Managing Data (Entity Frame Work)

What is entity Framework?

Entity framework is a ORM (Object Relational Mapping)

What is ORM?

Automatically creates classes based on database tables and viseversa.

Use of EntityFramework?

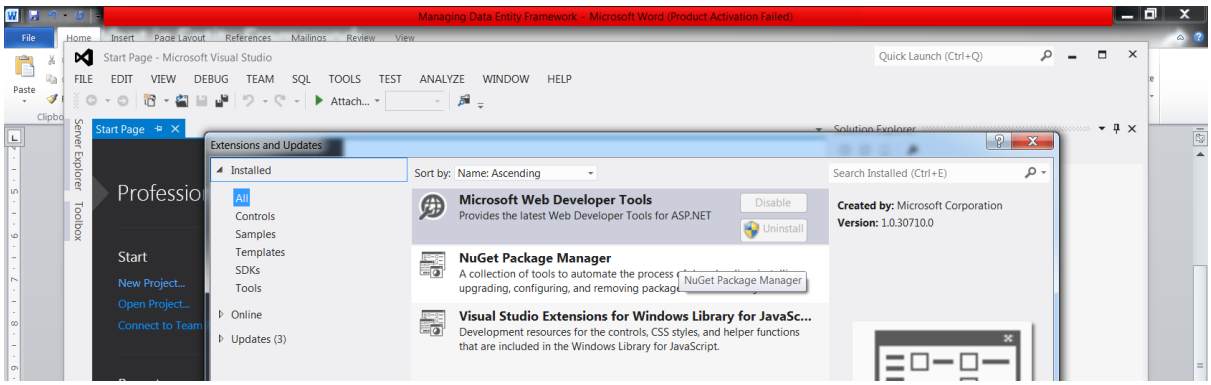
No Need to create the following 3 steps:

1) **No need to create model class.(if you created already database)**
2) **No need to create database+table.(if you created Model Class)**
3) **No need to write ado.net code to retrieve data from the database.**

Entity framework can do automatically above 3 steps. If we provide it with the database schema.

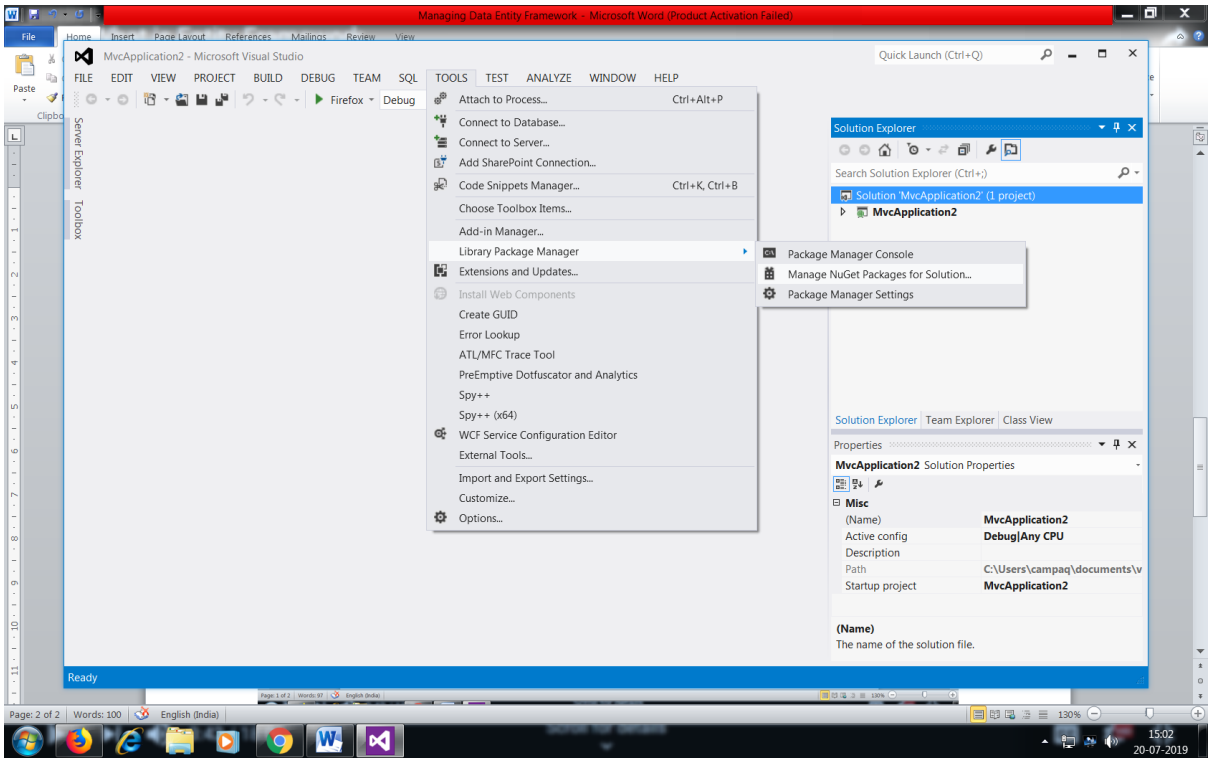
Install Nuget Package Manger?

