Nama   : Renaldy Rizki Maulana
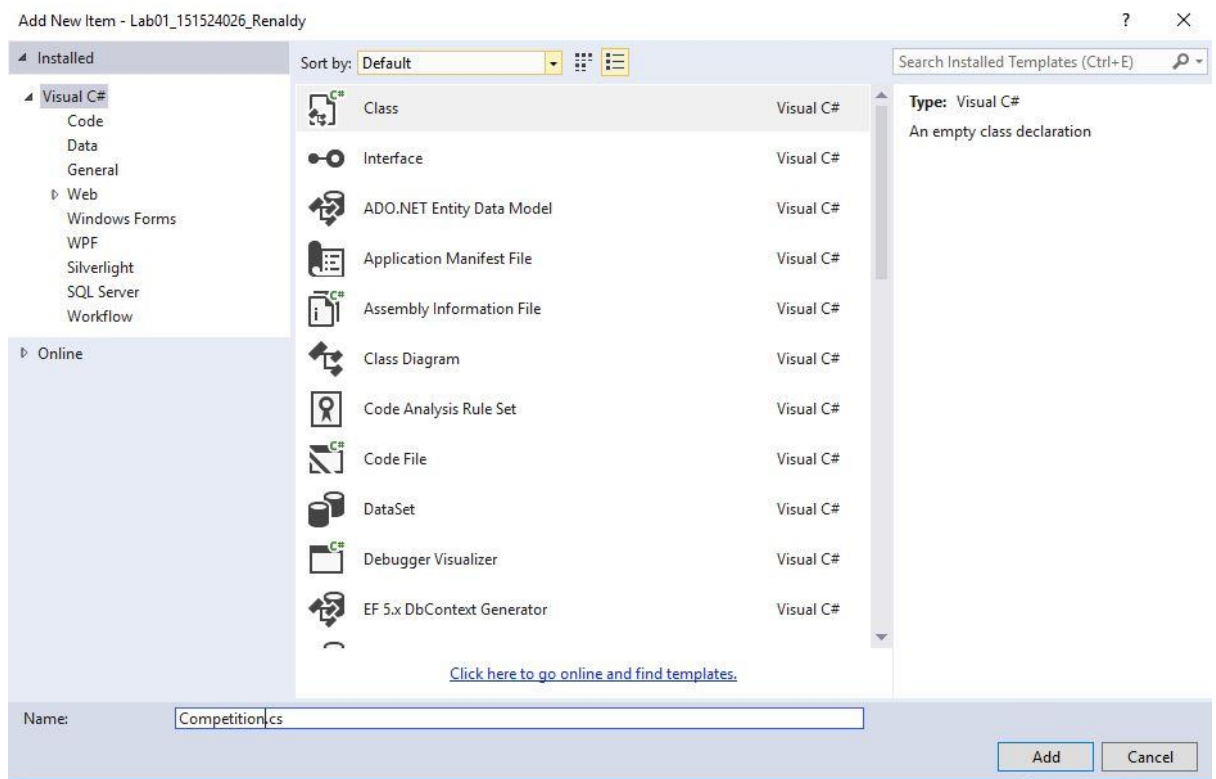
Nim   : 151524026

Tugas   : PLOO - Lab03

MANY TO MANY RELATIONSHIP - ENTITY FRAMEWORK ASP.NET MVC

Langkah – Langkah Pembuatan :

1. Gunakan project yang sebelumnya dibuat.
2. Buat class **Competition.cs** dengan cara klik kanan pada folder **Model** pilih menu **Add > Class… > Class** lalu beri nama **Competition.cs** seperti gambar dibawah :

Berikut source code dari class ini :

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel.DataAnnotations;
using System.ComponentModel.DataAnnotations.Schema;
using System.Linq;
using System.Web;

namespace Lab01_151524026_Renaldy.Models
{

    [Table("Competition")] //nama table

    public class Competition
    {
```

```csharp
        public Competition()
        {
            this.Members = new HashSet<Member>();
        }

        [Key]
        [DatabaseGenerated(DatabaseGeneratedOption.Identity)]
        public int CompetitionId { get; set; }

        [Required]
        [Display(Name = "Competition Name")]
        [StringLength(255)]
        public string CompetitionName { get; set; }

        [StringLength(255)]
        public string Location { get; set; }

        [Required]
        [Display(Name = "Start Date")]
        [DataType(DataType.Date)]
        [DisplayFormat(DataFormatString = "{0:yyyy-MM-dd}",
ApplyFormatInEditMode = true)]
        public DateTime StartDate { get; set; }

