**DataTable And Its Methods In ADO.Net**

**DataTable**

* DataTable represents relational data into Tabular Form.
* DataTable in C# is similar to the Tables in SQL.
* ADO.NET provides a DataTable class to create and use data table independently or we can get data from database table in DataTable.
* It can also be used with DataSet also.
* Initially, when we create DataTable, it does not have table schema (table structure).
* We can create table schema by adding columns and constraints to the table.
* After defining table schema (table structure), we can add rows to the table.
* DataTable is a combination of DataColumn and DataRow.
* We must include System.Data namespace before creating DataTable.

**Properties Of DataColumn in ADO.Net**

* Caption
* DataType
* AllowDBNull
* MaxLength
* PrimaryKey -> Property of DataTable
* AutoIncrement
  + AutoIncrementSeed -> Starting Value
  + AutoIncrementStep -> Incremented Value
* DefaultValue
* Unqiue

**Source Code Of DataTable**

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Data;

namespace ADO\_Net\_DataTable

{

class Program

{

static void Main(string[] args)

{

try

{

DataTable employees = new DataTable("employees");

// DataColumn id = new DataColumn("id")

// {

// Caption = "Emp\_Id",

// DataType = System.Type.GetType("System.Int32"),

// AllowDBNull = false,

//};

DataColumn id = new DataColumn("id");

id.Caption = "Emp\_Id";

id.DataType = System.Type.GetType("System.Int32");

id.AllowDBNull = false;

id.AutoIncrement = true;

id.AutoIncrementSeed = 10;

id.AutoIncrementStep = 5;

employees.Columns.Add(id);

DataColumn name = new DataColumn("name");

name.Caption = "Emp\_Name";

name.DataType = typeof(string);

name.AllowDBNull = false;

name.MaxLength = 50;

name.DefaultValue = "Anonymous";

name.Unique = true;

employees.Columns.Add(name);

DataColumn gender = new DataColumn("gender");

gender.Caption = "Emp\_Gender";

gender.DataType = typeof(string);

gender.AllowDBNull = false;

gender.MaxLength = 20;

employees.Columns.Add(gender);

DataRow row1 = employees.NewRow();

//row1["id"] = 1;

//row1["name"] = "Ali";

row1["gender"] = "Male";

employees.Rows.Add(row1);

employees.Rows.Add(null,"Anum","Female");

employees.Rows.Add(null, "Zain", "Male");

employees.PrimaryKey = new DataColumn[] { id };

foreach (DataRow row in employees.Rows)

{

Console.WriteLine(row["id"] + " " + row["name"] + " " + row["gender"]);

}

}

catch (Exception ex)

{

Console.WriteLine(ex.Message);

}

Console.ReadLine();

}

}

}

**Copy() & Clone() Methods Of DataTable in ADO.Net**

https://www.youtube.com/watch?v=LprMfRC8Y7U&list=PLX07l0qxoHFJpxz244yz8xto3oPGhJegQ&index=12

**Copy() & Clone() Methods Of DataTable**

* DataTable.Copy() returns a DataTable with the structure and data of the DataTable.
* DataTable.Clone() only returns the structure of the DataTable, not the rows or data of the DataTable.

**Source Code Of Copy() & Clone() Methods**

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Data;

using System.Data.SqlClient;

using System.Configuration;

namespace Copy\_Clone\_DataTable

{

class Program

{

static void Main(string[] args)

{

try

{

string cs = ConfigurationManager.ConnectionStrings["dbcs"].ConnectionString;

SqlConnection con = new SqlConnection(cs);

string query = "select \* from employee\_tbl";

SqlDataAdapter sda = new SqlDataAdapter(query,con);

DataTable employees = new DataTable();

sda.Fill(employees);

Console.WriteLine("Original Data Table");

foreach (DataRow row in employees.Rows)

{

Console.WriteLine(row["id"] + " " + row["name"] + " " + row["gender"] + " " + row["age"] + " " + row["salary"] + " " + row["city"]);

}

DataTable CopyDataTable = employees.Copy();

Console.WriteLine("Copy Data Table");

foreach (DataRow row in CopyDataTable.Rows)

{

Console.WriteLine(row["id"] + " " + row["name"] + " " + row["gender"] + " " + row["age"] + " " + row["salary"] + " " + row["city"]);

}

DataTable CloneDataTable = employees.Clone();

Console.WriteLine("Clone DataTable");

if (CloneDataTable.Rows.Count > 0)

{

foreach (DataRow row in CloneDataTable.Rows)

{

Console.WriteLine(row["id"] + " " + row["name"] + " " + row["gender"] + " " + row["age"] + " " + row["salary"] + " " + row["city"]);

}

}

else

{

//Console.WriteLine("Rows Not Found..");

CloneDataTable.Rows.Add(1,"Asif","Male",25,13000,"Karachi");

CloneDataTable.Rows.Add(2, "Saba", "Female", 27, 23000, "Sukkur");

}

foreach (DataRow row in CloneDataTable.Rows)

{

Console.WriteLine(row["id"] + " " + row["name"] + " " + row["gender"] + " " + row["age"] + " " + row["salary"] + " " + row["city"]);

}

}

catch (Exception ex)

{

Console.WriteLine(ex.Message);

}

Console.ReadLine();

}

}

}