Functional Dependencies

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Functional Dependency

- The functional dependency is a relationship that exists between two attributes. It typically exists between the primary key and non-key attribute within a table.

  $X \rightarrow Y$

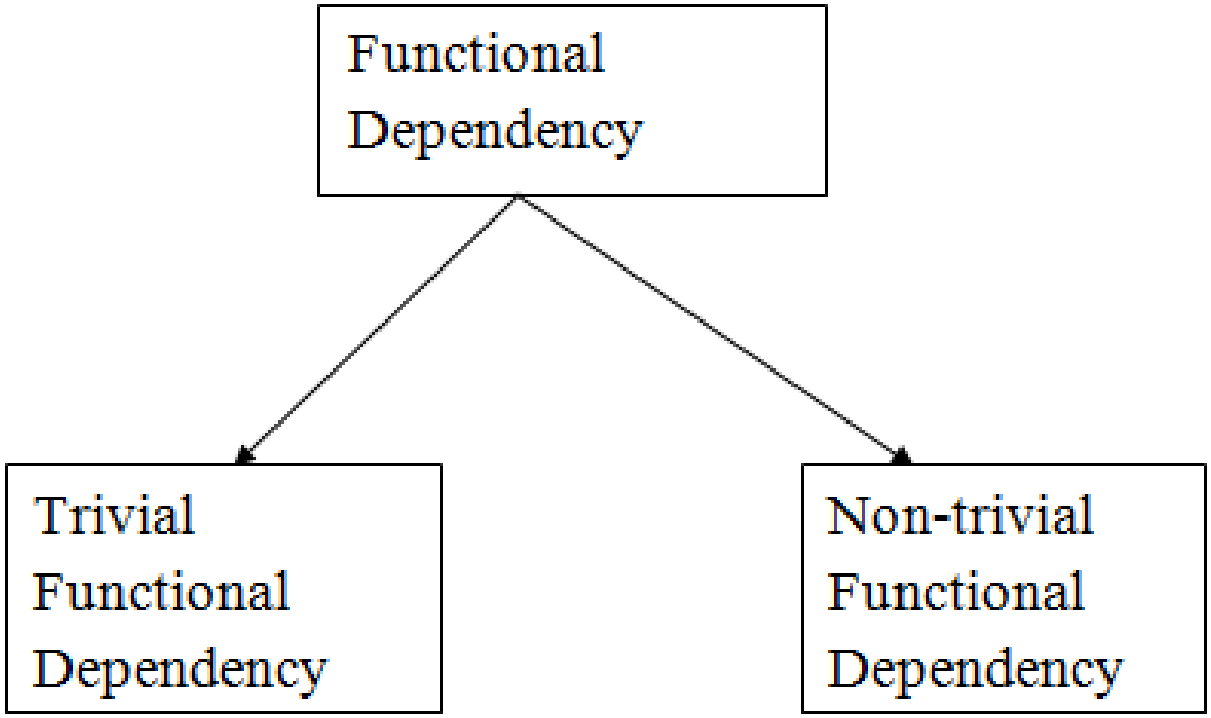
- The left side of functional dependency is known as a determinant, the right side of the production is known as a dependent.

Functional Dependency: Example

- An Employee table with attributes: Emp_Id, Emp_Name, Emp_Address.
- Functional dependency can be written as:

  Emp_Id → Emp_Name
- We can say that Emp_Name is functionally dependent on Emp_Id.

Types of Functional dependency



Types of Functional dependency

1. Trivial functional dependency

- A → B has trivial functional dependency if B is a subset of A.
- The following dependencies are also trivial like: A → A, B → B

2. Non-trivial functional dependency

- A → B has a non-trivial functional dependency if B is not a subset of A.
- When A intersection B is NULL, then A → B is called as complete non-trivial.

Types of Functional dependency

Trivial functional dependency Example:

Consider a table with two columns Employee_Id and Employee_Name.

{Employee_id, Employee_Name} → Employee_Id is a trivial functional dependency as Employee_Id is a subset of {Employee_Id, Employee_Name}.

Also,
Employee_Id → Employee_Id and
Employee_Name → Employee_Name
are trivial dependencies too.

Non-trivial functional dependency Example:

- ID → Name,
- Name → DOB

THANK YOU