Lab 4 – ADO.NET and LINQ to SQL

# Purpose

* Create a console applications to perform the following tasks:
  1. Create a directory crawler
* Familiarize yourself with .NET Collections and basic LINQ queries
* Learn the basics ADO.NET
* Learn the basics of LINQ to SQL

# Due Date

* This lab is due before the beginning of the Lab period (3:59:59pm) on February 8th

# Assessment

* This Lab is worth 2% of your total course mark.

# Estimated Time

* This Lab is estimated to take 3 hours.

This is only an estimate of the time required to complete this Lab. I would encourage you to work at your own pace and if at all possible obtain a laptop so that you can work on your assignments from anywhere

# Assigned Readings

* None this week

# Lab Supplies

To complete this lab you will require the following lab supplies:

* Visual Studio 2010
  + Available on MSDNAA
* SQL Server Management Studio Express
  + Free to download and install
* Lecture notes
* Laptop or Caddy

# Useful Namespaces/Classes

Useful Namespace(s):

* System;
* System.IO;
* System.Data;
* System.Data.SqlClient;

Useful Classes(s):

* Directory
  + Static method Directory.GetDirectories()
  + Static method Directory.GetFiles()
* FileInfo
  + Contains information about a file using its path
  + FileInfo.Length
  + FileInfo.Name
* DirectoryInfo
  + Contains information about a directory using its path

DirectoryInfo.Name

* SqlConnection
  + Connect to the database
* SqlCommand
  + Execute SQL commands
* SqlDataReader
  + Polls the information returned from SQL queries

# Summary of Tasks

1. Create an application that will crawl through your Windows directory and store the file objects in a database using ADO.NET
2. Create an application that will crawl through your Windows directory and store the file objects in a database using LINQ to SQL
3. Demo

READ EVERY WORD BEFORE YOU START, your life will be so much easier!

# Task 1

Crawl through the ‘Windows’ directory of your computer and store the FileInfo objects in a database. **Be sure to only store the first 50 files you find!**

1. Create a Database named Lab4
2. Create the following table in Lab4:  
     
   File

* FileId, int, primary key, identity attribute enabled
* Name, varchar(255), not null
* Path, varchar(255), not null
* Length, bigint, not null

1. Create an application that will crawl through the windows directory gather FileInfo objects and store them in a database.
   1. Create an ADO class named File that will interact with the File table in your database. Be sure to include methods to: INSERT, UPDATE, DELETE, SELECT (get) a single file based on FileId, SELECT (get) all the files in the table.
   2. Create the application to crawl through the windows directory. Use the INSERT command from your ADO object to add the files to your database. Also:
      1. Demonstrate a DELETE
      2. Demonstrate an UPDATE
      3. Demonstrate a SELECT
      4. Demonstrate a SELECT all

# Task 2

Crawl through the ‘Windows’ directory of your computer and store the FileInfo objects in a database. **Be sure to only store the first 50 files you find!**

1. Create a Database named Lab4A
2. Create the following table in Lab4A:  
     
   File

* FileId, int, primary key, identity attribute enabled
* Name, varchar(255), not null
* Path, varchar(255), not null
* Length, bigint, not null

1. Create an application that will crawl through the windows directory gather FileInfo objects and store them in a database.
   * Create a DataContext of your Lab4A database  
       
     File -> Add new Item -> select LINQ to SQL.   
       
     Name the data context Lab4A
   * After the DataContext is created you will be presented with a blank designer field. Use the server explorer to navigate to the tables in your database. Drag the table File to the blank designer field. The field will populate with the attributes from the table. Save the project.  
       
     When you click save Visual Studio will run the tools necessary to create the code for the DataContext.
   * Create the application to crawl through the windows directory. Use your new data context to demonstration:
     + Insert
     + Delete
     + Update
     + Select
     + Select all

# Task 3

Demo the lab to your lab professor.