

ENTITY FRAMEWORK CODE FIRST



The usual,
sir?

Convention Configuration

THERE ARE THREE FLAVORS OF EF

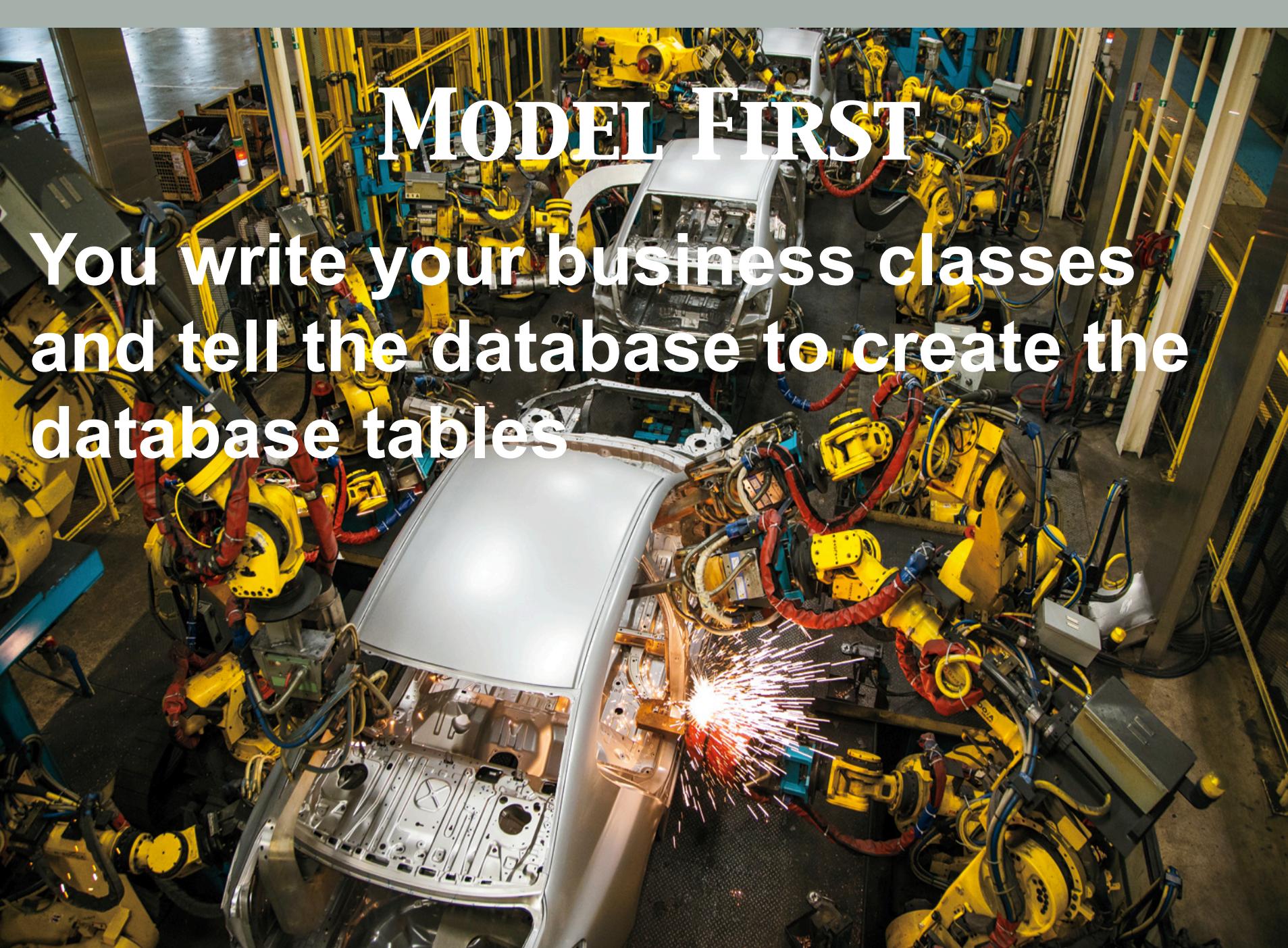
MODEL FIRST

DATABASE FIRST

CODE FIRST

A wide-angle photograph of a lush, vibrant green grassy field. The grass is well-maintained with distinct horizontal stripes, suggesting it might be a sports field or a large park. The sky above is a clear, pale blue with no visible clouds, creating a sense of openness and tranquility.

