Web Application Programming Interface (API)

Tahaluf Training Center 2021

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Chapter 06

Filtering is a mechanism to retrieve results by providing some kind of criterium. We can write many kinds of filters to get the results by type of class property, value range, date range or anything else.

When implementing filtering, you are always restricted by the predefined set of options you can set in your request.

When searching for results you usually have only one input and that's the one you use to search for anything within a website.

So in other words, you send a string to the API, and API is responsible for using that string to find any results that match it.

On our car website, we would use the search field to find the "Ford Expedition" car model, and we would get all the results that match the car name "Ford Expedition". This would return every "Ford Expedition" car available.

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Chapter 06

1 Overview of Filtering Data

2 Overview of Data Transfer Objects (DTOs)

3 Create Search Procedure

4 Create Data Transfer Objects (DTOs)

5 Filtering Data in ASP.NET Web API

Overview of Data Transfer Objects (DTOs)

A Data Transfer Objects used as a container to encapsulate data and pass it from one layer of the application to another. You would typically find DTOs being used in the service layer to return data back to the presentation layer. The biggest advantage of using DTOs is decoupling clients from your internal data structures.

Why use Data Transfer Objects (DTOs)?

When designing and developing an application, if you're using models to pass data between the layers and sending data back to the presentation layer, then you're exposing the internal data structures of your application. That's a major design flaw in your application.

By decoupling your layers DTOs make life easier when you're implementing APIs, MVC applications, and also messaging patterns such as Message Broker. A DTO is a great choice when you would like to pass a lightweight object across the wire — especially when you're passing your object via a medium that is bandwidth-constrained.

Use DTOs for abstraction

You can take advantage of DTOs to abstract the domain objects of your application from the user interface or the presentation layer. In doing so, the presentation layer of your application is decoupled from the service layer. So if you would like to change the presentation layer, you can do that easily while the application will continue to work with the existing domain layer. Similarly, you can change the domain layer of your application without having to change the presentation layer of the application.

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Chapter 06

1 Overview of Filtering Data

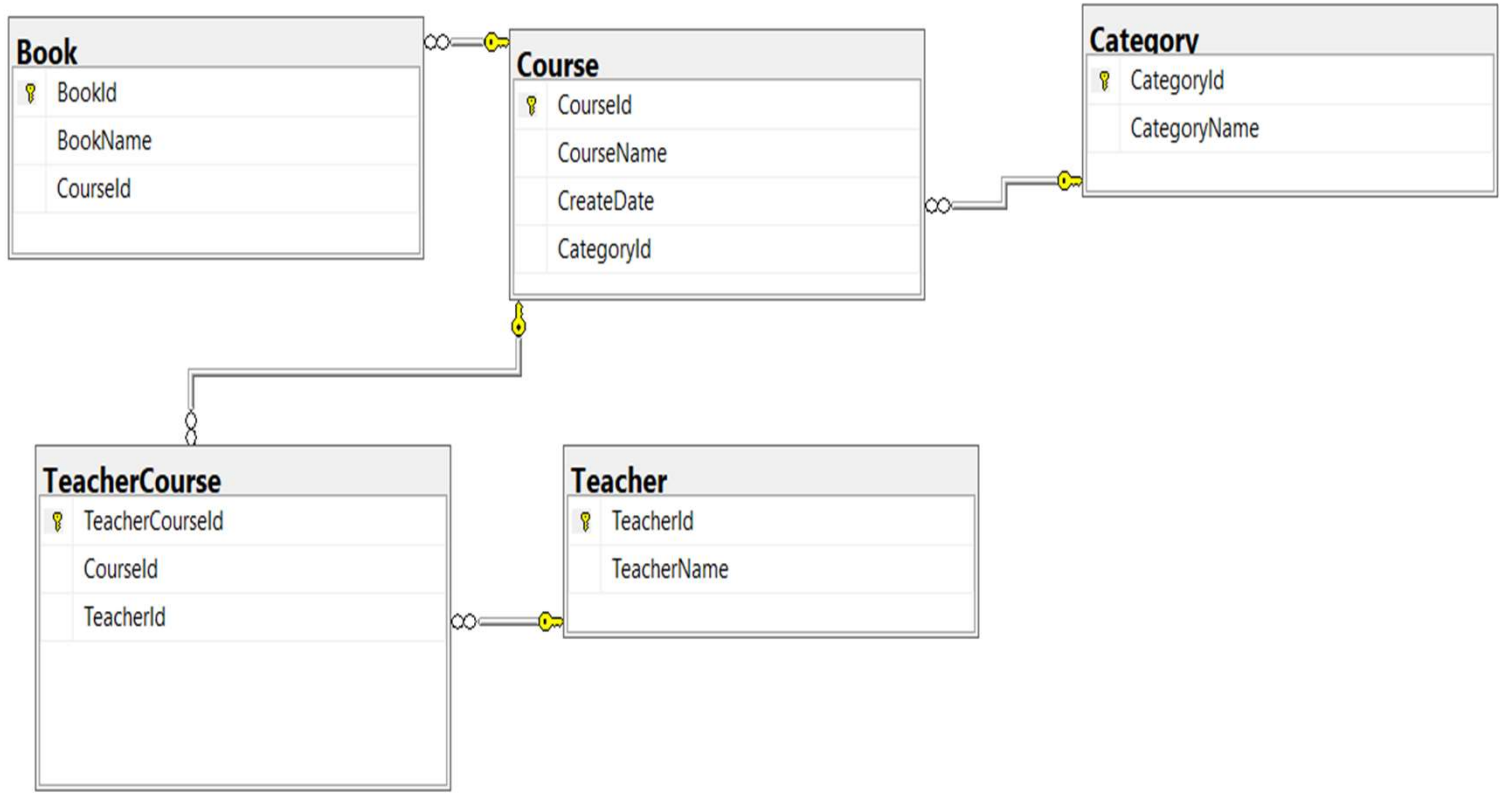
2 Overview of Data Transfer Objects (DTOs)

