

This database should have at least two tables , the first one like the following schema:

St Table-Schema=(st-name, st-phone)

The second table contain the information about the history of the student :

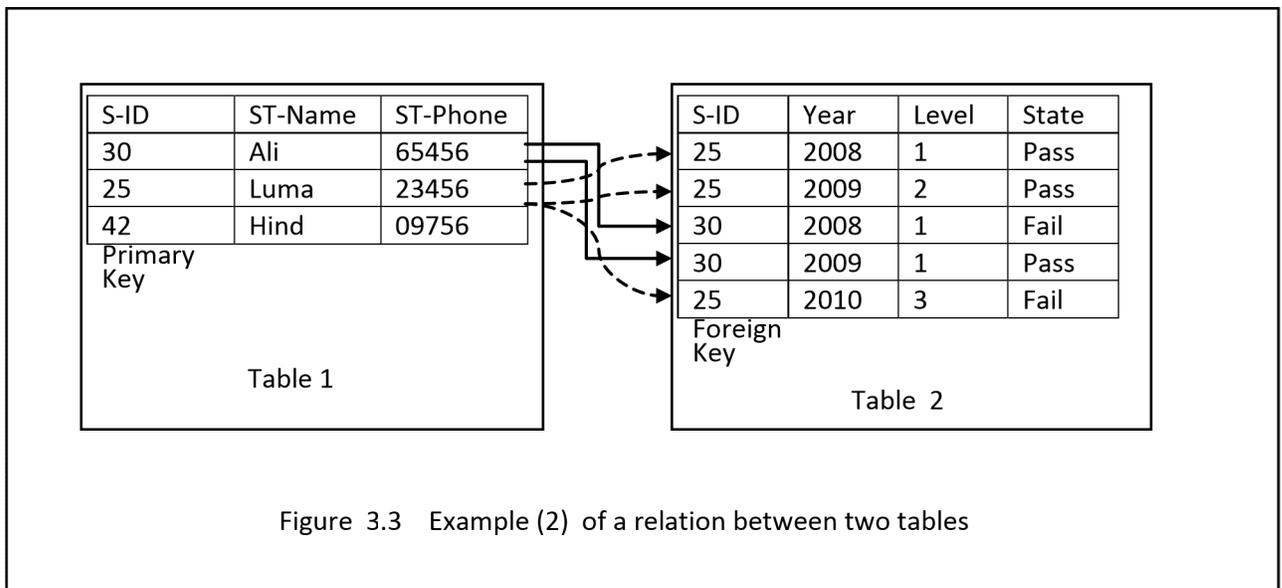
History-schema=(year , level , state)

To link those two tables a primary key in the first table and a foreign key in the second table must be added to the tables as shown in figure 3.3 .

The new schemas will be :

St Table-Schema=(S-ID , st-name, st-phone)

History-schema =(S-ID , year , level , state)



### **3.3 Structured Query Language (SQL)**

SQL (Structured Query Language) is a database computer language designed for managing data in relational database management systems (RDBMS), and originally based upon Relational Algebra.

SQL designed to organize and simplify the process of getting information out of a database in a usable form, and also used to reorganize data within databases.

It is a set of statements to manage databases, tables, and data.

Some common relational database management systems that use SQL are: Oracle, Sybase, Microsoft SQL Server and Microsoft Access.

SQL falls into two classes

1. Data Definition Language (DDL) - SQL for creating, altering and dropping tables
2. Data Manipulation Language (DML) - SQL for retrieving and storing data.

Data Definition Language (DDL) : a database schema is specified by a set of definitions expressed by the a language called (DDL).

It is the subset of SQL used for defining and examining the structure of a database. It used to define databases and their components.

Data Manipulation Language (DML): The data in the database are manipulated by the (DML) .

With (DML) we can

- Retrieve information from the database
- Inserting new information into the database
- Delete information from the database
- Updating the data in the database

### **3.4 Table Joining**

A JOIN is a means for combining fields from two tables by using values common to each.

Table Joining is a formal specification of which column(s) in a row in one table should be matched to a column(s) in a row in another table.

To combine tables, i.e. to perform a join, we have to select data from the tables, and relate the tables to each other with conditions on some attributes (often keys attributes).

Joining tables is used when retrieving information from the database is required .

***In SQL the word ( SELECT ) is used to display information from the database followed by the name of the tables.***

to explain the types of joins in the database, the following three tables are used as an example:

```
teachers table
  id      |
name     --
---+-----
--      1 |
Volker
2 | Elke
(2 rows)
```

```
Projects table
id | name      | duration |
teacher -----+-----+---
-----+-----
1 | compiler | 180      | 1
2 | xpaint   | 120      | 1
```