

LINQ to SQL in C#

Cheat Sheet

<http://damieng.com>

Data context & database create

```
var db = new MyDataContext(@"server=.\SQLEXPRESS;database=my;integrated security=SSPI");
if (!db.DatabaseExists()) db.CreateDatabase();
```

Select one

```
var only = db.Customers.SingleOrDefault(c
=> c.CustID == "CHIPS");
var first = db.Customers.FirstOrDefault(c
=> c.CustID == "CHIPS");
```

Where, null, contains & type

```
var r = new string[] { "WA", "OR" };
var customers = from c in db.Customers
where c is Customer &&
(c.Region==null || r.Contains(c.Region))
select c;
```

Paging & order

```
var page3 = (from c in db.Customers
orderby c.ContactName, c.City descending
select c).Skip(10).Take(5);
```

Join, shape & distinct

```
var labels = (from c in db.Customers
join o in db.Orders
on c.CustID equals o.CustID
select new { name = c.ContactName,
address = o.ShipAddress
}).Distinct();
```

Group, count, sum & projection

```
var totals = from c in db.Customers
group c by c.Country into g
select new Summary { Country = g.Key,
CustomerCount = g.Count(),
OrdCount = g.Sum(a=> a.Orders.Count)};
```

Composite & outer join

```
var r = from c in db.Customers
join o in db.Orders on
new { c=c.CustID, r=c.Country } equals
new { c=o.CustID, r=o.ShipCountry }
into j
from jo in j.DefaultIfEmpty()
select new { c, jo };
```

Insert

```
var customer = new Customer() {
CustID = "CHIPS",
CompanyName = "Mr. Chips" };
db.Customers.InsertOnSubmit(customer);
db.SubmitChanges();
```

Update

```
customer.ContactName = "Adam";
customer.Location = null;
db.SubmitChanges();
```

Delete

```
db.Customers.DeleteOnSubmit(customer);
db.SubmitChanges();
```

Class/table attributes

```
[Table(Name="dbo.Customers")]
[InheritanceMapping(Code="C",
Type=typeof(Customer), IsDefault=true)]
[InheritanceMapping(Code="T",
Type=typeof(TopCustomer))]
```

Property/column attributes

```
[Column(Storage="_CustomerID",
DbType="Int NOT NULL", Name="custid",
IsPrimaryKey=true)]

[Column(Storage="_Category",
DbType="Char(1)",
IsDiscriminator=true)]

[Column(Storage="_Ver", IsVersion=true
AutoSync=AutoSync.Always,
UpdateCheck=UpdateCheck.Never,
DbType="rowversion NOT NULL",
CanBeNull=false, IsDbGenerated=true)]
```

Association/relationship attributes

```
[Association(Name="Country_Customer",
Storage="_Country", ThisKey="CoID",
IsForeignKey=true)]
```

Data context & database create

```
Dim db = New MyDataContext("server=.\SQLEXPRESS;database=my;integrated security=SSPI")
If Not db.DatabaseExists Then db.CreateDatabase()
```

Select one

```
Dim only = db.Customers.SingleOrDefault(
    Function(c) c.CustID = "CHIPS")
Dim first = db.Customers.FirstOrDefault(
    Function(c) c.CustID = "CHIPS")
```

Where, null, contains & type

```
Dim r = New String() {"WA", "OR"}
Dim customers = From c In db.Customers _
    Where TypeOf c Is Customer AndAlso _
    (c.Region Is Nothing OrElse _
    r.Contains(c.Region)) Select c
```

Paging & order

```
Dim page3 = From c In db.Customers _
    Order By c.ContactName, c.City _
    Descending Skip 10 Take 5 Select c
```

Join, shape & distinct

```
Dim labels = From c In db.Customers _
    Join o in db.Orders _
    On c.CustID Equals o.CustID _
    Select name = c.ContactName, _
    address = o.ShipAddress _
    Distinct
```

Group, count, sum & projection

```
Dim totals = From c In db.Customers _
    Group c By c.Country Into g = Group _
    Select New Summary With _
    {.Country = Country, .CustomerCount = _
    g.Count(), OrdCount = g.Sum(Function(a) _
    a.Orders.Count)}
```

Composite & outer join

```
Dim z = From c In db.Customers _
    Group Join o In db.Orders On _
    New With {.c=c.CustID, .r=c.Country} _
    Equals New With _
    {.c =o.CustID, .r =o.ShipCountry} _
    Into j = Group _
    From jo In j.DefaultIfEmpty() _
    Select New With {c, jo}
```

Insert

```
Dim customer = New Customer() With {
    .CustID = "CHIPS",
    .CompanyName = "Mr. Chips" }
db.Customers.InsertOnSubmit(customer)
db.SubmitChanges()
```

Update

```
customer.ContactName = "Adam"
customer.Location = Nothing
db.SubmitChanges()
```

Delete

```
db.Customers.DeleteOnSubmit(customer)
db.SubmitChanges()
```

Class/table attributes

```
<Table(Name:="dbo.Customers")> _
<InheritanceMapping(Code:="C", Type:= _
    GetType(Customer), IsDefault:=True)> _
<InheritanceMapping(Code:="T", _
    Type:=GetType(TopCustomer)> _
```

Property/column attributes

```
<Column(Storage:="_CustomerID", _
    DbType:"Int NOT NULL", Name:="custid", _
    IsPrimaryKey:=True)> _
<Column(Storage:="_Category", _
    DbType:"Char(1)", _
    IsDiscriminator:=True)> _
<Column(Storage:="_Ver", IsVersion:=True _
    AutoSync:=AutoSync.Always, _
    UpdateCheck:=UpdateCheck.Never, _
    DbType:"rowversion NOT NULL", _
    CanBeNull:=False, IsDbGenerated:=True)>_
```

Association/relationship attributes

```
<Association(Name:="Country_Customer", _
    Storage:="_Country", ThisKey:="CoID", _
    IsForeignKey:=True)> _
```