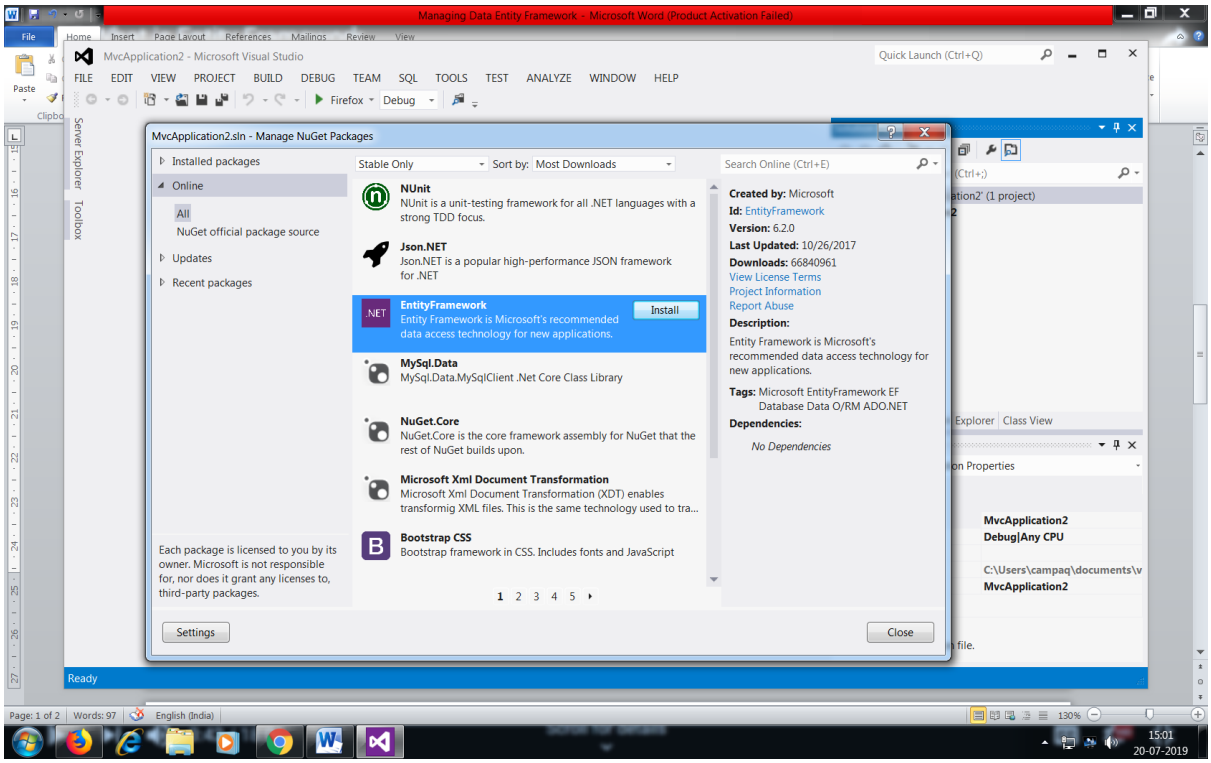
Tools menu → Extensions and updates.

