Linq: Language Integrated Query

Linq is a API

Advantage:

* Common to all datasource (sql,oracle,access,….)

(i.e no need to change linq (query) if you want to change sql to oracle)

* Compile time query check in linq.

Header file:

* Using System.Linq;
* Using System.Xml.Linq;( xml to linq)

Controller File:(HomeController.cs)

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using System;

using System.Collections.Generic;

using System.Linq;

using System.Web;

using System.Web.Mvc;

using System.Xml.Linq;

using EFwork.Models;

namespace EFwork.Controllers

{

public class HomeController : Controller

{

//

// GET: /Home/

public ActionResult Index()

{

var db = new CustomerDataContext();

var tb = db.Customers;

IQueryable<Customer> q1 = from s in db.Customers

//where s.ID > 5

//where s.ID>3 && s.ID<=5

//where s.Gender=="female"

//orderby s.Name ascending

select s;

//var q2 = from s in db.Customers

// select s;

//var q3 = from s in db.Customers

// select s.Name;

//var q4 = from s in db.Customers

// select new { s.ID,s.Name,s.Gender,s.Email,s.Address };

return View(q1); // tb,q1,q2 accept, q3 or a4 not accept because filtered

}

// using for each

public ActionResult ShowFilterData()

{

String names = "";

var db = new CustomerDataContext();

var tb = db.Customers;

IQueryable<Customer> q1 = from s in tb

select s;

foreach (var cust in q1)

{

names = names + " " + cust.Name;

}

ViewBag.c = names;

return View();

}

// using aggregate function count,max,min,sum (immediate execution)

public ActionResult ShowCount()

{

var db = new CustomerDataContext();

var tb = db.Customers;

int cusCount = (from s in tb

select s).Count();

ViewBag.count = cusCount;

return View();

}

// immediate query execution ToList<source> (retrun List<T>)

public ActionResult ShowNamesOnly()

{

var db = new CustomerDataContext();

var tb = db.Customers;

List<String> names = (from s in tb

select s.Name).ToList();

ViewBag.allNames = names;

return View();

}

// immediate query execution ToArray<source> (retrun array i.e [])

public ActionResult ShowNamesUsingArray()

{

var db = new CustomerDataContext();

var tb = db.Customers;

String[] names = (from s in tb

select s.Name).ToArray();

ViewBag.allNames = names;

return View();

}

// select name & address

public ActionResult nameaddress()

{

var db = new CustomerDataContext();

var tb = db.Customers;

var q1 = from s in tb

select new { s.Name,s.Address };

ViewBag.nameadd = q1;

return View();

}

// group by method 1

public ActionResult GroupbyNames()

{

var db = new CustomerDataContext();

var tb = db.Customers;

var q1 = from s in tb

group s by s.Address;

var res = "";

foreach (var group in q1)

{

res = res + group.Key + ":";

foreach (var entry in group)

{

res = res + entry.Name + " ";

}

res = res + " | ";

}

ViewBag.r = res;

return View();

}

// group by method 2

public ActionResult GroupbyNamesOnly()

{

var db = new CustomerDataContext();

var tb = db.Customers;

var q1 = from s in tb

group s by s.Address;

ViewBag.r = q1;

return View();

}

//linq to xml

public ActionResult XMLData()

{

String res = "";

XDocument xmldoc = XDocument.Load("CustomerDetails.xml"); //using System.Xml.Linq;

// xml file default path : c:/program files(x86)/iis express

var q = from c in xmldoc.Descendants("Customer")

//select (String)c.Element("CustomerName");

select (String)c.Element("CustomerID") + " - " + (String)c.Element("CustomerName") + " - " + (String)c.Element("city");

foreach (String entry in q)

{

res = res + entry + " ||";

}

ViewBag.ans = res;

return View();

}

public ActionResult Create()

{

return View();

}

[HttpPost]

public ActionResult Create(Customer c)

{

var db = new CustomerDataContext();

if (ModelState.IsValid)

{

db.Customers.Add(c);

db.SaveChanges();

return RedirectToAction("Index");

}

return View(c);

}

public ActionResult Delete(int id)

{

var db = new CustomerDataContext();

Customer c=db.Customers.Find(id);

if (c == null)

HttpNotFound();

return View(c);

}

[HttpPost]

public ActionResult Delete(int id,Customer c)

{

var db = new CustomerDataContext();

Customer fc = db.Customers.Find(id);

db.Customers.Remove(fc);

db.SaveChanges();

if (ModelState.IsValid)

return RedirectToAction("Index");

return View(c);

