UNIT-III

DatabaseDesign

Topic:FunctionalDependency

FunctionalDependency

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.

1.X   →   Y

The left side of FD is known as a determinant, the right side of the production is known as a dependent.

Forexample:

Assume we have an employee table with attributes: Emp_Id, Emp_Name, Emp_Address.

Here Emp_Id attribute can uniquely identify the Emp_Name attribute ofemployee table because if we know the Emp_Id, we can tell that employee name associated with it.

Functionaldependencycanbewrittenas:

1.Emp_Id→Emp_Name

WecansaythatEmp_NameisfunctionallydependentonEmp_Id. Types of

Functional dependency
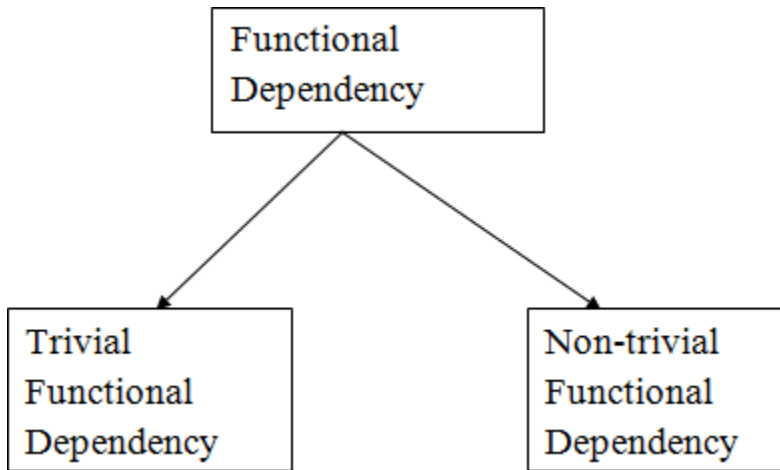
1. Trivialfunctionaldependency

- A→BhastrivialfunctionaldependencyifBisasubsetofA.
- The followingdependenciesarealsotriviallike:A→ A,B→B

Example:

1. ConsideratablewithtwocolumnsEmployee_IdandEmployee_Name.
2. {Employee_id, Employee_Name} → Employee_Idisatrivialfunctionaldependency as
3. Employee_Idisasubsetof{Employee_Id,Employee_Name}.
4. Also, Employee_Id → Employee_Id and Employee_Name → Employee_Name are trivial dependencies too.

2. Non-trivialfunctionaldependency

- A→Bhasanon-trivialfunctionaldependencyifBisnotasubsetofA.
- WhenAintersectionBisNULL,thenA→Biscalledascompletenon- trivial.

Example:

1. ID → Name,
2. Name → DOB