3 Create Search Procedure

4 Create Data Transfer Objects (DTOs)

5 Filtering Data in ASP.NET Web API

Create Search Procedure



Search Procedure Code:

```
CREATE PROCEDURE SearchCourse
@CourseName varchar(50) null,
@DateFrom DateTime null,
@DateTo DateTime null,
@CategoryName varchar(50) null

AS
BEGIN
SELECT
C.CourseId,
C.CourseName,
C.CreateDate,
Ca.CategoryId
```

```
FROM Course AS C
INNER JOIN Category AS Ca ON C.CategoryId = Ca.CategoryId
WHERE (@CourseName IS NULL OR C.CourseName LIKE '%' +
@CourseName + '%')
AND (@CategoryName IS NULL OR Ca.CategoryName LIKE '%' +
@CategoryName + '%')
AND (@DateFrom IS NULL OR @DateTo = null OR C.CreateDate
BETWEEN @DateFrom AND @DateTo)
END
GO
```

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Chapter 06

1 Overview of Filtering Data

2 Overview of Data Transfer Objects (DTOs)

3 Create Search Procedure

4 Create Data Transfer Objects (DTOs)

5 Filtering Data in ASP.NET Web API

Right Click on Tahaluf.LMS.Core => Add New Folder => Name: DTO.

Right Click on DTO => Add Class => Name: CourseDTO => Write the following Code into class.

Class Course Code:

```
public class Course
{
    public int CourseId { get; set; }
    public string CourseName { get; set; }
    public DateTime CreateDate { get; set; }
    public string CategoryId { get; set; }

}
```

Class CourseDTO Code:

```
public class CourseDTO
{
    public string CourseName { get; set; }
    public DateTime? DateFrom { get; set; }
    public DateTime? DateTo { get; set; }
    public string CategoryName { get; set; }

}
```

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Chapter 06

1 Overview of Filtering Data

2 Overview of Data Transfer Objects (DTOs)

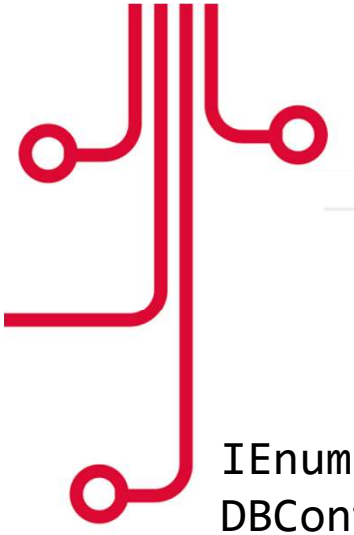
3 Create Search Procedure

4 Create Data Transfer Objects (DTOs)

5 Filtering Data in ASP.NET Web API

CourseRepository Code:

```
public List<Course> Search(CourseDTO courseDTO)
{
var p = new DynamicParameters();
p.Add("@CourseName", courseDTO.Name, dbType:
DbType.String, direction: ParameterDirection.Input);
p.Add("@CategoryName", courseDTO.CategoryName, dbType:
DbType.String, direction: ParameterDirection.Input);
p.Add("@DateFrom", courseDTO.DateFrom, dbType:
DbType.Date, direction: ParameterDirection.Input);
p.Add("@DateTo", courseDTO.DateTo, dbType: DbType.Date,
direction: ParameterDirection.Input);
}
```



Filtering Data in ASP.NET Web API

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

```
IEnumerable<Course> result =
DBContext.Connection.Query<Course>(“CourseSearch", p,
commandType: CommandType.StoredProcedure);
return result.ToList();}
```

CourseService Code:

```
public List<Course> Search(CourseDTO courseDTO)
{
return CourseRepository.Search(courseDTO);
}
```

ICourseRepository Code:

```
List<Course> Search(CourseDTO courseDTO);
```

ICourseService Code:

```
List<Course> Search(CourseDTO courseDTO);
```

CourseController Code:

```
[HttpPost]
[Route("CourseSearch")]
[ProducesResponseType(typeof(Course),
StatusCodes.Status200OK)]
[ProducesResponseType(typeof(Course),
StatusCodes.Status400BadRequest)]
public List<Course> Search([FromBody] CourseDTO courseDTO)
{
    return CourseService.Search(courseDTO);
}
```

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Chapter 07

1 Create Stored Procedure

2 Get Component using other Component

```
CREATE PROCEDURE GetAll
AS
SELECT C.CourseId , C.CourseName, B.BookId, B.BookName
FROM Course AS C
INNER JOIN Book AS B ON B.CourseId = C.CourseId
```