}

}

}

Model File (Customer.cs)

using System;

using System.Collections.Generic;

using System.Linq;

using System.Web;

namespace EFwork.Models

{

public class Customer

{

public int ID { get; set; }

public String Name { get; set; }

public String Gender { get; set; }

public String Address { get; set; }

public String Email { get; set; }

}

}

Model file CutomerDataContext.cs

using System;

using System.Collections.Generic;

using System.Linq;

using System.Web;

using System.Data.Entity;

namespace EFwork.Models

{

public class CustomerDataContext:DbContext

{

public CustomerDataContext()

: base("CustomerDBConnection")

{

}

public DbSet<Customer> Customers { get; set; }

}

}

GroupbyNames.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>GroupbyNames</title>

</head>

<body>

<div>

@ViewBag.r

</div>

</body>

</html>

Groupbynamesonly.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>GroupbyNamesOnly</title>

</head>

<body>

<div>

@{

var s = ViewBag.r ;

}

<table border="1">

@foreach (var s1 in s)

{

foreach (var a in s1)

{

<tr>

<td>

@a.Name

</td>

</tr>

}

<tr><td>. . . . . .</td></tr>

}

</table>

</div>

</body>

</html>

NameAddress.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>nameaddress</title>

</head>

<body>

<div>

@{

var na = ViewBag.nameadd;

}

@foreach(var s in na)

{

@s<br />

}

</div>

</body>

</html>

Showcount.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>ShowCount</title>

</head>

<body>

<div>

@{

var totalRecord = ViewBag.count;

}

@totalRecord

@\* or \*@

Total = @ViewBag.count

</div>

</body>

</html>

showFilterData.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>ShowFilterData</title>

</head>

<body>

<div>

@{

var cus = ViewBag.c;

}

@cus<br/>

@\* or \*@

@ViewBag.c

</div>

</body>

</html>

ShownamesOnly.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>ShowNamesOnly</title>

</head>

<body>

<div>

@{

var nam = ViewBag.allNames;

}

@foreach (var p in nam)

{

@p <br />

}

</div>

</body>

</html>

showNamesusingArray.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>ShowNamesUsingArray</title>

</head>

<body>

<div>

@{

var aNames = ViewBag.allNames;

}

@foreach (var s in aNames)

{

@s<br />

}

</div>

</body>

</html>

Xmldata.cshtml

@{

Layout = null;

}

<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width" />

<title>XMLData</title>

</head>

<body>

<div>

@ViewBag.ans

</div>

</body>

</html>

Web.config file

<?xml version="1.0" encoding="utf-8"?>

<!--

For more information on how to configure your ASP.NET application, please visit

http://go.microsoft.com/fwlink/?LinkId=169433

-->

<configuration>

<configSections>

<!-- For more information on Entity Framework configuration, visit http://go.microsoft.com/fwlink/?LinkID=237468 -->

<section name="entityFramework" type="System.Data.Entity.Internal.ConfigFile.EntityFrameworkSection, EntityFramework, Version=6.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" requirePermission="false" />

</configSections>

<connectionStrings>

<add name="CustomerDBConnection" connectionString="Data Source=.\sqlexpress;Integrated Security=SSPI" providerName="System.Data.SqlClient" />

</connectionStrings>

<appSettings>

………………..

……………

XMLFile(CustomerDetails.xml – file :c:/program files(x86)/iis express/

<?xml version="1.0" encoding="utf-8" ?>

[**-**](file:///C:\Program%20Files%20(x86)\IIS%20Express\CustomerDetails.xml) <CustomerDetails>

[**-**](file:///C:\Program%20Files%20(x86)\IIS%20Express\CustomerDetails.xml) <Customer>

<CustomerID>**c001**</CustomerID>

<CustomerName>**Gowthaman**</CustomerName>

<city>**Karur**</city>

</Customer>

[**-**](file:///C:\Program%20Files%20(x86)\IIS%20Express\CustomerDetails.xml) <Customer>

<CustomerID>**c002**</CustomerID>

<CustomerName>**raja**</CustomerName>

<city>**chennai**</city>

</Customer>

[**-**](file:///C:\Program%20Files%20(x86)\IIS%20Express\CustomerDetails.xml) <Customer>

<CustomerID>**c003**</CustomerID>

<CustomerName>**Raman**</CustomerName>

<city>**Namakkal**</city>

</Customer>

[**-**](file:///C:\Program%20Files%20(x86)\IIS%20Express\CustomerDetails.xml) <Customer>

<CustomerID>**c004**</CustomerID>

<CustomerName>**Ram**</CustomerName>

<city>**Karur**</city>

</Customer>

[**-**](file:///C:\Program%20Files%20(x86)\IIS%20Express\CustomerDetails.xml) <Customer>

<CustomerID>**c005**</CustomerID>

<CustomerName>**Sugu**</CustomerName>

<city>**velur**</city>

</Customer>

</CustomerDetails>