Code First Data Annotations

Configuring Code First using Declarative Attributes
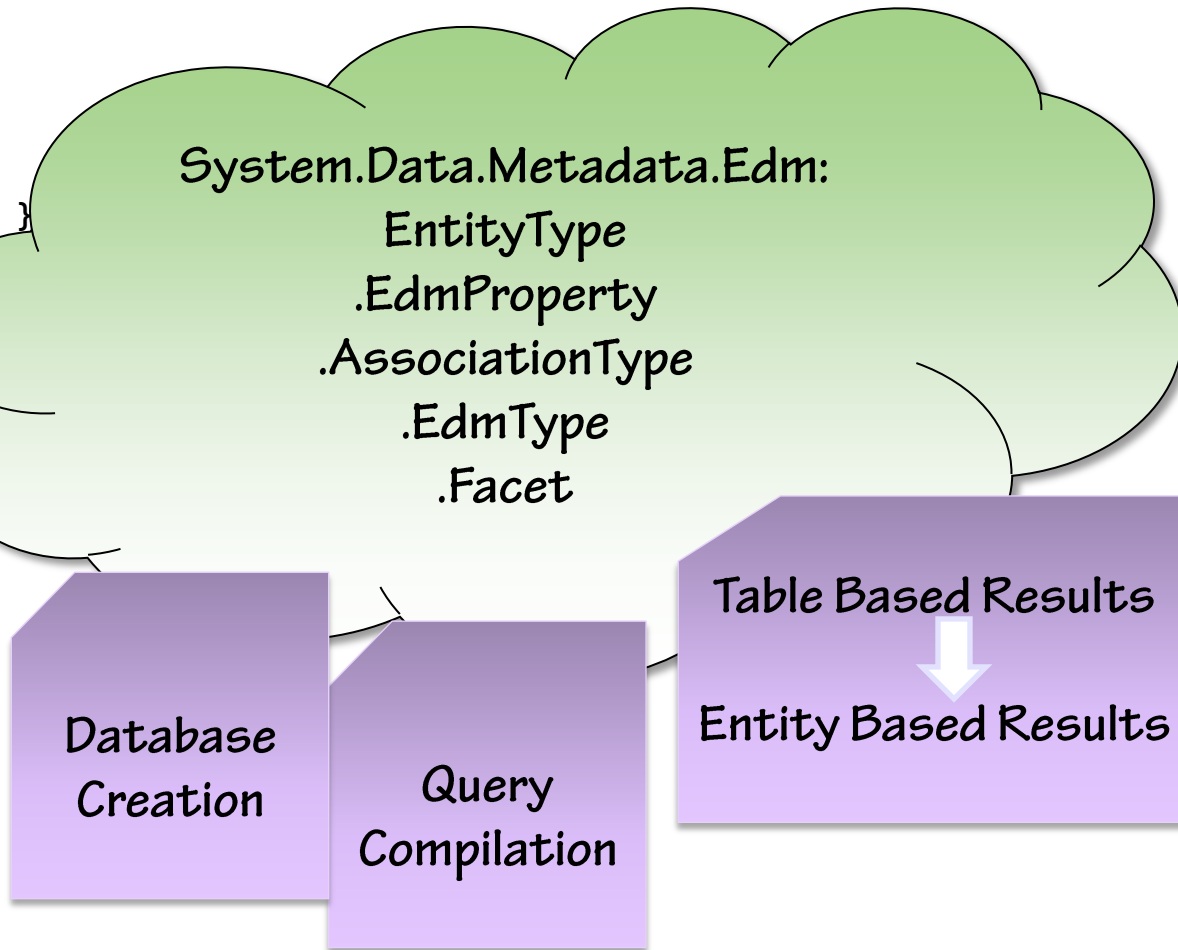
Objectives

- ➢ **Review: Why Configure Code First?**
- ➢ **List and Demonstrate Each Data Annotation option**
- ➢ **Resources**

pluralsight

see what you can learn

Code First at Run-Time

```
public class Blog{
    public int Id { get; set; }
    public string Title { get; set; }
    public string BloggerName { get; set;
    public BlogDetails BlogDetail { get
    public ICollection<Post> Posts {
    public string BlogCode {
        get
        {
            return Title.Substring(0, 1) +
        }
    }
}
```
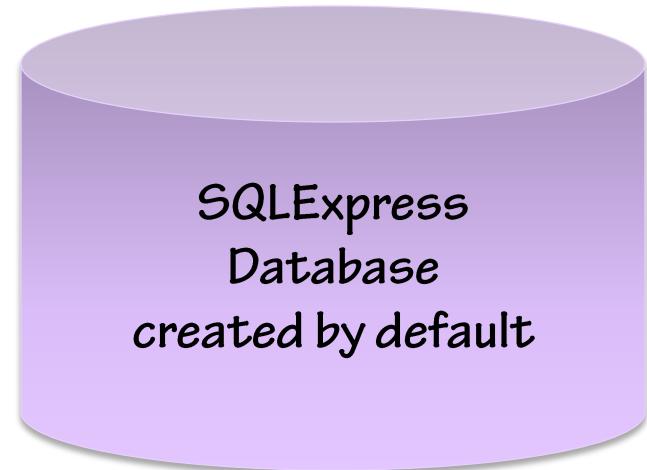
System.Data.Metadata.Edm:
EntityType
.EdmProperty
.AssociationType
.EdmType
.Facet

