

Table of Contents

Master/detail relationships are used to create relationships between tables or other datasets. The master can also be viewed as a group, whereas the detail contains the individual sets of the group.

In short, master/detail is used to show the 1:n and n:m relationships of a database.

Example

Our application handles the administration of countries, states, and districts. Tables in the database are created in 3rd NF. The following is an excerpt from the HSQLDB:

[createdb.sql](#)

```
CREATE TABLE COUNTRIES
(
  ID          INTEGER IDENTITY,
  COUNTRY     VARCHAR(200) NOT NULL,
  EU          CHAR(1) DEFAULT 'N' NOT NULL,
  CONSTRAINT CTRY_UK UNIQUE (COUNTRY)
)

CREATE TABLE STATES
(
  ID          INTEGER IDENTITY,
  CTRY_ID     INTEGER NOT NULL,
  STATE       VARCHAR(200) NOT NULL,
  CONSTRAINT STAT_UK UNIQUE (STATE),
  CONSTRAINT STAT_CTRY_ID_FK FOREIGN KEY (CTRY_ID) REFERENCES COUNTRIES
  (ID)
)

CREATE TABLE DISTRICTS
(
  ID          INTEGER IDENTITY,
  STAT_ID     INTEGER NOT NULL,
  DISTRICT    VARCHAR(200),
  CONSTRAINT DIST_UK UNIQUE (DISTRICT),
  CONSTRAINT DIST_STAT_ID_FK FOREIGN KEY (STAT_ID) REFERENCES STATES
  (ID)
)
```

As the table definition shows, countries consist of individual states, and states are made up of districts. In our application, we want to create a form that allows the editing of countries, states and districts, as well as the relationships between them.

We first create our server objects:

```
/**
 * Returns the countries storage.
 */
```

```
* @return the Countries storage
* @throws Exception if the initialization throws an error
*/
public DBStorage getCountries() throws Exception
{
    DBStorage dbsCountries = (DBStorage)get("countries");

    if (dbsCountries == null)
    {
        dbsCountries = new DBStorage();
        dbsCountries.setDBAccess(getDBAccess());
        dbsCountries.setFromClause("V_COUNTRIES");
        dbsCountries.setWritebackTable("COUNTRIES");
        dbsCountries.open();

        put("countries", dbsCountries);
    }

    return dbsCountries;
}

/**
 * Returns the districts storage.
 *
 * @return the Districts storage
 * @throws Exception if the initialization throws an error
 */
public DBStorage getDistricts() throws Exception
{
    DBStorage dbsDistricts = (DBStorage)get("districts");

    if (dbsDistricts == null)
    {
        dbsDistricts = new DBStorage();
        dbsDistricts.setDBAccess(getDBAccess());
        dbsDistricts.setFromClause("V_DISTRICTS");
        dbsDistricts.setWritebackTable("DISTRICTS");
        dbsDistricts.open();

        put("districts", dbsDistricts);
    }

    return dbsDistricts;
}

/**
 * Returns the states storage.
 *
 * @return the States storage
 * @throws Exception if the initialization throws an error
 */
```

```
public DBStorage getStates() throws Exception
{
    DBStorage dbsCountries = (DBStorage)get("states");

    if (dbsCountries == null)
    {
        dbsCountries = new DBStorage();
        dbsCountries.setDBAccess(getDBAccess());
        dbsCountries.setFromClause("V_STATES");
        dbsCountries.setWritebackTable("STATES");
        dbsCountries.open();

        put("states", dbsCountries);
    }

    return dbsCountries;
}
```

The view definition for processing the data:

```
CREATE VIEW V_COUNTRIES AS
SELECT c.ID
       ,c.COUNTRY
       ,c.EU
FROM COUNTRIES c
ORDER BY c.COUNTRY

CREATE VIEW V_STATES AS
SELECT s.ID
       ,s.CTRY_ID
       ,s.STATE
FROM STATES s
ORDER BY s.STATE

CREATE VIEW V_DISTRICTS AS
SELECT d.ID
       ,d.STAT_ID
       ,d.DISTRICT
FROM DISTRICTS d
ORDER BY d.DISTRICT
```

We now have to create the connection to the server objects and define the master/detail relationships:

```
rdbCountries.setDataSource(dataSource);
rdbCountries.setName("countries");
rdbCountries.open();

rdbStates.setDataSource(dataSource);
rdbStates.setName("states");
rdbStates.setMasterReference(new ReferenceDefinition(new String[]
```

```
{ "CTRY_ID",  
                                rdbCountries, new String[] { "ID" } ) );  
rdbStates.open();  
  
rdbDistricts.setDataSource(dataSource);  
rdbDistricts.setName("districts");  
rdbDistricts.setMasterReference(new ReferenceDefinition(new String[]  
{ "STAT_ID",  
                                rdbStates, new String[] { "ID" } ) );  
rdbDistricts.open();
```

A master/detail relationship can be created as follows:

```
rdbDistricts.setMasterReference(new ReferenceDefinition(new String[]  
{ "STAT_ID",  
                                rdbStates, new String[] { "ID" } ) );
```

The master/detail relationship between countries and states is created via the foreign key (STATES.CTRY_ID) to the primary key (COUNTRIES.ID). This means that when a country is selected, all associated states are displayed. States that are not assigned to the selected “master” country are not shown.

When a new state is entered, the correct foreign key is used automatically. The state is, therefore, assigned to the correct country.

The master/detail relationship between districts and states is created between the foreign key (DISTRICTS.STAT_ID) and the primary key (STATES.ID). This means that when a state is selected, all associated districts are displayed. Districts that are not assigned to the selected “master” state are not shown.

When a new district is entered, the correct state is used. The district is, therefore, automatically assigned to the correct state.

Note

A master/detail relationship does NOT require that a foreign key relationship exist between two tables. Any columns can be used.

From:
<https://doc.sibvisions.com/> - **Documentation**

Permanent link:
https://doc.sibvisions.com/jvx/client/model/databook/master_detail

Last update: **2020/06/08 15:30**