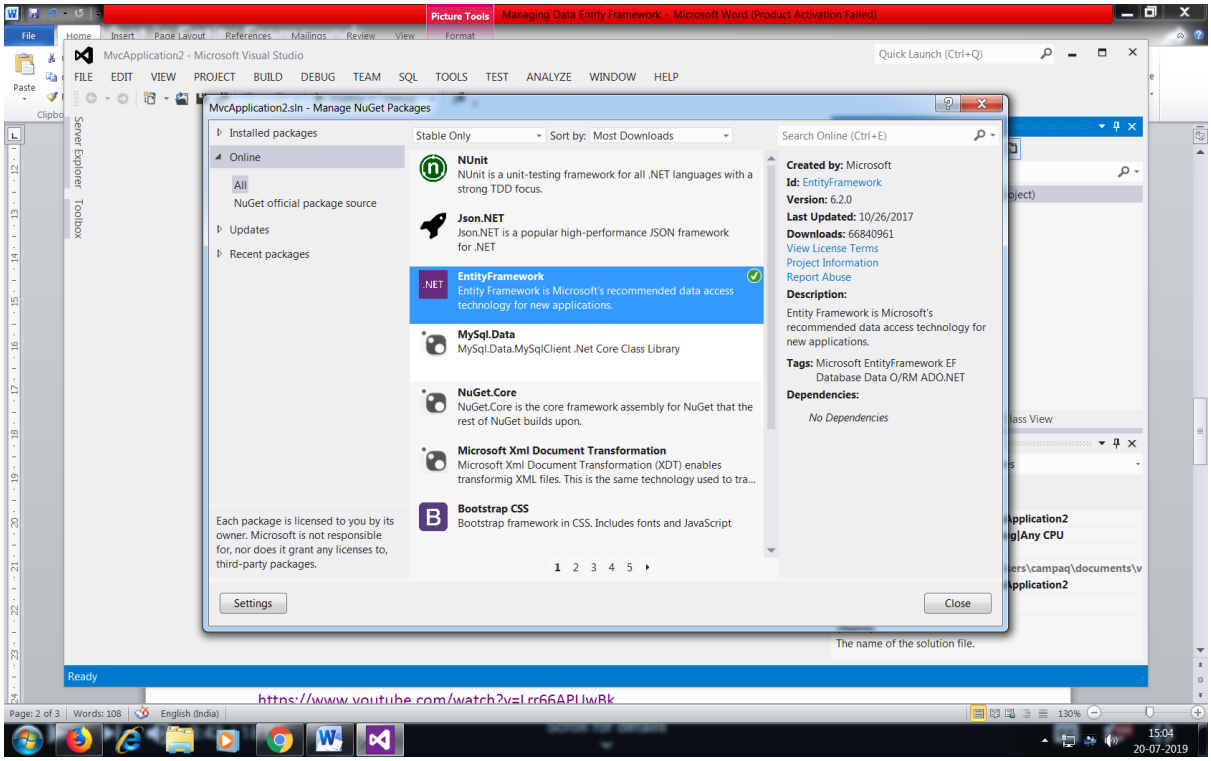


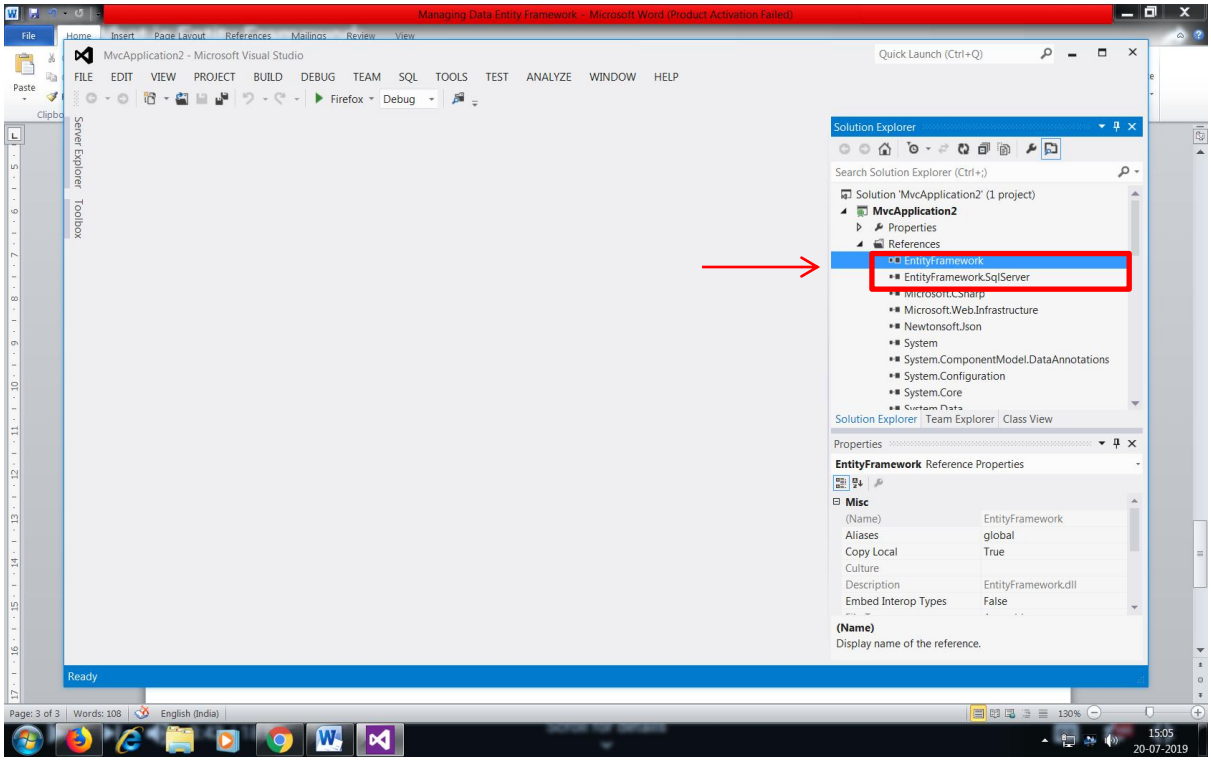
Install Entity Framework:?

(tools →library package manager→Manage nuGet packages for solutions)






Picture Tools
Managing Data Entity Framework - Microsoft Word (Product Activation Failed)
MvcApplication2 - Microsoft Visual Studio
MvcApplication2.sln - Manage NuGet Packages
Installed packages
Online
All
NuGet official package source
Updates
Recent packages
Stable Only
Sort by: Most Downloads
Search Online (Ctrl+E)
NUnit
NUnit is a unit-testing framework for all .NET languages with a strong TDD focus.
Json.NET
Json.NET is a popular high-performance JSON framework for .NET
EntityFramework
Entity Framework is Microsoft's recommended data access technology for new applications.
MySql.Data
MySql.Data.MySqlClient .Net Core Class Library
NuGet.Core
NuGet.Core is the core framework assembly for NuGet that the rest of NuGet builds upon.
Microsoft Xml Document Transformation
Microsoft Xml Document Transformation (XDT) enables transformig XML files. This is the same technology used to tra...
Bootstrap CSS
Bootstrap framework in CSS. Includes fonts and JavaScript
Each package is licensed to you by its owner. Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Created by: Microsoft
Id: EntityFramework
Version: 6.2.0
Last Updated: 10/26/2017
Downloads: 66840961
View License Terms
Project Information
Report Abuse
Description:
Entity Framework is Microsoft's recommended data access technology for new applications.
Tags: Microsoft EntityFramework EF Database Data O/RM ADO.NET
Dependencies:
No Dependencies
Settings
Close
The name of the solution file.
Ready
15:04
20-07-2019


Managing Data Entity Framework - Microsoft Word (Product Activation Failed)
MvcApplication2 - Microsoft Visual Studio
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'MvcApplication2' (1 project)
MvcApplication2
Properties
References
EntityFramework
EntityFramework.SqlServer
Microsoft.CSharp
Microsoft.Web.Infrastructure
Newtonsoft.Json
System
System.ComponentModel.DataAnnotations
System.Configuration
System.Core
Solution Explorer
Team Explorer
Class View
Properties
EntityFramework Reference Properties
Misc
(Name)
EntityFramework
Aliases
global
Copy Local
True
Culture
Description
EntityFramework.dll
Embed Interop Types
False
(Name)
Display name of the reference.
Ready
15:05
20-07-2019

Entity Framework approaches:

1) **database – first approach**

already having existing database (Entity framework uses database and generate model (.edmx) →this is xml file contains db structure and model related information.

Ex: database to .edmx

2) **Model – first approach**

If you have no database then choose model first approach.

Ex: .edmx to database

First create model by using entity frame work designer.(.edmx file)

3) **Code – first approach**

- **By coding custom classes and properties.**
- **To build database Without using .edmx (entity framework designer)**
- **If you don't have an existing database, you first create your own custom classes,and then the database is created from then automatically. If you change the model class → entity framework provides recreate database accordingly.**
- **If you have an existing database, generate the model class from existing database using reverse engineering tools.**
  (you can define class that map to the existing database)

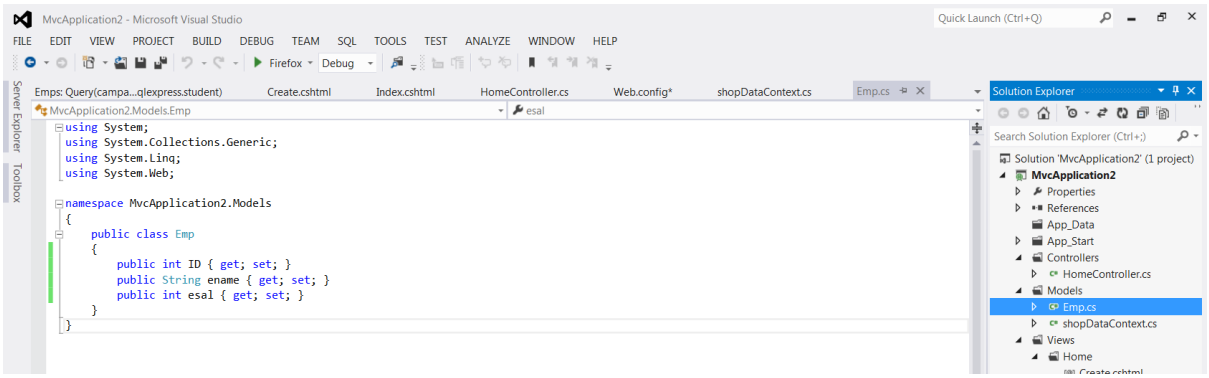
  Ex:
  Datamodel (.cs) -→ generate database
  Existing database → generate DataModel (.cs)

