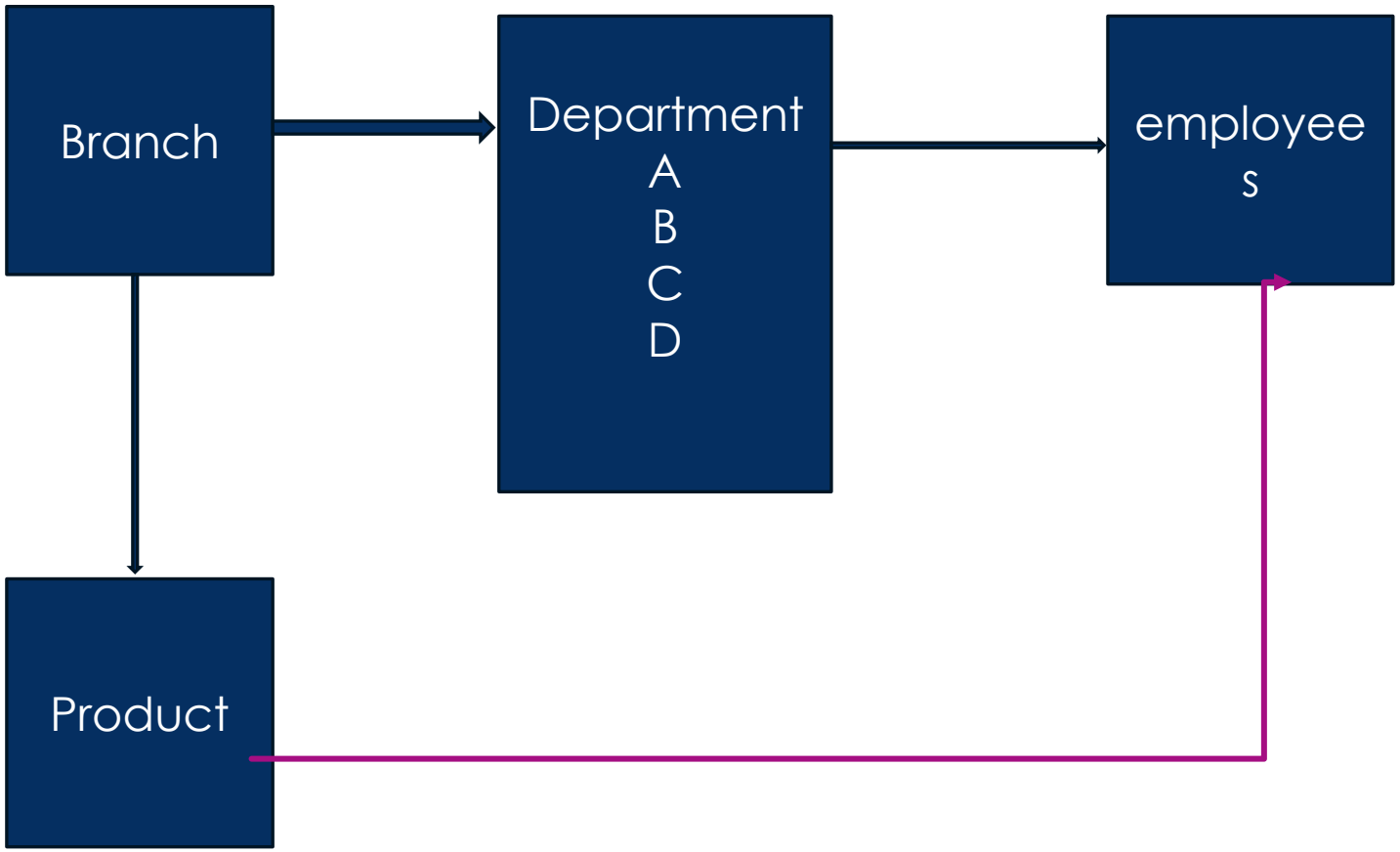
Constraints

What are SQL Constraints?

- We use SQL Constraints to specify the rules for the data in a table.
- Constraints are used to limit which type of data must be stored in the database.
- SQL Constraints increase the accuracy and reliability of the data stored in the database.
- Constraints make sure that there is no violation in terms of a transaction of the data.