You may have a green field project



MODEL FIRST

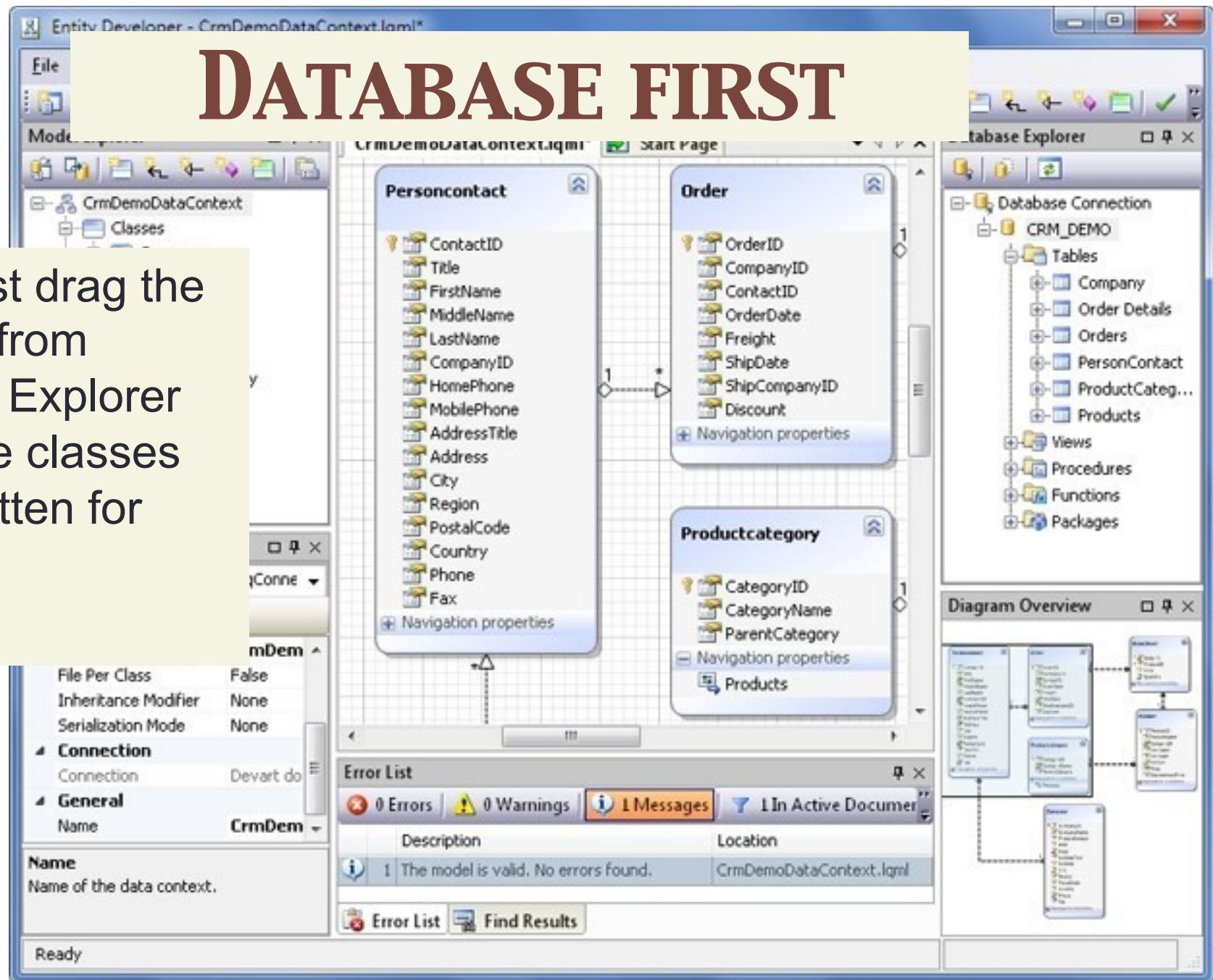
You write your business classes
and tell the database to create the
database tables

A large red Link-Belt excavator is shown working at a demolition site. The machine is positioned in front of a brick building with a green door, which appears to be partially demolished. The excavator's arm is extended upwards, and its bucket is on the ground. The background shows a clear sky and some bare trees.