  Steps to create Code-First Approach (Entity framework)
  1. **Create the model class**
  2. **Create the database context**

3. **Configure the database location**
4. **Create a controller**

1) *Create a model class*

```
public class Customer
{
public int ID {get;set;}                                    //  ID is primary key automatically
                                                            // or use CustomerID (classname followed by ID)
public String Name {get;set;}
public String Gender{get;set;}
public String Address {get;set;}
public String Email{get;set;}
}
```



2) Create the Database Context

Header file: using System.Data.Entity; (DbContext)

The Context class coordinates with Entity Framework and allows you to query and save the data in the database.

(i.e automatically crate table and save the data into the database)

The DbContext class exposes(provide) the property DbSet<T>

Here T is represent object that needs to be stored in the database.

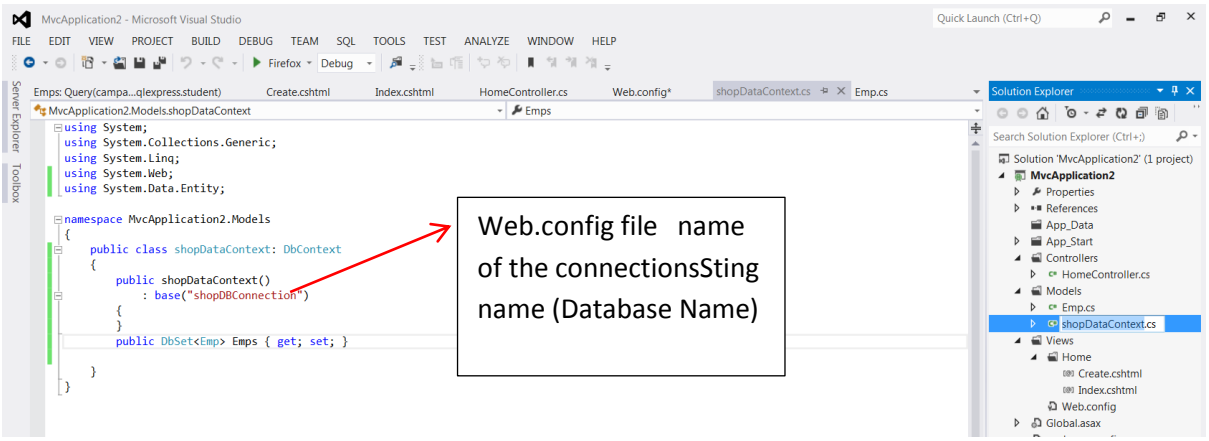
Ex:

Public class shopDataContext : DbContext

{

public DbSet<Customer> Customers {get;set;} // same as List<> in already saw previous section.

}



3) Configure The Database Location

Entity Framework automatically creates the database in SQL Server with the name of the database Context.

To configure the database location, you need to connection String in the **web.config**
Important connection string properties:

*) Data Source : ip address of the server or name of the server

*) Initial Catalog: name of the database

*) Integrated Security : true ,false and SSPI(Security Support Provider Interface).

Ex: Int egrated Security = false (sql server authentication needs to be used)

Ex: Integrated Security = true or SSPI (Windows authentication needs to be used)

*) Persist Security Info: false →discarded userID,password once used to open the connection.

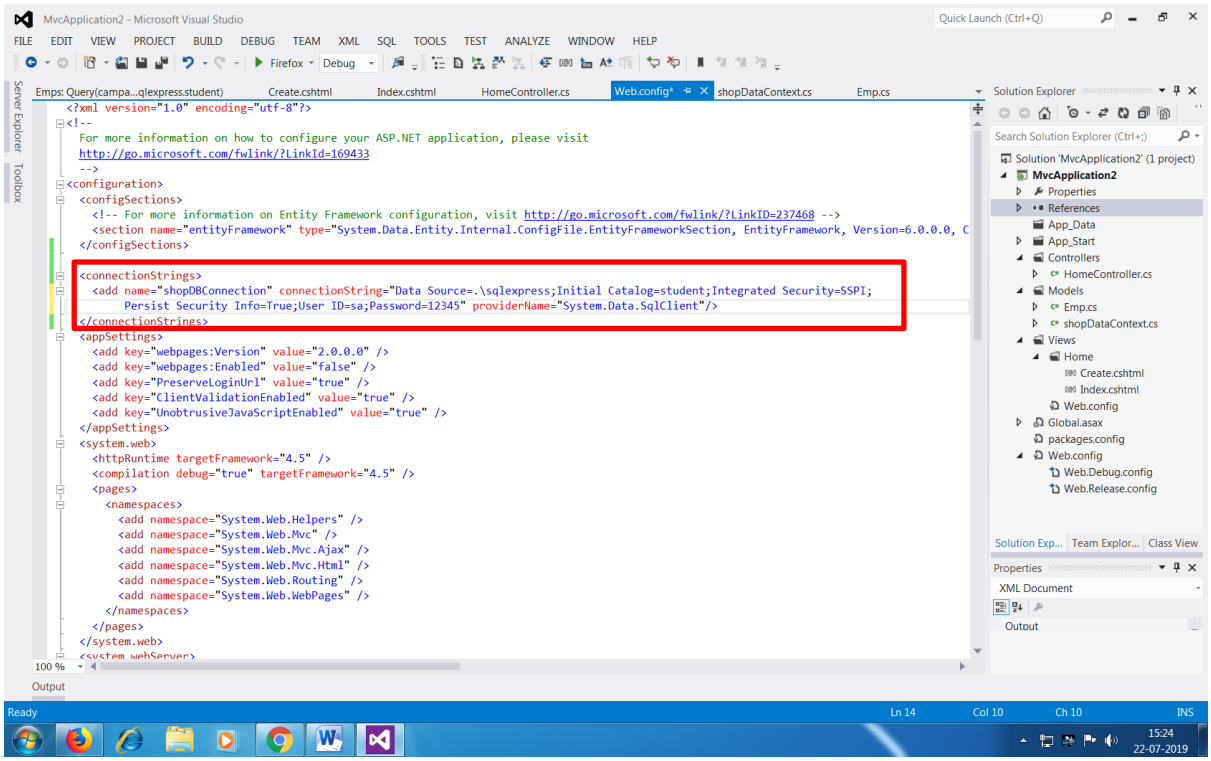
True→ userid,password optained after the connection opened.