Database Creation

Query Compilation

Table Based Results

Entity Based Results

Defaults

```csharp
public class Blog{
   public int Id { get; set; }
   public string Title { get; set; }
   public string BloggerName { get; set; }
   public List<Post> Posts { get; set; }
   public string BlogCode {
      get {return Title.Substring(0, 1) + ":" + BloggerName.Substring(0, 1);}
   }
}

public class Post{
   public int Id { get; set; }
   public string Title { get; set; }
   public string Content{ get; set; }
   public virtual Blog Blog{ get; set; }
}
```

Key-> Id or "class"Id

Relationship inferred

SQLExpress Database created by default

Configure Code First Classes for EF EDM

```csharp
[Table("InternalBlogs")]
    public class Blog{
        [Key, Column("IBKey")]
        public int IdBlog { get; set; }
        [Required]
        public string Title { get; set; }
        [MaxLength(10)]
        public string BloggerName { get; set; }
        [Timestamp]
        public Byte[] TimeStamp { get; set; }
        public BlogDetails BlogDetail { get; set; }
        public virtual ICollection<Post> Posts { get; set; }
        [NotMapped]
        public string BlogCode {
            get {
                return Title.Substring(0, 1) + ":" + BloggerName.Substring(0, 1);
            }
        }
    }
```

Data Annotations

Fluent API

```csharp
modelBuilder.Entity<Blog>().HasKey(b => b.IdBlog).ToTable("InternalBlogs");
modelBuilder.Entity<Blog>().Property(p => p.IdBlog).HasColumnName("IBKey");
```

System.ComponentModel.DataAnnotations

- Key
- MaxLength
- MinLength
- Required
- Column
- Table

- ConcurrencyCheck
- Timestamp
- ComplexType
- InverseProperty
- ForeignKey
- DatabaseGenerated
- NotMapped

System.ComponentModel.DataAnnotations

System.ComponentModel. DataAnnotations.dll   EntityFramework.dll

Key Attribute

- **Convention for EntityKey**
  - Property named "Id"
  - Property named [classname]+ "Id"   (e.g. AliasId)

- **When Convention is not Met**

```
[Key]
  public int ThisIsTheIDProperty { get; set; }
```

Required

```
[Required]
 public string Name { get; set; }
```

MaxLength/MinLength

```
[MaxLength(20), MinLength(5)]
public string AliasName
```

Table/Column

```
[Table("Authors", Schema = "guest")]
    public class Alias

[Column("DateStarted", Order = 1, TypeName = "date")]
        public DateTime CreateDate { get; set; }
```

ConcurrencyCheck/Timestamp

```
[ConcurrencyCheck]
public string SocialSecurity

[Timestamp]
public byte[] RowVersion
```

DatabaseGenerated/NotMapped

```
[DatabaseGenerated(DatabaseGeneratedOption.Computed)]
public DateTime CreateDate


              DatabaseGeneratedOption.Computed
              DatabaseGeneratedOption.Identity
              DatabaseGeneratedOption.None


[NotMapped]
public decimal CalculatedProperty
```

ComplexType

```
public class Alias
{
    public int Id {get; set;}
    public string Name {get; set;}
    public Privace PrivacySettings{get; set;}
    . . .
}



[ComplexType]
public class Privacy
  public bool TweetsArePrivate { get; set; }
  public bool AddLocationToTweets { get; set; }
  public bool HttpsRequired { get; set; }
}
```

ForeignKey

```
public class Alias
{
  [Key]
  public int AuthorKey { get; set; }
  . . .


Public class Tweet
{
 . . .
 public int AuthorId { get; set: }
 [ForeignKey("AuthorId")]
 public Author Author { get; set; }
```

InverseProperty

```csharp
public class Alias
{

  ...
   [InverseProperty("AliasAdministrator")]
   public List<Person> Admins { get; set; }
   [InverseProperty("AliasGuestAuthor")]
   public List<Person> GuestAuthors { get; set; }


-----------------------------------------------


public class Person
{
    public int Id { get; set; }
    public string Name { get; set; }
    public Alias AliasAdministrator { get; set; }
    public Alias AliasGuestAuthor { get; set; }
}
```

Data Annotations Summary

- Key
- MaxLength
- MinLength
- Required
- Column
- Table

- ConcurrencyCheck
- Timestamp
- ComplexType
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- ForeignKey
- DatabaseGenerated
- NotMapped

Resources

- **Pluralsight training: pluralsight.com**
- **MSDN Developer Center: msdn.com/data/ef**
- **EF Team: blogs.msdn.com/adonet**
- **Rowan Miller Blog: romiller.com**
- **Arthur Vickers: blog.oneunicorn.com**
- **Julie Lerman: thedatafarm.com/blog**
- **LearnEntityFramework.com**