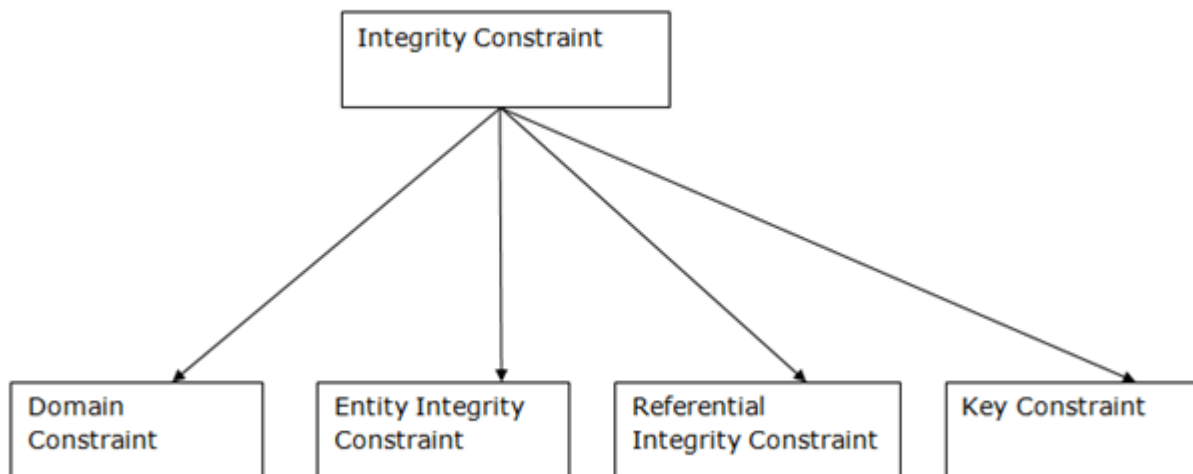


# Integrity Constraints

- o Integrity constraints are a set of rules. It is used to maintain the quality of information.
- o Integrity constraints ensure that the data insertion, updating, and other processes have to be performed in such a way that data integrity is not affected.
- o Thus, integrity constraint is used to guard against accidental damage to the database.

## Types of Integrity Constraint



### 1. Domain constraints

- o Domain constraints can be defined as the definition of a valid set of values for an attribute.
- o The data type of domain includes string, character, integer, time, date, currency, etc. The value of the attribute must be available in the corresponding domain.

### Example:

| ID   | NAME     | SEMENSTER       | AGE |
|------|----------|-----------------|-----|
| 1000 | Tom      | 1 <sup>st</sup> | 17  |
| 1001 | Johnson  | 2 <sup>nd</sup> | 24  |
| 1002 | Leonardo | 5 <sup>th</sup> | 21  |
| 1003 | Kate     | 3 <sup>rd</sup> | 19  |
| 1004 | Morgan   | 8 <sup>th</sup> | A   |

Not allowed. Because AGE is an integer attribute

## 2. Entity integrity constraints

- o The entity integrity constraint states that primary key value can't be null.
- o This is because the primary key value is used to identify individual rows in relation and if the primary key has a null value, then we can't identify those rows.
- o A table can contain a null value other than the primary key field.

### Example:

#### EMPLOYEE

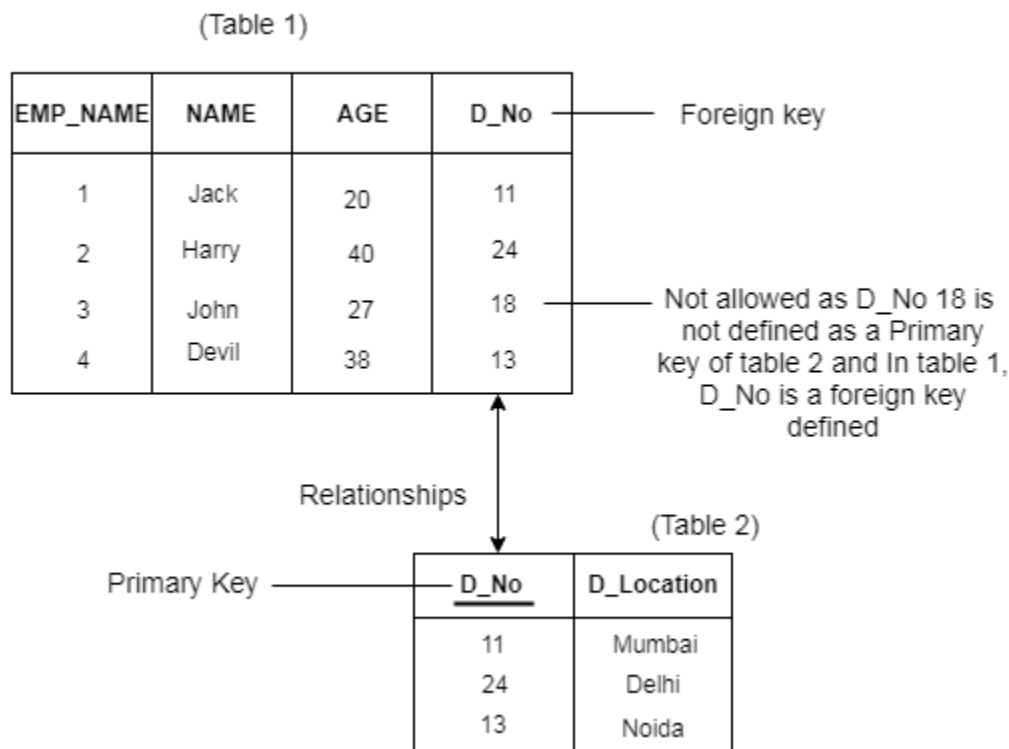
| EMP_ID | EMP_NAME | SALARY |
|--------|----------|--------|
| 123    | Jack     | 30000  |
| 142    | Harry    | 60000  |
| 164    | John     | 20000  |
|        | Jackson  | 27000  |

Not allowed as primary key can't contain a NULL value

### 3. Referential Integrity Constraints

- o A referential integrity constraint is specified between two tables.
- o In the Referential integrity constraints, if a foreign key in Table 1 refers to the Primary Key of Table 2, then every value of the Foreign Key in Table 1 must be null or be available in Table 2.

#### Example:



### 4. Key constraints

- o Keys are the entity set that is used to identify an entity within its entity set uniquely.
- o An entity set can have multiple keys, but out of which one key will be the primary key. A primary key can contain a unique and null value in the relational table.

**Example:**

| <b>ID</b> | <b>NAME</b> | <b>SEMENSTER</b> | <b>AGE</b> |
|-----------|-------------|------------------|------------|
| 1000      | Tom         | 1 <sup>st</sup>  | 17         |
| 1001      | Johnson     | 2 <sup>nd</sup>  | 24         |
| 1002      | Leonardo    | 5 <sup>th</sup>  | 21         |
| 1003      | Kate        | 3 <sup>rd</sup>  | 19         |
| 1002      | Morgan      | 8 <sup>th</sup>  | 22         |

Not allowed. Because all row must be unique