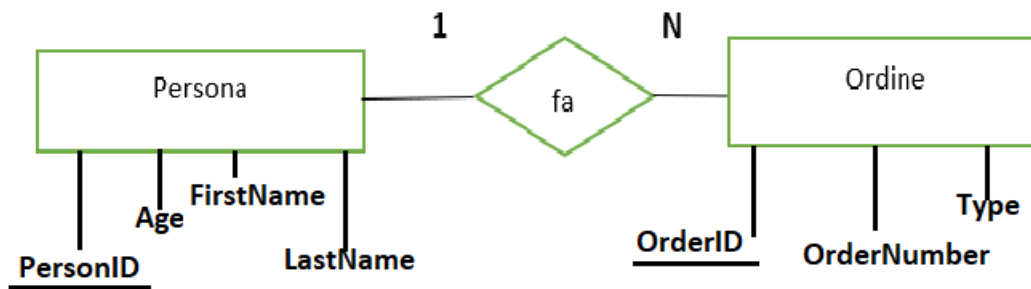


## Design di DB per archiviare e gestire "Persone che fanno ordini di acquisto"

### Schema E/R



### Regole di lettura

**D:** Ogni persona fa uno o più ordini di acquisto

**I:** Ogni ordine di acquisto è fatto da una persona


### Schema logico

Persons (PersonID, LastName, FirstNaem, Age)

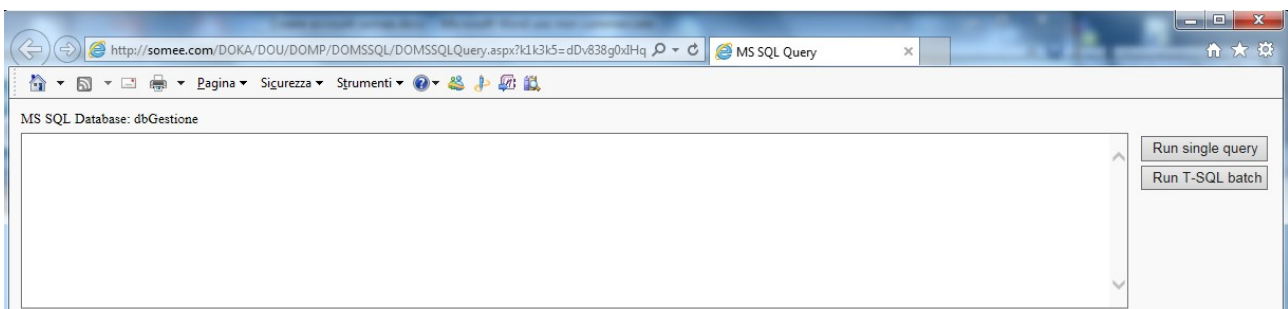
Orders (OrderID, OrderNumber, Type, *PersonID*) con *PersonID* chiave esterna

**Tablelle correlate tra loro, gestendo integrità referenziale  
chiavi primarie auto-incrementanti (DBMS SQL Server)**

**DB free [somme.com](http://www.somme.com):**

Selezionando opzione  New SQL query

si possono **inserire le query** desiderate nella "SQL<sup>1</sup> Box" (area di testo)



```
CREATE TABLE Persons (  
    Personid int IDENTITY(1,1) PRIMARY KEY,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255),  
    Age int  
);  
  
CREATE TABLE Orders (  
    OrderID int NOT NULL IDENTITY(1,1) PRIMARY KEY ,  
    OrderNumber int NOT NULL,  
    Type varchar(255),  
    PersonID int FOREIGN KEY REFERENCES Persons(PersonID)  
);  
  
INSERT INTO Persons (FirstName, LastName, Age)  
VALUES ('Lars','Monsen', 25);  
INSERT INTO Persons (FirstName, LastName, Age)  
VALUES ('Saul','Smith', 35);
```

<sup>1</sup> Si utilizza la sintassi del linguaggio SQL (Structured Query Language) vedi <http://www.w3schools.com/sql/default.asp>.

```

INSERT INTO Orders (OrderNumber, Type, PersonID)
VALUES (1, 'PC', 1);
INSERT INTO Orders (OrderNumber, Type, PersonID)
VALUES (2, 'Mouse', 1);
INSERT INTO Orders (OrderNumber, Type, PersonID)
VALUES (3, 'TV', 1);
INSERT INTO Orders (OrderNumber, Type, PersonID)
VALUES (4, 'PC', 2);