*)attachDBFilename: gets or sets a string that contains the name of the primary data file.

*) providerName: optional . a class to communicate with a specific type of data source.

Ex: System.Data.SqlC lient

Web.config File(should be connectionString)



Afterwards , you can specify the connection string to be used by adding a constructor in the DbContext class. For example

Public class shopDataContext : DbContext

{

Public shopDataContext() : base (“connection string name in web.config file”)

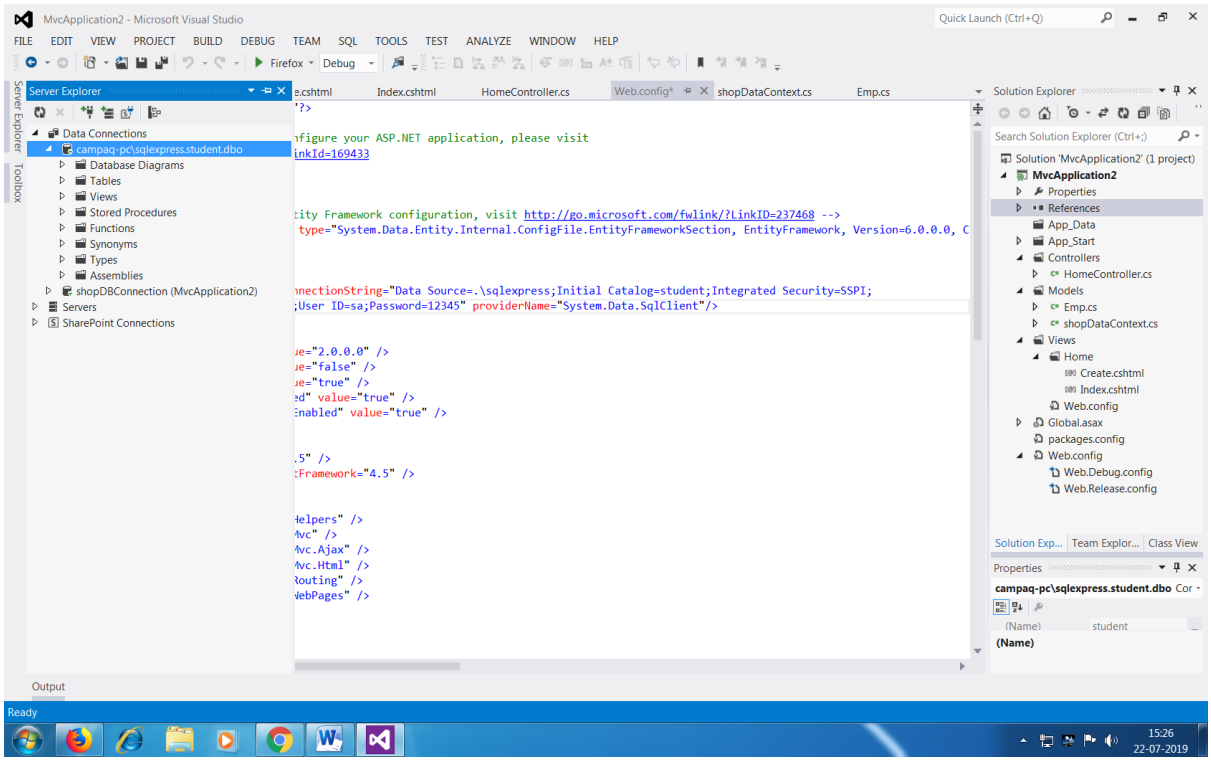
{}

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

}

// Here Customers is a Database Table. (automatically created when user create)

// Customer is Model



4) Creating a Controller

You can create a controller either by using scaffolding or by writing code manually.

Scaffolding automatically create controller & corresponding views.