You may have a
brown field
project

DATABASE FIRST

You just drag the tables from Server Explorer and the classes are written for you!



CODE FIRST

**USE EF CODE
FIRST**



**CONTROL MY OWN CODE *AND* MAKE THE
DBA HAPPY**

memegenerator.net

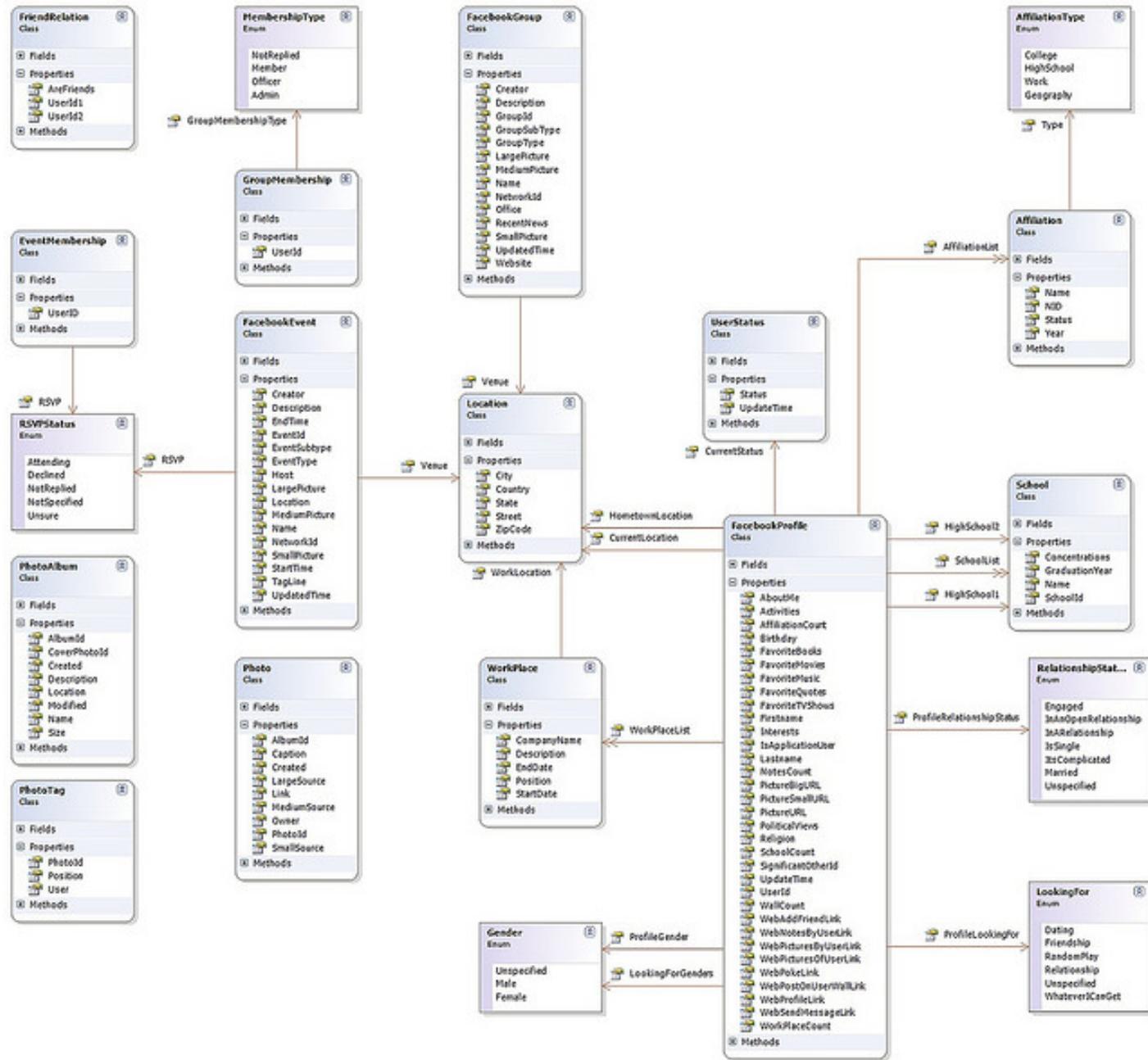
- You write your business classes.
- DBAs design and create tables
- You map the classes to the tables