Constraints in SQL are:

- ✓ NOT NULL
- ✓ UNIQUE
- ✓ PRIMARY KEY
- ✓ FOREIGN KEY
- ✓ CHECK
- ✓ DEFAULT


Branch
Department
A
B
C
D
employee
s
Product

NOT NULL

It is specifies that column is mandatory. This feature allows you to prevent data from being entered into table without certain columns having data in them.

- "The NOT NULL constraint makes sure that a column cannot have a NULL value.
- We can use the NOT NULL constraint either while creating the table in the database or while modifying it.
- We can have more than one NOT NULL columns in a table.

How to add NOT NULL constraint to column/ columns?

NOT NULL constraint on CREATE TABLE

```
CREATE TABLE Employee (
        ID int NOT NULL,
        NAME varchar(10) NOT NULL,
        ADDRESS varchar(20)
);
```

UNIQUE

- The UNIQUE constraint makes sure that all values in a column must be unique.
- This constraint helps to uniquely identify each row in the table.
- We can have more than one UNIQUE columns in a table.
- We can use this constraint on the CREATE and ALTER table command

❖ How to add UNIQUE constraint to column/columns?

UNIQUE constraint on CREATE TABLE

```
CREATE TABLE employee(
        ID int UNIQUE,
        NAME varchar(10) NOT NULL,
        ADDRESS varchar(20)
);
```

PRIMARY KEY

- A primary key is a field which can uniquely identify each row in a table.
- Primary keys must contain UNIQUE values, and cannot contain NULL values.
- A table can have only ONE primary key and this primary key can consist of single or multiple columns
- We can use this constraint on the CREATE and ALTER table command

NOT NULL + UNIQUE = PRIMARY KEY

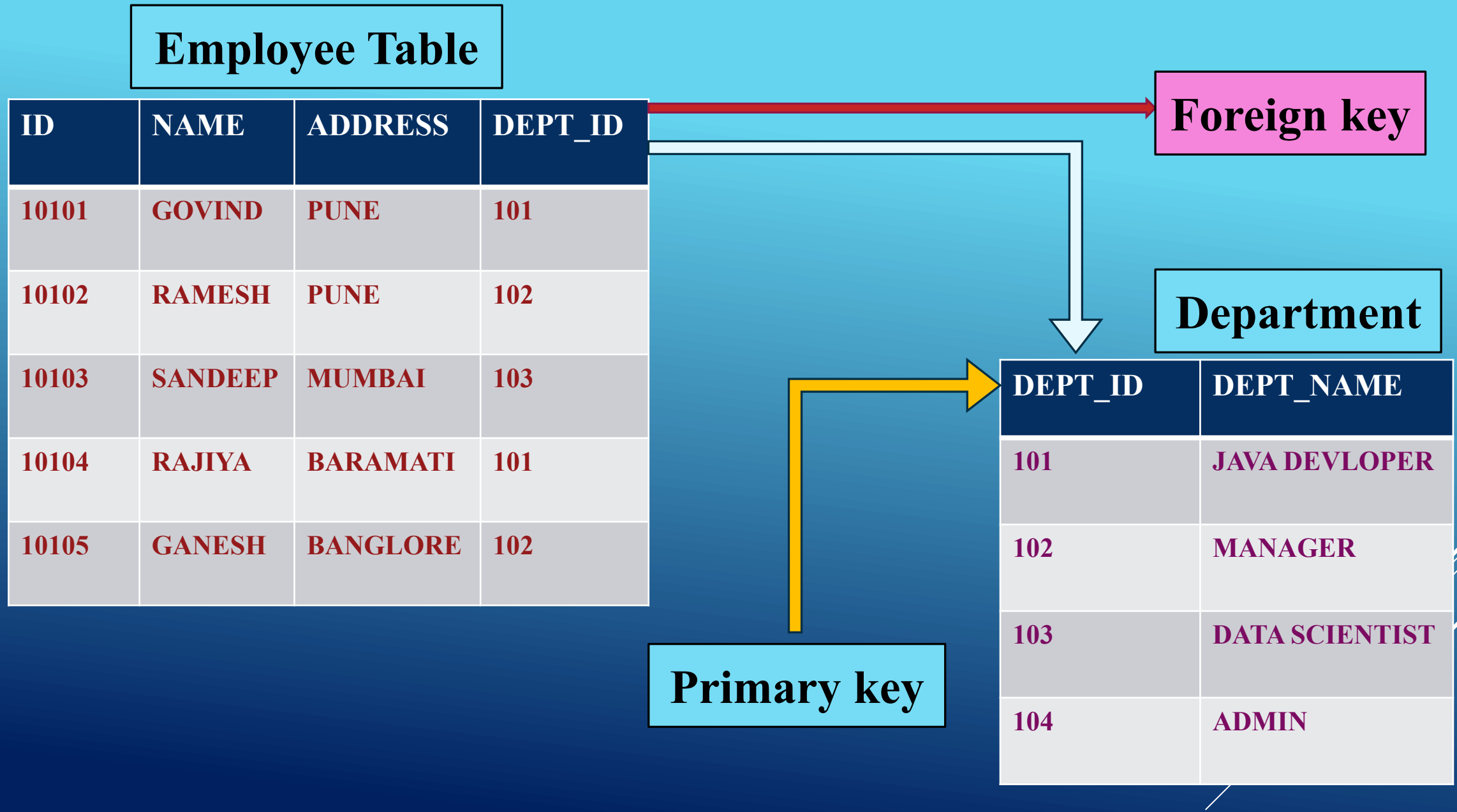
How to add PRIMARY KEY constraint on a Table?

