C# Basic SQL Queries

Running SQL queries in C# is simple to do, however it uses a ton of code to work. In this post I am going to be running 2 types of queries in SQL:

- ExecuteNonQuery
- ExecuteReader

So let's get going.

The first thing I do is load up VS2010 and create a blank Console Application called SQLGuy. Next I add in the following line.

```
using System.Data.SqlClient;
```

In the Main method I create a StringBuilder to store my SQL Connection string (information on building the correct connection string for your needs can be found here http://www.connectionstrings.com/sql-server-2008). This looks something like this.

```
StringBuilder ConnectionString = new StringBuilder();
ConnectionString.Append("user id=user;");
ConnectionString.Append("password=pw;");
ConnectionString.Append("server=RICHARD-PC;");
ConnectionString.Append("Trusted_Connection=yes;");
ConnectionString.Append("database=db;");
ConnectionString.Append("connection timeout=30");
```

I make use of the StringBuilder object rather than an blank string as this is more efficient in C#, also I have been informed that this will perform a lot better than += to append to a string J. After I have my connection string, I need to create the connection to SQL, this will be a new instance of the SqlConnection class. The class can be constructed with or without the connection string.

```
SqlConnection ObjConnection = new SqlConnection(ConnectionString.ToString());
```

After I have my connection, I need to create a new instance of the SqlCommand class to store my query and execute it against my current SQL connection. For now I am creating a holder called Query.

```
SqlCommand Query;
```

It's at this point I would like to open my connection to SQL, to do this all I need to do is call the Open method on the SqlConnection class.

```
ObjConnection.Open();
```

Now for the ExecuteNonQuery query. An ExecuteNonQuery method is used when running queries such as an insert. To run this query I set the Query object (created earlier) to the following.

```
string InsertCommand = "INSERT INTO test (Name) VALUES ('Richard');";
Query = new SqlCommand(InsertCommand, ObjConnection);
```

To run the query, all I do is call the ExecuteNonQuery method.

```
Query.ExecuteNonQuery();
```

That's it for the ExecuteNonQuery query type.

The ExecuteReader query type does what is says, it will execute a SQL query and return an DataReader object. So the first step is to create a SqlDataReader object to store the results of the query.

```
SqlDataReader DataReader = null;
```

Then execute my query sending the result to the new SqlDataReader object.

```
Query = new SqlCommand("SELECT * FROM test", ObjConnection);
DataReader = Query.ExecuteReader();
```

Next, I check that there are results from the query, if so loop through them using the Read method on the SqlDataReader writing out the column names to the console.

```
if (DataReader.HasRows)
{
        while (DataReader.Read())
        {
                Console.WriteLine(DataReader["Name"].ToString());
        }
}
```

Finally, I need to run some cleanup, and close my connection to SQL.

```
DataReader.Dispose();
Query.Dispose();

// Close Connection
ObjConnection.Close();
Console.WriteLine("Connection Status: {0}", ObjConnection.State.ToString());

Console.ReadKey();
```

That's all there is to running a SQL query in C#. Like I said this is a bit long winded for something simple, but at least it does its job (eventually).

The full code listing is this.

```
using System;
using System.Collections.Generic;
using System.Linq;
```

```
using System.Text;
using SQL_Class.Classes;
using System.Data.SqlClient;

namespace SQLGuy
{
    class Program
    {
        static void Main(string[] args)
        {
            // Build up the Connection String
            StringBuilder ConnectionString = new StringBuilder();
            ConnectionString.Append("user id=user;");
            ConnectionString.Append("password=pw;");
            ConnectionString.Append("server=RICHARD-PC;");
            ConnectionString.Append("Trusted_Connection=yes;");
            ConnectionString.Append("database=db;");
            ConnectionString.Append("connection timeout=30");

            // Create required objects
            SqlConnection ObjConnection = new
SqlConnection(ConnectionString.ToString());
            SqlCommand Query;

            // Connect
            ObjConnection.Open();
            Console.WriteLine("Connection Status: {0}",
ObjConnection.State.ToString());

            /* ************************************************
             * Run Simple Insert Query
             ************************************************ */
            string InsertCommand = "INSERT INTO test (Name) VALUES ('Richard');";
            Query = new SqlCommand(InsertCommand, ObjConnection);
            Query.ExecuteNonQuery();

            /* ************************************************
             * Run Select Query
             ************************************************ */
            SqlDataReader DataReader = null;
            Query = new SqlCommand("SELECT * FROM test", ObjConnection);
            DataReader = Query.ExecuteReader();

            if (DataReader.HasRows)
            {
                while (DataReader.Read())
                {
                    Console.WriteLine(DataReader["Name"].ToString());
                }
            }
```

```
            DataReader.Dispose();
            Query.Dispose();

            // Close Connection
            ObjConnection.Close();
            Console.WriteLine("Connection Status: {0}",
ObjConnection.State.ToString());

            Console.ReadKey();
        }
    }
}
```