Eight ~~easy~~ steps to use EF Code First

1. Create database tables
2. Add a reference to EF
3. Declare your database context
4. Point to the database
5. Write business classes
6. Map classes to tables
7. Map properties to columns
8. Define relationships between tables



Create database tables



Add EF reference to your project

- May have to get the package from NuGet

The screenshot shows the NuGet package manager interface. At the top, there is a search bar labeled "Search Online" with a magnifying glass icon. Below it, a dropdown menu says "Sort by: Most Downloads". The main area displays three packages:

- EntityFramework**: Entity Framework is Microsoft's recommended... [Install](#)
- jQuery**: jQuery is a fast and concise JavaScript Library that simplifies HTML document tr...
- WebActivator**: A NuGet package that allows other packages to execute some startup code i...

To the right of the packages, detailed information is shown for the EntityFramework package:

- Created by:** Microsoft
- Id:** EntityFramework
- Version:** 4.2.0.0
- Last Updated:** 11/1/2011
- Downloads:** 108673
- [View License Terms](#)
- [Project Information](#)
- [Report Abuse](#)
- Description:** Entity Framework is Microsoft's recommended data access technology for new applications.

At the bottom of the page, there is a navigation bar with numbers 1, 2, 3, 4, 5 and a right arrow, indicating multiple pages of results.

Declare a database context



```
public class MyContext : DbContext  
{  
    // See, it's just a class!  
}
```

Point to the database

- In web.config

```
<connectionStrings>
<add name="MyContext"
connectionString="server=.;database=dbName;user
=rcorningstone;password=pass">
</connectionStrings>
```

- In the constructor

```
public MyContext(string connectionString) :
base(connectionString)
```



```
public class Person
{
    public string FirstName { get; set; }
    public string lastName { get; set; }
    public DateTime BirthDate { get; set; }
    ...
}
```

Write business classes

Map classes to tables

```
public class MyContext : DbContext
{
    public DbSet<Person> Persons { get; set; }
    public DbSet<Employee> Employees { get; set; }
    public DbSet<Product> Products { get; set; }
    //One for each table
}
```

Map properties to columns

```
public override OnModelCreating(  
    DbModelBuilder modelBuilder)  
{  
    modelBuilder.Entity<OrderDetail>()  
        .HasKey(od => new {  
            od.OrderId, od.ProductId  
        });  
}
```

Define relationships between tables

```
public override OnModelCreating(  
    DbModelBuilder modelBuilder)  
{  
    modelBuilder.Entity<Order>()  
        .HasMany(o => o.OrderDetails)  
        .WithRequired(od => od.Order);  
    modelBuilder.Entity<OrderDetail>()  
        .HasRequired(od => od.Order)  
        .WithMany(o => o.OrderDetails)  
        .HasForeignKey(od => od.OrderId)  
        .WillCascadeOnDelete(false);  
}
```

Okay,
so how
do we
read
and
write
data?



To create an entity

```
var w = new Widget()
{
    Property1 = Value1,
    Property2 = Value2, ...
};

db.Widgets.Add(w);
db.SaveChanges();
```





To read all entities

```
var db = new MyContext();
var allWidgets = db.Widgets;
```

To read just some

```
var db = new MyContext();
var some = from w in db.Widgets
           where w.desc.contains("Panther");
           select w;
```

```
var w = db.Entities.Find(id);  
w.Property1 = newValue;  
db.SaveChanges();
```