        [Required]
        [Display(Name = "End Date")]
        [DataType(DataType.Date)]
        [DisplayFormat(DataFormatString = "{0:yyyy-MM-dd}",
ApplyFormatInEditMode = true)]
        public DateTime EndDate { get; set; }

        [StringLength(225)]
        public string Description { get; set; }

        public virtual ICollection<Member> Members { get; set; }

    }
}
```

3. Tambahkan baris kode dibawah kedalam file **Models/LabModels.cs**

```csharp
        public virtual DbSet<Competition> Competition { get; set; }
```
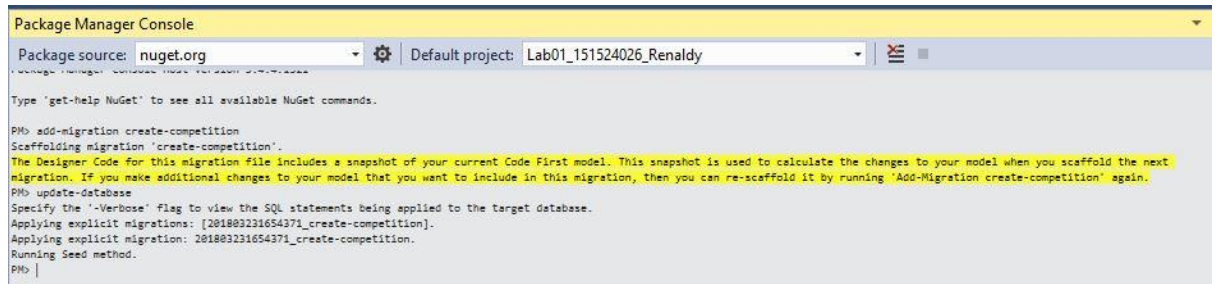
Lakukan rebuild setelah menyimpan kode diatas

Lalu buat migration untuk menambahan tabel competetition terlebih dahulu dengan cara :

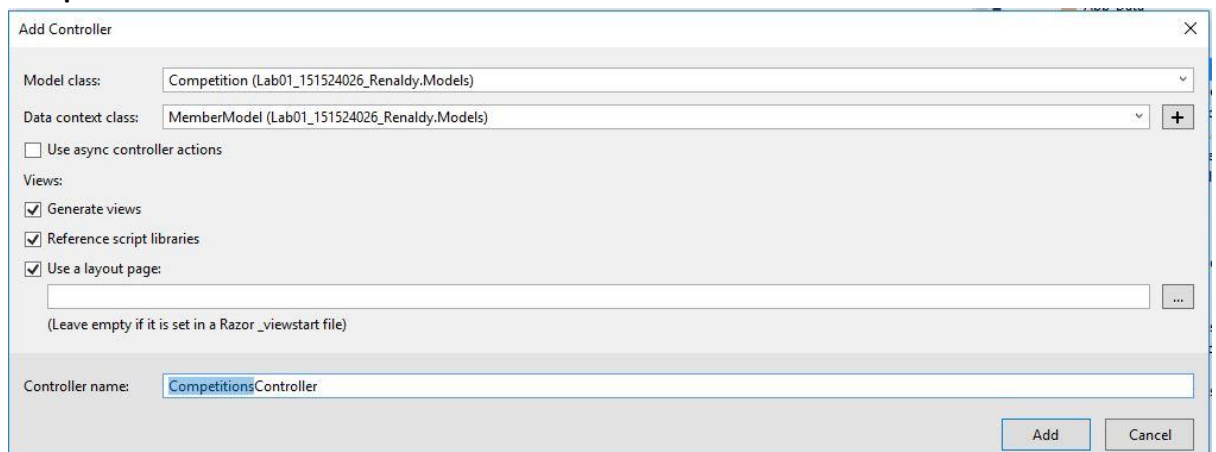> **add-migration AddCompetitionTable**
> **update-database**

4. Setelah itu buat master competition dengan membuat class controller **CompetitionController** dengan cara klik kanan pada folder Controllers pilih menu **Add > Controller... > MVC 5 Controller with views, using Entity Framework** lalu akan tampil seperti gambar di bawah dan sesuaikan, lalu beri nama controller dengan nama **CompetitionController**

5. Setelah itu uji fungsionalitas CRUD Master Competition dan sekarang membuat relationship many to many.

Buka file **Member.cs** pada folder **Models**, lalu tambah source code berikut:

```csharp
// Constructor
public Member()
{
    this.Competitions = new HashSet<Competition>();
}
..
..