```

MS SQL Database: DBMS5BI

```
Select * from Persons
```

SQL Query Result

Personid	LastName	FirstName	Age
1	Monsen	Lars	25
2	Smith	Saul	35

MS SQL Database: DBMS5BI

```
Select * from Orders
```

SQL Query Result

OrderID	OrderNumber	Type	PersonID
1	1	PC	1
2	2	Mouse	1
3	3	TV	1
4	4	PC	2

### Estrazione da entrambe le tabelle

MS SQL Database: DBMS5BI

```
Select *
from Persons, Orders
WHERE Persons.PersonID = Orders.PersonID
```

automatico nome diverso

↓

SQL Query Result

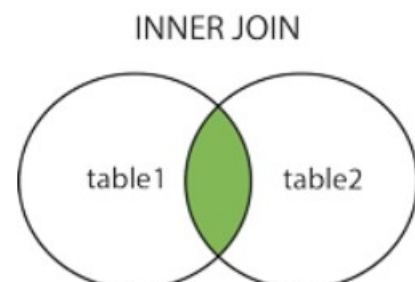
Personid	LastName	FirstName	Age	OrderID	OrderNumber	Type	PersonID1
1	Monsen	Lars	25	1	1	PC	1
1	Monsen	Lars	25	2	2	Mouse	1
1	Monsen	Lars	25	3	3	TV	1
2	Smith	Saul	35	4	4	PC	2

### Equivalente

```

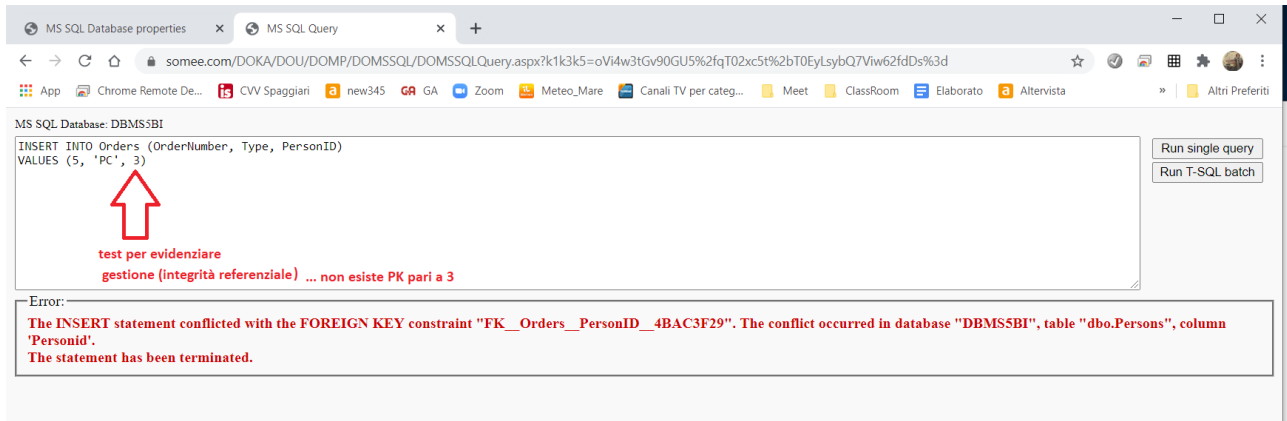
SELECT *
FROM Persons INNER JOIN Orders
ON Persons.PersonID=Orders.PersonID

```



## Verifica integrità referenziale

INSERT INTO Orders (OrderNumber, Type, PersonID)  
VALUES (5, 'PC', 3)      <-- per evidenziare gestione integrità referenziale ... **non esiste PK = 3 in Persons**