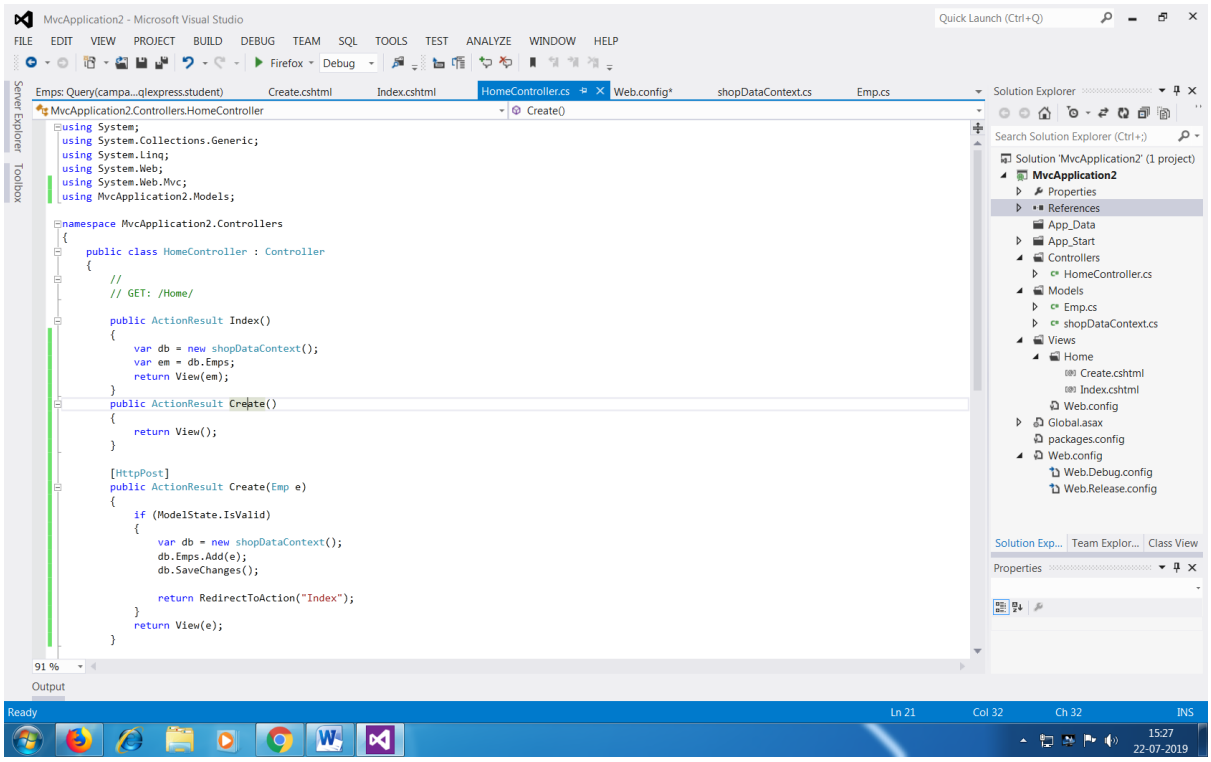
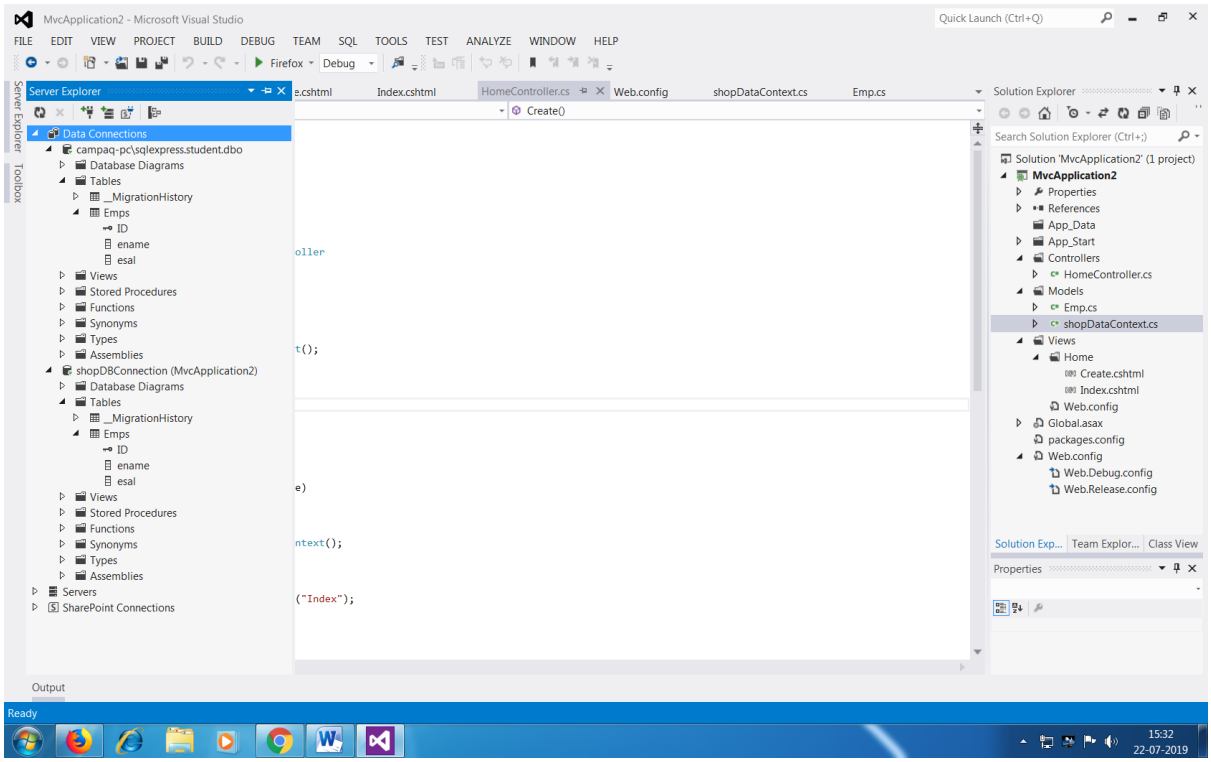