..
// Many to many relationship
public virtual ICollection<Competition> Competitions { get; set; }
```

Buka file **Competition.cs** pada folder **Models**, lalu tambah source code berikut:

```csharp
// Constructor
public Competition()
{
    this.Members = new HashSet<Member>();
```

```
    }
    ..
    ..
    ..
    // Many to many relationship
    public virtual ICollection<Member> Members { get; set; }
```

6. Setelah itu, buka **Package Manager Console** pada menu **Tools > NuGet Package Manager > Package Manager Console**
   Ketik Add-Migration AddManyToManyMemberCompetition dan akan menghasilkan file baru pada folder Migrations.
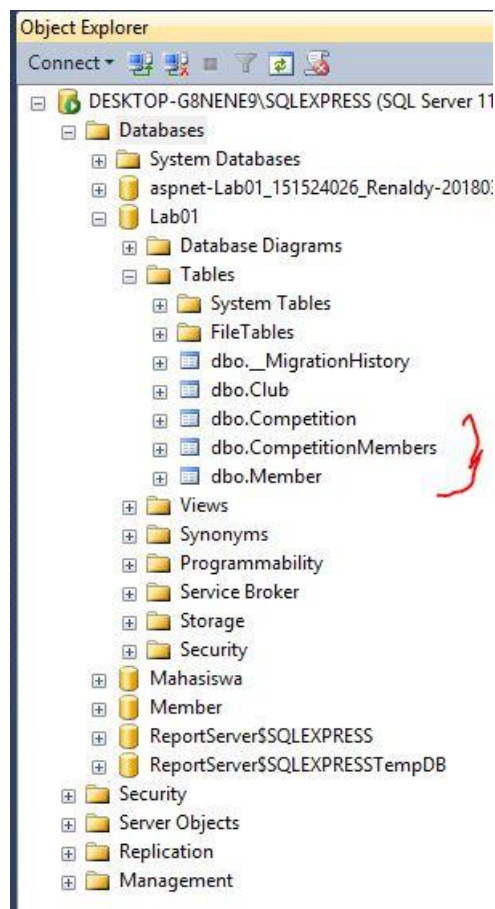   Setelah itu ketik kembali perintah Update-Database untuk mengubah struktur pada database.

7. Maka dalam database akan terbuat table baru (table turunan dari Members dan Competition) dikarenakan hubungan many-to-many seperti yang ditunjukan pada gambar dibawah ini:

Dalam table baru yang terbuat karena adanya hubungan many-to-many tersebut (CompetitionMembers) terdapat dua field yang berisi primary key dari kedua table induknya seperti yang digambarkan berikut ini:
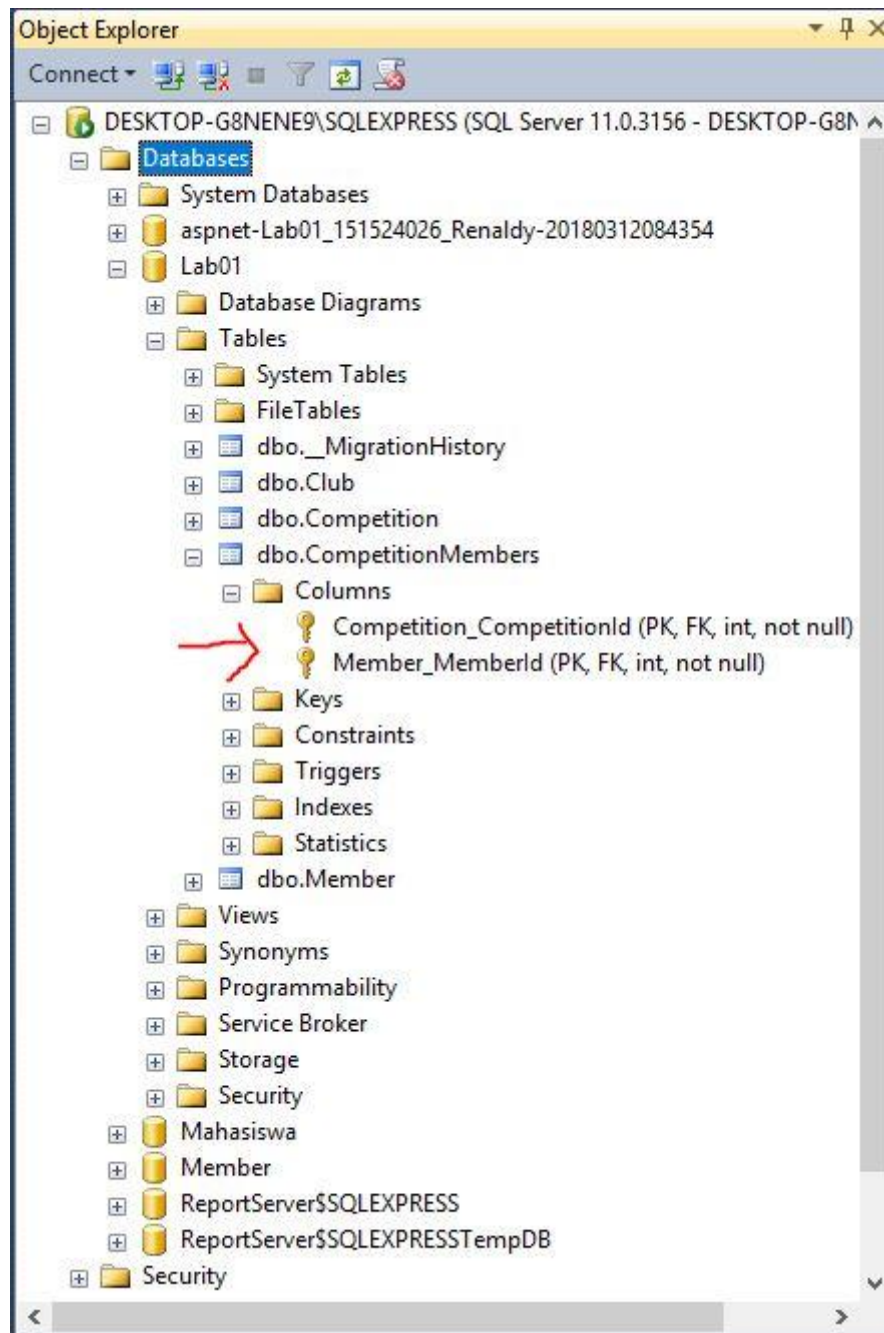
8. Buat sebuah class dalam folder model dengan nama **MemberCOmpetition.cs** dengan source code sebagai berikut :

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel.DataAnnotations;
using System.Linq;
using System.Web;
using System.Web.Mvc;
```

```
namespace Lab01_151524026_Renaldy.Models
{
    public class MemberCompetition
    {
        public Competition Competition { get; set; }

        [Display(Name = "Members")]
        public IEnumerable<SelectListItem> AllMembers { get; set; }

        private List<int> _selectedMembers;
        public List<int> SelectedMembers
        {
            get
            {
                if (_selectedMembers == null)
                {
                    _selectedMembers = Competition.Members.Select(m =>
m.MemberId).ToList();
                }
                return _selectedMembers;
            }
            set { _selectedMembers = value; }
        }
    }
}
```

