Digging Deeper into LINQ to Entities

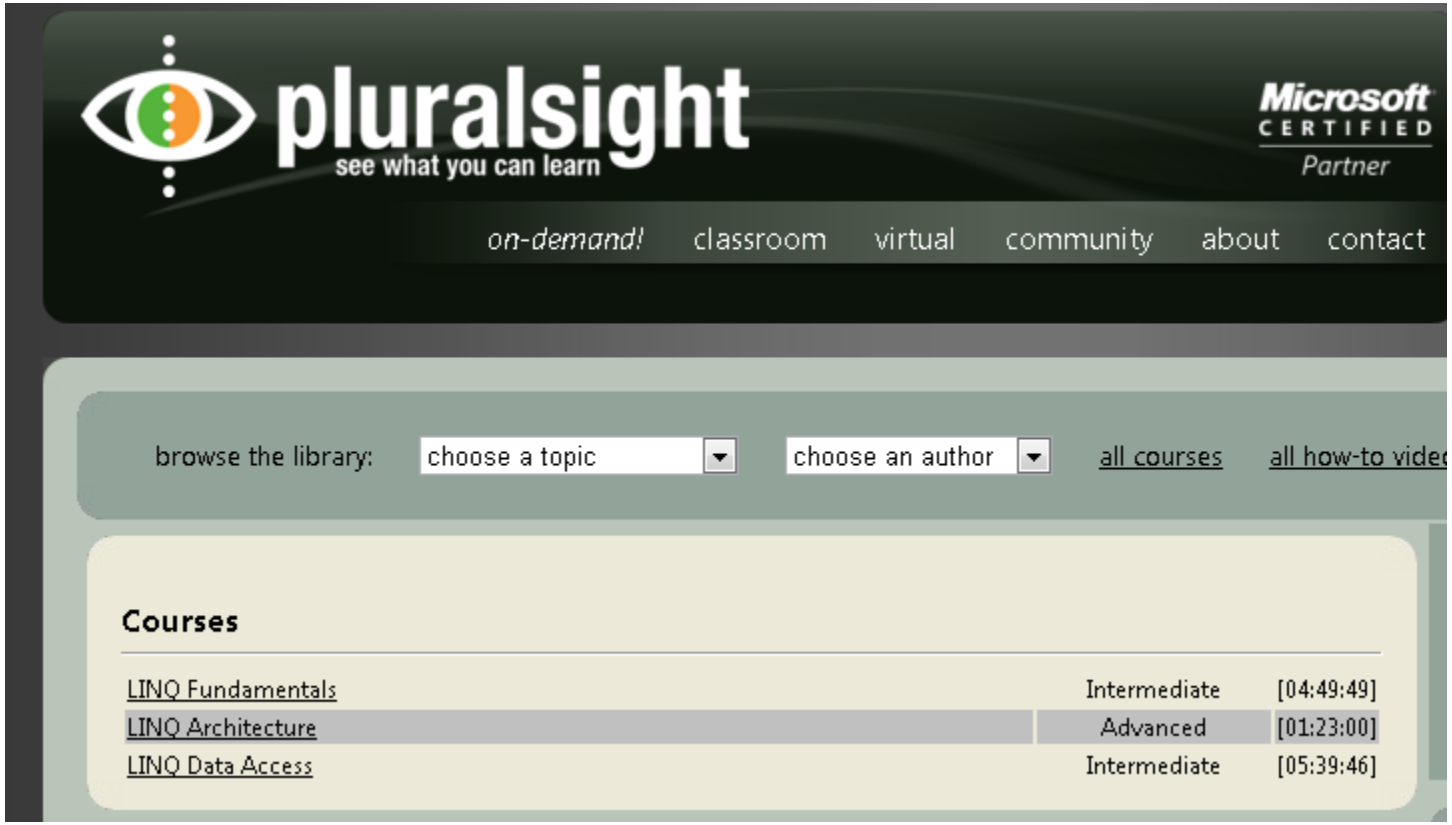
Exploring various ways to query with LINQ to Entities as well as taking entity relationships into account

WHY LINQ TO ENTITIES?