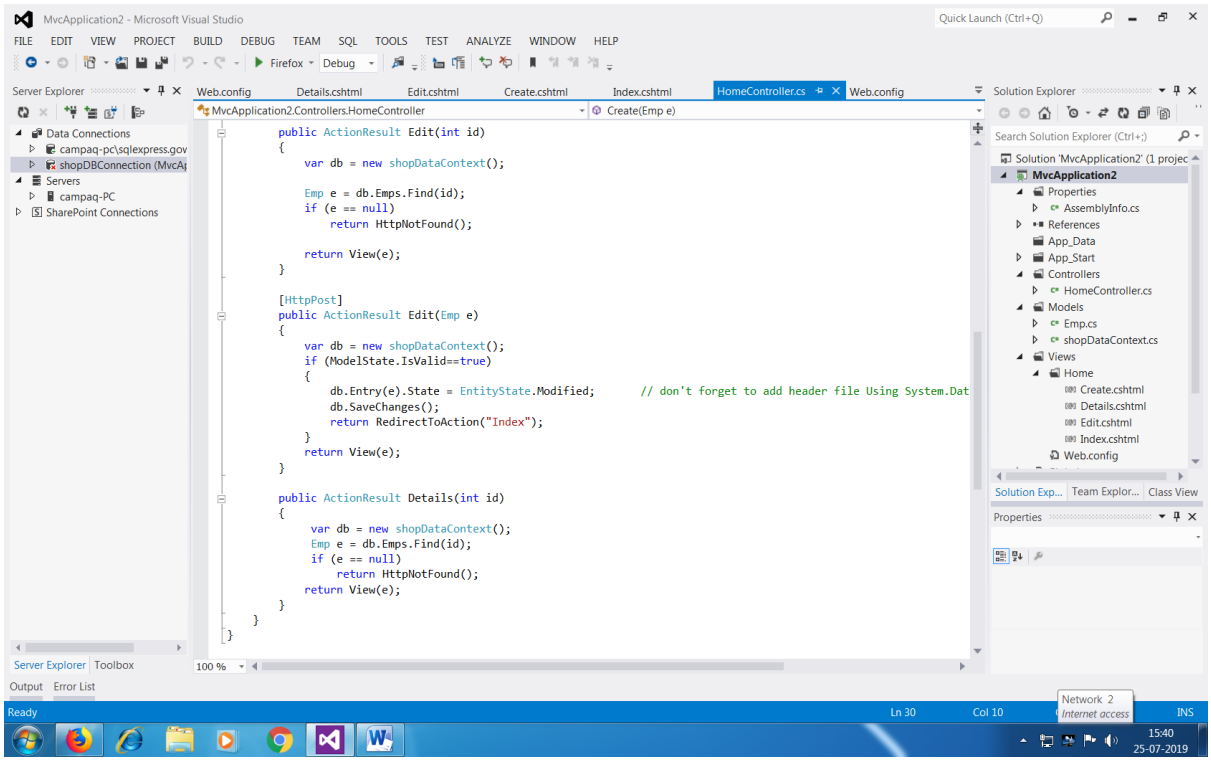
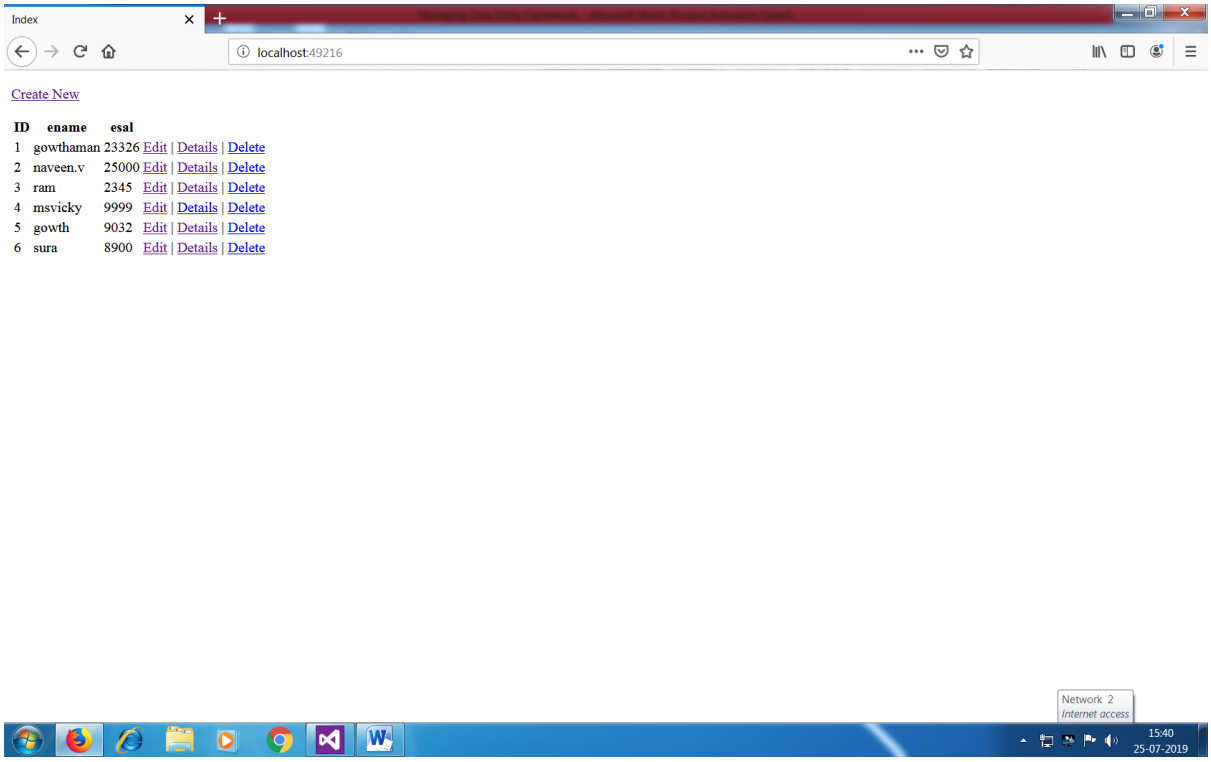