9. Setelah itu buka file **Controllers/CompetitionController.cs** dan ubah pada method **[GET] Edit()** menjadi seperti source di bawah :

```
// GET: Competitions/Edit/5
        public ActionResult Edit(int? id)
        {
            if (id == null)
            {
                return new HttpStatusCodeResult(HttpStatusCode.BadRequest);
            }
            var memberCompetition = new MemberCompetition
            {
                Competition = db.Competition.Include(i => i.Members).First(i
=> i.CompetitionId == id)
            };


            if (memberCompetition.Competition == null)
            {
                return HttpNotFound();
            }
            var allmemberlist = db.Member.ToList();
            memberCompetition.AllMembers = allmemberlist.Select(m => new
SelectListItem
            {
                Text = m.FirstName,
                Value = m.MemberId.ToString()
            });

            return View(memberCompetition);
        }

        // POST: Competitions/Edit/5
        // To protect from overposting attacks, please enable the specific
properties you want to bind to, for
        // more details see http://go.microsoft.com/fwlink/?LinkId=317598.
```

```
        [HttpPost]
        [ValidateAntiForgeryToken]
        public ActionResult Edit(MemberCompetition memberCompetition)
        {
            if (memberCompetition == null) return new
HttpStatusCodeResult(HttpStatusCode.BadRequest);

            if (ModelState.IsValid)
            {
                var competitionToUpdate = db.Competition
                    .Include(c => c.Members).First(c => c.CompetitionId ==
memberCompetition.Competition.CompetitionId);

                if (TryUpdateModel(competitionToUpdate, "Competition", new
string[] { "Name", "Location", "StartDate", "EndDate", "Description",
"CompetitionId" }))
                {
                    var newMembers = db.Member.Where(
                        m =>
memberCompetition.SelectedMembers.Contains(m.MemberId)).ToList();
                    var updatedMembers = new
HashSet<int>(memberCompetition.SelectedMembers);

                    foreach (Member member in db.Member)
                    {
                        if (!updatedMembers.Contains(member.MemberId))
                        {
                            competitionToUpdate.Members.Remove(member);
                        }
                        else
                        {
                            competitionToUpdate.Members.Add((member));
                        }
                    }
                    db.Entry(competitionToUpdate).State =
System.Data.Entity.EntityState.Modified;
                    db.SaveChanges();
                }

                return RedirectToAction("Index");
            }
            return View(memberCompetition);
        }
```

