is some single valued attribute of the entity. Then, Roll_Number → Student_Name

Roll_Number	Student_Name	Student_Address
011	Jayesh Umre	Burhanpur
012	Kunal Batra	Burhanpur
013	Nilesh Nimbhorkar	Ichchapur

014	Aryan Jagdale	Ujjain

2) Fully Functional Dependency

A functional dependency P → Q is full functional dependency if removal of any attribute A from P means that the dependency does not hold any more.

Roll_Number	Subject_Name	Paper_Hours
011	DBMS	3
012	Python	1
013	AWT	3
025	DBMS	2

From above table,{Roll_Number, Subject_Name} –> Paper_HourSince neither Roll_Number –> Paper_Hour nor Subject_Name –> Paper_Hour hold.

3) Partial Functional Dependency

A Functional Dependency in which one or more non key attributes are functionally depending on a part of the primary key is called partial functional dependency.

Roll_Number	Subject_Name	Student_Name
011	DBMS	Jayesh Umre
012	Python	Kunal Batra
013	AWT	Nilesh Nimbhorkar

014	DBMS	Aryan Jagdale

From above table,{Roll_Number, Subject_Name} –> Student_Name is not a full FD.Since Roll_Number –> Student_Name also hold.

4) Transitive Functional Dependency

Given a relation R(A,B,C) then dependency like A–>B, B–>C is a transitive dependency, since A–>C is implied

Roll_Number	Pin_Code	City_Name
011	450331	Burhanpur
012	450001	Khandwa
013	456001	Ujjain
014	452020	Indore

From above table,Roll_Number –> Pin_Code and Pin_Code –> City_Name hold.Than Roll_Number –> City_Name is a transitive FD.

5) Trivial Functional Dependency

Functional dependency of the form A–>B is trivial if B subset of A or B = A.

Roll_Number	Student_Name
011	Jayesh Umre

012	Kunal Batra
013	Nilesh Nimbhorkar
014	Aryan Jagdale

From above table,{Roll_Nuber, Student_Name} –> Roll_Number is a trivial functional dependency as Roll_Number is a subset of {Roll_Number,Student_Name}.