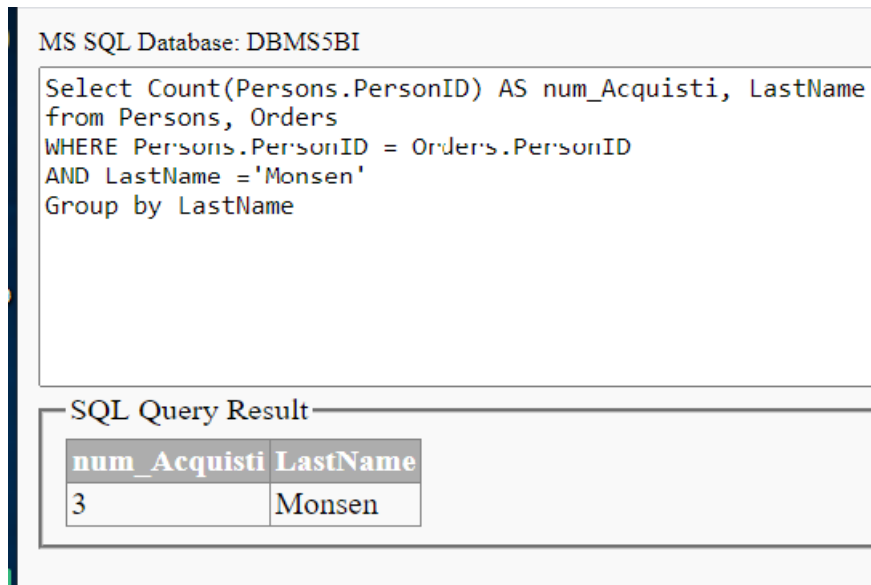


The screenshot shows a web browser window with the MS SQL Query tool. The query entered is: `INSERT INTO Orders (OrderNumber, Type, PersonID) VALUES (5, 'PC', 3)`. A red arrow points to the value '3' in the query. Below the query, there is a red error message: "Error: The INSERT statement conflicted with the FOREIGN KEY constraint "FK\_Orders\_PersonID\_4BAC3F29". The conflict occurred in database "DBMS5BI", table "dbo.Persons", column 'PersonID'. The statement has been terminated."

## Funzioni di aggregazione, Group By ed Order By

Select **Count**(Persons.PersonID) AS num\_Acquisti, LastName  
from Persons, Orders  
WHERE Persons.PersonID = Orders.PersonID  
**AND LastName = 'Monsen'**  
**Group by LastName**

← per visualizzare il numero di acquisti



The screenshot shows the MS SQL Query tool with the following query: `Select Count(Persons.PersonID) AS num_Acquisti, LastName from Persons, Orders WHERE Persons.PersonID = Orders.PersonID AND LastName = 'Monsen' Group by LastName`. Below the query, the results are displayed in a table:

num_Acquisti	LastName
3	Monsen

```
INSERT INTO Orders (OrderNumber, Type, PersonID)
VALUES (5, 'PC', 1)
```

← caso stesso acquirente che ordina più oggetti dello stesso tipo

```
Select Count(Persons.PersonID) AS num_Acquisti, LastName, Type
from Persons, Orders
WHERE Persons.PersonID = Orders.PersonID
AND LastName = 'Monsen'
Group by LastName, Type
```

MS SQL Database: DBMS5BI

```
Select Count(Persons.PersonID) AS num_Acquisti, LastName, Type
from Persons, Orders
WHERE Persons.PersonID = Orders.PersonID
AND LastName = 'Monsen'
Group by LastName, Type
```

popolando con un acquirente che ordina più oggetti dello stesso tipo

SQL Query Result

num_Acquisti	LastName	Type
1	Monsen	Mouse
2	Monsen	PC
1	Monsen	TV

```
Select Count(Persons.PersonID) AS num_Acquisti, LastName, Type
from Persons, Orders
WHERE Persons.PersonID = Orders.PersonID
Group by LastName, Type
```

MS SQL Database: DBMS5BI

```
Select Count(Persons.PersonID) AS num_Acquisti, LastName, Type
from Persons, Orders
WHERE Persons.PersonID = Orders.PersonID
Group by LastName, Type
```

SQL Query Result

num_Acquisti	LastName	Type
1	Monsen	Mouse
2	Monsen	PC
1	Smith	PC
1	Monsen	TV

```
Select Count(Persons.PersonID) AS num_Acquisti, LastName, Type
from Persons, Orders
WHERE Persons.PersonID = Orders.PersonID
Group by LastName, Type
Order By LastName
```

MS SQL Database: DBMS5BI

```
Select Count(Persons.PersonID) AS num_Acquisti, LastName, Type
from Persons, Orders
WHERE Persons.PersonID = Orders.PersonID
Group by LastName, Type
Order By LastName
```

SQL Query Result

num_Acquisti	LastName	Type
1	Monsen	Mouse
2	Monsen	PC
1	Monsen	TV
1	Smith	PC

Potendo realizzare *server page*<sup>2</sup> ed estrarre con *stile*<sup>3</sup>

*Server page: nomePagina.asp*

```
<% Option Explicit %>
<html>
<head>
    <style>body{background-color: yellow; color:black}</style>
</head>
<body>
<%
    Dim oConn, Rs, sSQL
    Set oConn = Server.CreateObject("ADODB.Connection")
    Set Rs = Server.CreateObject("ADODB.RecordSet")
    oConn.open ("Driver={SQL Server}; Server=DBMS5BI.mssql.somee.com; Database=DBMS5BI; Uid=UserID_SQLLogin_1;
        Pwd=password;")
    sSQL = "Select Count(Persons.PersonID) AS num_Acquisti, LastName, Type from Persons, Orders WHERE
        Persons.PersonID = Orders.PersonID Group by LastName, Type Order By LastName"
    Rs.Open sSQL,oConn
    Response.write("<table><tr><th>Cognome</th><th>Tipo</th><th>N.acquisti</th></tr>")
    While not Rs.eof
        Response.write("<tr><td>" & RS("LastName") & "</td><td>" &
            RS("Type") & "</td><td style = 'text-align:center'>" & RS("num_Acquisti") & "</td></tr>")
        RS.movenext
    Wend
    Response.Write("</table>")
    oConn.close
    Set Rs=Nothing
    Set oConn = Nothing
%>
</body>
</html>
```