10. Lalu buka **Views/Competition/Edit.cshtml** dan lakukan perubahan seperti berikut :

Line	Before	After
1	@model Lab01_151524026_Renaldy.Models.Competition	@model Lab01_151524026_Renaldy.Models.MemberCompetition

Tambahkan source code dibawah di atas component button save

```
<div class="form-group">
            @Html.LabelFor(model => model.AllMembers, htmlAttributes: new{
@class = "control-label col-md-2"})
            <div class="col-md-10">
                @Html.ListBoxFor(m => m.SelectedMembers, Model.AllMembers,
new { @class = "form-control" })
                @Html.ValidationMessageFor(model => model.AllMembers, "", new
{ @class = "text-danger" })
            </div>
        </div>
```

```
<div class="form-group">
    @Html.LabelFor(model => model.Competition.Description, htmlAttributes: new { @class = "control-label col-md-2" })
    <div class="col-md-10">
        @Html.EditorFor(model => model.Competition.Description, new { htmlAttributes = new { @class = "form-control" } })
        @Html.ValidationMessageFor(model => model.Competition.Description, "", new { @class = "text-danger" })
    </div>
</div>

<div class="form-group">
    @Html.LabelFor(model => model.AllMembers, htmlAttributes: new{ @class = "control-label col-md-2"})
    <div class="col-md-10">
        @Html.ListBoxFor(m => m.SelectedMembers, Model.AllMembers, new { @class = "form-control" })
        @Html.ValidationMessageFor(model => model.AllMembers, "", new { @class = "text-danger" })
    </div>
</div>

<div class="form-group">
    <div class="col-md-offset-2 col-md-10">
        <input type="submit" value="Save" class="btn btn-default" />
    </div>
</div>
    </div>
</div>
```

11. Buka file Views/Competition/Details.cshtml dan tambahkan baris code dibawah

```
<dd>
        <ul>
            @foreach (var itemMember in Model.Members)
            {
                <li>@itemMember.FirstName @itemMember.LastName</li>
            }
        </ul>
    </dd>
```

```
<dt>
    @Html.DisplayNameFor(model => model.Description)
</dt>

<dd>
    @Html.DisplayFor(model => model.Description)
</dd>

<dt>
    @Html.DisplayNameFor(model => model.Members)
</dt>

<dd>
    <ul>
        @Foreach (var itemMember in Model.Members)
        {
            <li>@itemMember.FirstName @itemMember.LastName</li>
        }
    </ul>
</dd>

    </dl>
</div>
```

12. Setelah itu run program dan buka pada browser. Arahkan ke halaman edit competition seperti berikut :

Application name   Home About Contact   Register Log in

Edit
Competition

Competition Name	Adu Panco
Location	Ciwaruga
Start Date	05/14/2018
End Date	05/15/2018
Description	Adu Panco satu lawan satu
Members	Renaldy / Ferdhika / Ujang / Ridwan

Save

Back to List

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13. Dan ini tampilan detail competition :

Application name   Home About Contact   Register Log in

Details
Competition

Competition Name	Adu Panco
Location	Ciwaruga
Start Date	2018-05-14
End Date	2018-05-15
Description	Adu Panco satu lawan satu
Members	• Renaldy Rizki Maualan • Ferdhika Yudhira

Edit | Back to List

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