PRIMARY KEY constraint on CREATE TABLE

```
CREATE TABLE employee(
    ID int ,
    NAME varchar(10) NOT      NULL,
    ADDRESS varchar(20),
    PRIMARY KEY (ID)
);
```

FOREIGN KEY

- A foreign key is a field (or collection of fields) points to the PRIMARY KEY of another table.
- Table with the foreign key is called the child table and the table with the primary key is called the referenced or parent table.
- The foreign key constraint is used to prevent actions that would destroy links between tables.
- We can use this constraint on the CREATE and ALTER table command


Employee Table
ID
NAME
ADDRESS
DEPT_ID
10101
GOVIND
PUNE
101
10102
RAMESH
PUNE
102
10103
SANDEEP
MUMBAI
103
10104
RAJIYA
BARAMATI
101
10105
GANESH
BANGLORE
102
Foreign key
Department
DEPT_ID
DEPT_NAME
101
JAVA DEVLOPER
102
MANAGER
103
DATA SCIENTIST
104
ADMIN
Primary key

```
CREATE TABLE department
   (
      D_ID INT PRIMARY KEY,
      D_NAME VARCHAR(40)
   );

CREATE TABLE Employee
   (
      Emp_ID int NOT NULL,
      E_Name varchar(30),
      Adress varchar(30),
      d_ID int,
      PRIMARY KEY (Dept_ID),
      FOREIGN KEY (d_ID) REFERENCES Department(D_ID)
   );
```

CHECK

- The CHECK constraint makes sure that all values in a column satisfy a specific condition.
- We can use this constraint on the CREATE and ALTER table command

How to add CHECK constraint on a column?

CHECK constraint on CREATE TABLE

```
CREATE TABLE employee(
  ID int(6),
  NAME varchar(10) CHECK(NAME != 'Saloni'),
  ADDRESS varchar(20)
);
```

ADD Some data to check Constraint A

```
INSERT INTO employee(ID,NAME,ADDRESS)
VALUES (1,'Nick','Mumbai');
```

```
INSERT INTO employee(ID,NAME,ADDRESS)
VALUES (2,'Saloni','Mumbai');
```

How to add check constraint on a column?

```
Create table Employee(
      ID int,
      Name varchar(10),
      age int check (age>=18),
      Address varchar(30)
);
```

DEFAULT

- The DEFAULT constraint is used to set default values for a column when no value is specified.
- The default value will be added to all new records, if no other value is specified.
- We can use this constraint on the CREATE and ALTER table commands.

How to add DEFAULT constraint on a column?

```
CREATE TABLE employee(
  ID int(6),
  NAME varchar(30) DEFAULT 'NEW USER',
  ADDRESS varchar(20)
);
```

--The End--