To update an entity



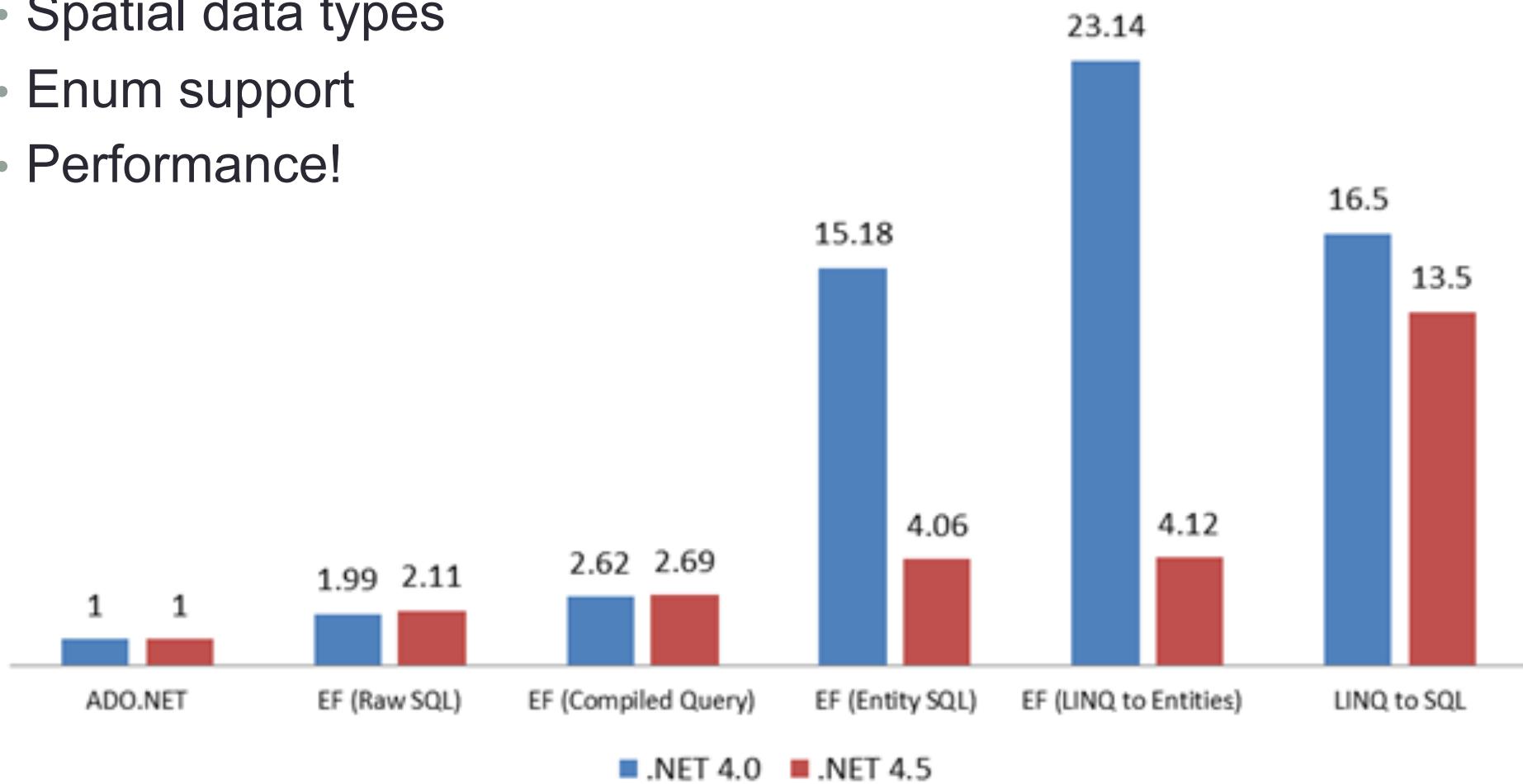
A photograph showing a person's arm and hand reaching down towards a grey trash can. Inside the trash can, there is a crumpled blue piece of paper. A hand is holding a single, ripe apple by its stem, positioned directly above the trash can.

To delete an entity

```
db.Widgets.Remove(w);  
db.SaveChanges();
```

What's new in EF 5

- Open Source on Codeplex
- Spatial data types
- Enum support
- Performance!



What's new in EF 6

- Stored procedures for CUD:

```
modelBuilder.Entity<Product>().MapToStoredProcedures(sp =>
{
    sp.Insert(proc => proc.HasName("spAddProduct"));
    sp.Update(proc => proc.HasName("spUpdateProduct"));
    sp.Delete(proc => proc.HasName("spDeleteProduct"));
});
```

- Can change the built-in conventions
- Can write request interceptors
- Better support for mocking EF calls for unit testing

tl;dr

- ORMs are amazing because they ...
 - abstract SQL away from you
 - allow you to think about objects rather than data
 - Make changes easier
- Once set up, it becomes much easier to read/write database data than writing raw SQL
- EF Code First is better than Model First or Database First because the developer controls code and the DBA controls tables

Further Study

- Codeplex tutorial
 - <http://codefirst.codeplex.com/>
- ScottGu's blog post
 - <http://weblogs.asp.net/scottgu/archive/2010/07/16/code-first-development-with-entity-framework-4.aspx>