Table is automatically created:

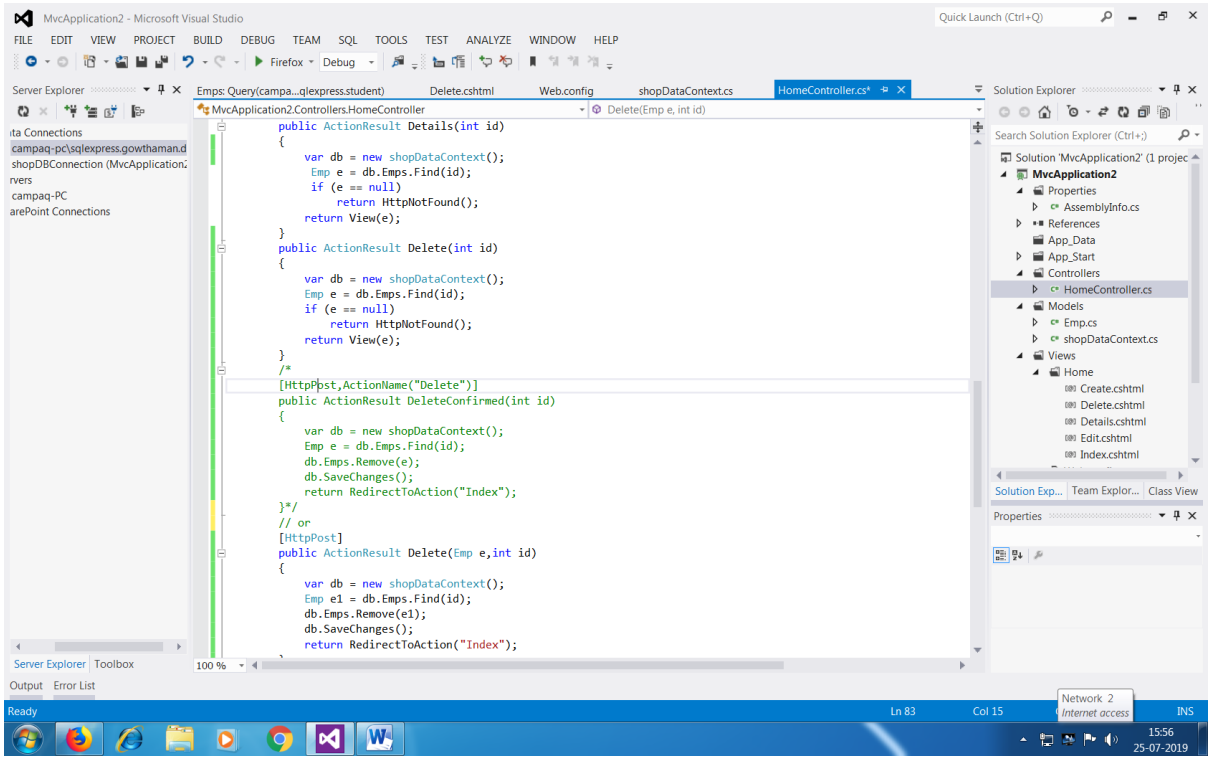


Edit Action Method in Controller:




Index
localhost:49216
Create New
ID ename esal
1 gowthaman 23326 Edit | Details | Delete
2 naveen.v 25000 Edit | Details | Delete
3 ram 2345 Edit | Details | Delete
4 msvicky 9999 Edit | Details | Delete
5 gowth 9032 Edit | Details | Delete
6 sura 8900 Edit | Details | Delete
Network 2
Internet access
15:40
25-07-2019

Delete


MvcApplication2 - Microsoft Visual Studio
Quick Launch (Ctrl+Q)
FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ANALYZE WINDOW HELP
Server Explorer
Emps: Query(campa...qlexpress.student)
Delete.cshtml
Web.config
shopDataContext.cs
HomeController.cs*
MvcApplication2.Controllers.HomeController
Delete(Emp e, int id)
Solution Explorer
Search Solution Explorer (Ctrl+;)
MvcApplication2
Properties
AssemblyInfo.cs
References
App_Data
App_Start
Controllers
HomeController.cs
Models
Emp.cs
shopDataContext.cs
Views
Home
Create.cshtml
Delete.cshtml
Details.cshtml
Edit.cshtml
Index.cshtml
public ActionResult Details(int id)
{
var db = new shopDataContext();
Emp e = db.Emps.Find(id);
if (e == null)
return HttpNotFound();
return View(e);
}
public ActionResult Delete(int id)
{
var db = new shopDataContext();
Emp e = db.Emps.Find(id);
if (e == null)
return HttpNotFound();
return View(e);
}
/*
[HttpPost,ActionName("Delete")]
public ActionResult DeleteConfirmed(int id)
{
var db = new shopDataContext();
Emp e = db.Emps.Find(id);
db.Emps.Remove(e);
db.SaveChanges();
return RedirectToAction("Index");
}*/
// or
[HttpPost]
public ActionResult Delete(Emp e,int id)
{
var db = new shopDataContext();
Emp e1 = db.Emps.Find(id);
db.Emps.Remove(e1);
db.SaveChanges();
return RedirectToAction("Index");
Server Explorer Toolbox
Output Error List
Ready
Ln 83
Col 15
INS
Network 2
Internet access
15:56
25-07-2019

Overall code: (controller)

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Mvc;
using System.Data.Entity;

using MvcApplication2.Models;

namespace MvcApplication2.Controllers
{
    public class HomeController : Controller
    {
        //
        // GET: /Home/

        public ActionResult Index()
        {
            var db = new shopDataContext();
            var em = db.Emps;
            return View(em);
        }
        public ActionResult Create()
        {
            return View();
        }

        [HttpPost]
        public ActionResult Create(Emp e)
        {
            if (ModelState.IsValid)
            {
                var db = new shopDataContext();
                db.Emps.Add(e);
                db.SaveChanges();

                return RedirectToAction("Index");
            }
            return View(e);
        }

        public ActionResult Edit(int id)
        {
            var db = new shopDataContext();

            Emp e = db.Emps.Find(id);
            if (e == null)
                return HttpNotFound();

            return View(e);
        }

        [HttpPost]
        public ActionResult Edit(Emp e)
        {
            var db = new shopDataContext();
            if (ModelState.IsValid==true)
            {
                db.Entry(e).State = EntityState.Modified;       // don't forget to add
header file Using System.Data.Entity;
```

```
                db.SaveChanges();
                return RedirectToAction("Index");
            }
            return View(e);
        }

        public ActionResult Details(int id)
        {
            var db = new shopDataContext();
             Emp e = db.Emps.Find(id);
             if (e == null)
                 return HttpNotFound();
            return View(e);
        }
        public ActionResult Delete(int id)
        {
            var db = new shopDataContext();
            Emp e = db.Emps.Find(id);
            if (e == null)
                return HttpNotFound();
            return View(e);
        }
        /*
        [HttpPost,ActionName("Delete")]
        public ActionResult DeleteConfirmed(int id)
        {
            var db = new shopDataContext();
            Emp e = db.Emps.Find(id);
            db.Emps.Remove(e);
            db.SaveChanges();
            return RedirectToAction("Index");
        }*/
        // or
        [HttpPost]
        public ActionResult Delete(Emp e,int id)
        {
            var db = new shopDataContext();
            Emp e1 = db.Emps.Find(id);
            db.Emps.Remove(e1);
            db.SaveChanges();
            return RedirectToAction("Index");
        }
    }
}
```

Overall code Models

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

namespace MvcApplication2.Models
{
    public class Emp
    {
        public int ID { get; set; }
        public String ename { get; set; }
        public int esal { get; set; }
    }
}
```

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Data.Entity;

namespace MvcApplication2.Models
{
    public class shopDataContext: DbContext
    {
        public shopDataContext()
            : base("shopDBConnection")
        {
        } public DbSet<Emp> Emps { get; set; }


    }
}
```

Reference:

https://www.youtube.com/watch?v=Z7713GBhi4k

https://www.youtube.com/watch?v=Lrr66APUwBk