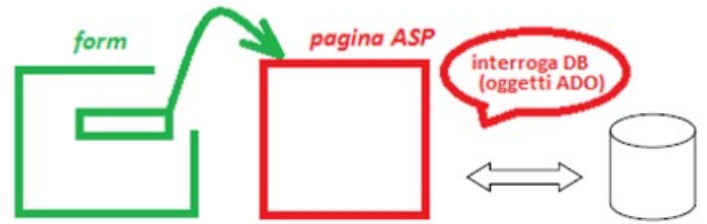
Cognome	Tipo	N.acquisti
Monsen	Mouse	1
Monsen	PC	2
Monsen	TV	1
Smith	PC	1

2 Link del tipo <http://nomeSito.somee.com/nomePagina.asp>

3 Con uso di CSS si potranno impostare proprietà di stile (ad esempio bordi e colori) indipendentemente dai contenuti

Potendo realizzare interazione con DB remoto: inserire con **stile**

### Server page: *insPerOrd.asp*



```
<% Option Explicit %>
<html>
<head>
<style>body{background-color: yellow; color:black}</style>
</head>
<body>
<%
  Dim oConn, Rs, sSQL
  Dim numP, orderN
  Dim first, last, age
  Dim tipo

  first = request.querystring("FirstName")
  last = request.querystring("LastName")
  age = request.querystring("Age")
  tipo= request.querystring("Type")

  Set oConn = Server.CreateObject("ADODB.Connection")

  rem sito infcol ricostruito 2020
  oConn.open ("Driver={SQL Server}; Server=DBMS5BI.mssql.somee.com; Database=DBMS5BI; Uid=UserID _SQLLogin_1;
    Pwd=password;")

  rem inserimento in tabella principale Persons
  sSQL="INSERT INTO Persons (LastName, FirstName, Age) VALUES ('"& last &"', '& first &"', "& age & ")"
  Set Rs=oConn.Execute(sSQL)

  rem per recuperare ultimo valore della PK nella tabella Persons (senza visualizzare) che sarà FK in tabella Orders
  sSQL="SELECT * FROM Persons"
  Set Rs=oConn.Execute(sSQL)

  While not Rs.eof
    numP = Rs("PersonID")
    Rs.movenext
  Wend

  rem per recuperare ultimo OrderNumber nella tabella Orders (senza visualizzare)
  sSQL="SELECT * FROM Orders"
  Set Rs=oConn.Execute(sSQL)
  While not Rs.eof
    orderN = Rs("OrderNumber")
    Rs.movenext
  Wend

  rem inserimento in tabella secondaria Orders
  sSQL="INSERT INTO Orders (OrderNumber, Type, PersonID) VALUES ('"& orderN &"', '& tipo &"', "& numP & ")"
  Set Rs=oConn.Execute(sSQL)
  oConn.close
  Set oConn = Nothing
%>

<h2>Inserimento realizzato</h2>
<a href="http://www.infcol.somee.com/tabella_Persone_n_Ordini.asp">Visualizza tabelle</a> <!-- URL sito non sicuro -->

</body>
</html>
```

**Inserimento realizzato**

[Visualizza tabelle](#)

Possibile form *insPerOrd.html*

```
<html>
<head>
  <title>scheda</title>
  <style>body{background-color: yellow; color:black}</style>
</head>
<body>
<h2>inserimento dati: persona che ordina per acquisto</h2>
<form method="get" action ="http://infcol.somee.com/insPerOrd.asp">
  <p>Cognome<input type="text" name = "LastName"></p>
  <p>Nome<input type="text" name = "FirstName"></p>
  <p>Età<input type="text" name = "Age"></p>
  <p>Tipo <input type="text" name = "Type"></p>

  <img src ="ins.jpg">
  <p><input type = "submit" value = "invio"></p>
</form>
</body>
</html>
```


**inserimento dati: persona che ordina per acquisto**

Cognome

Nome

Età

Tipo



Cognome	Tipo	N.acquisti
Bianchi	PC	1
Monsen	Mouse	1
Monsen	PC	2
Monsen	TV	1
Smith	PC	1

Verificando *incremento automatico delle PK*

SQL Query Result

Personid	LastName	FirstName	Age	OrderID	OrderNumber	Type	PersonID1
1	Monsen	Lars	25	1	1	PC	1
1	Monsen	Lars	25	2	2	Mouse	1
1	Monsen	Lars	25	3	3	TV	1
2	Smith	Saul	35	4	4	PC	2
1	Monsen	Lars	25	6	5	PC	1
4	Bianchi	Flavio	18	7	5	PC	4

```
Select *
From Persons, Orders
Where Persons.PersonID = Orders.PersonID
```