Objectives

- Projecting properties in queries
- Querying with navigation properties
- Collection Logic & Aggregates
- Joins and Nested Queries
- Shaping results with Eager, Lazy & Explicit loading
- Grouping
- Retrieving a Single Entity
- Gotchas to watch out for

Pluralsight On-Demand LINQ Courses



Simple Query Projections

C#

```
from c in context.Customers
select new MiniCustomer {c.FirstName,c.LastName, c.ID}
```

VB

```
From c In context.Customers
Select New MiniCustomer With {c.FirstName, c.LastName, c.ID}
```

Project to:

- Anonymous type
- Class
- NOT to struc

Using Navigation Properties in Queries

C#

```
from o in context.Orders
where o.Customer.Country==“UK”
select o

from o in context.Orders
orderby o.Customer.CompanyName
select new {o.Total,o.Customer.CompanyName}

from c in context.Customers
select new {c.CompanyName, c.Orders}
```

EntityCollection Logic in Queries

```
from c in context.Customers
select new {c.CompanyName, c.Orders}

from c in context.Customers
where c.Orders.Sum(o=>o.SubTotal)>10000
select c;

from c in context.Customers
where c.Orders.Any()
select c;
```

Nested Queries and Joins

```
JOIN
FROM c IN context.Customers
JOIN o IN context.Orders
ON c.CustomerID EQUALS o.CustomerID
SELECT .....
```

No Order.Customer navigation property

```
NESTING
from c in context.Customers
from o in c.Orders . . .
```

```
NESTING
var universe=from c in context.Customers where [complex filter]
var queryA=from c in universe ...
var queryB=from o in universe.Orders . . .
```

Getting Related Data

Eager Loading:

```
from c in context.Customers.Include("Orders") select c
from o in context.Orders.Include("Customer.Address) select o
```

Explicit & Lazy Loading:

```
var cust=(from c in co                    lect c).First();
cust.Orders.Load();
var orderCount=cust.Orders.Count();
```

lazy load

← explicit load

Projection:

```
from c in context.Customers
select new {c, BigOrders=c.Orders.Where(o=>o.Total>1000)}
```

Grouping

C#

```
from o in context.Orders
group o by o.[PROPERTY OR EXPRESSION]
into GROUPVARIABLE
select GROUPVARIABLE [or projection]
```

VB

```
From o In context.Orders
Group o By o.[PROPERTY OR EXPRESSION]
Into GROUPVARIABLE = Group
Select GROUPVARIABLE [or projection]
```

```
Group key
    item
    item
    item
Group key
    item
Group key
    item
    item
Group key
    item
```

Getting Single Entities

```
[query].Single/SingleOrDefault Looking for a unique item
```

```
[query].First/FirstOrDefault   First of possibly many
```

```
ObjectContext.GetObjectByKey(EntityKey)
```

A Few LINQ to Entities Gotchas

- **Client Side processing vs. Server Side Processing**
  - Is it a LINQ to Entities or LINQ to Objects method?
- **Unsupported .NET methods**
  - Caught at runtime, not compile time
- **Custom Properties can't be used in query**
  - Won't be caught until runtime
- **Careful about loading related data in disconnected scenarios**
- **Profile, profile, profile!**

Resources

- **Pluralsight On Demand**
  - http://www.pluralsight.com
- **Programming Entity Framework, 2nd Edition, Julie Lerman**
  - O'Reilly Media, August 2010
  - http://www.learnentityframework.com
- **Query Profiling Options for Entity Framework**
  - December 2010 MSDN Magazine Data Points Column
    - msdn.com/magazine
- **Microsoft Data Developer Center**
  - http://msdn.com/data