Entity Framework ASP.NET Web Application

Preface

This document was intended for.NET framework and not for .NET core.

Further documentation can be found here:

https://docs.microsoft.com/en-us/ef/ef6/get-started

Step 1

Create a new ASP.NET Web Application (.NET Framework)

Step 2

Create a new database project

Step 3

Install Entity Framework

Step 4

Create Tables & Foreign Keys

Step 5

Create Entity Data Model

Step 6

Create a Controller & Test Controller using Postman

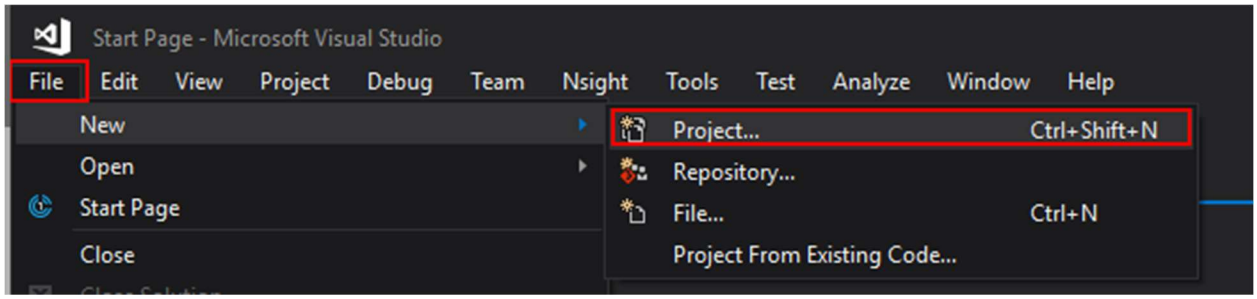
Notes

See end of document for additional notes

Step 1

Create a new ASP.NET Web Application (.NET Framework)

1. Create a new solution
    a. **File** > **New** > **Project**



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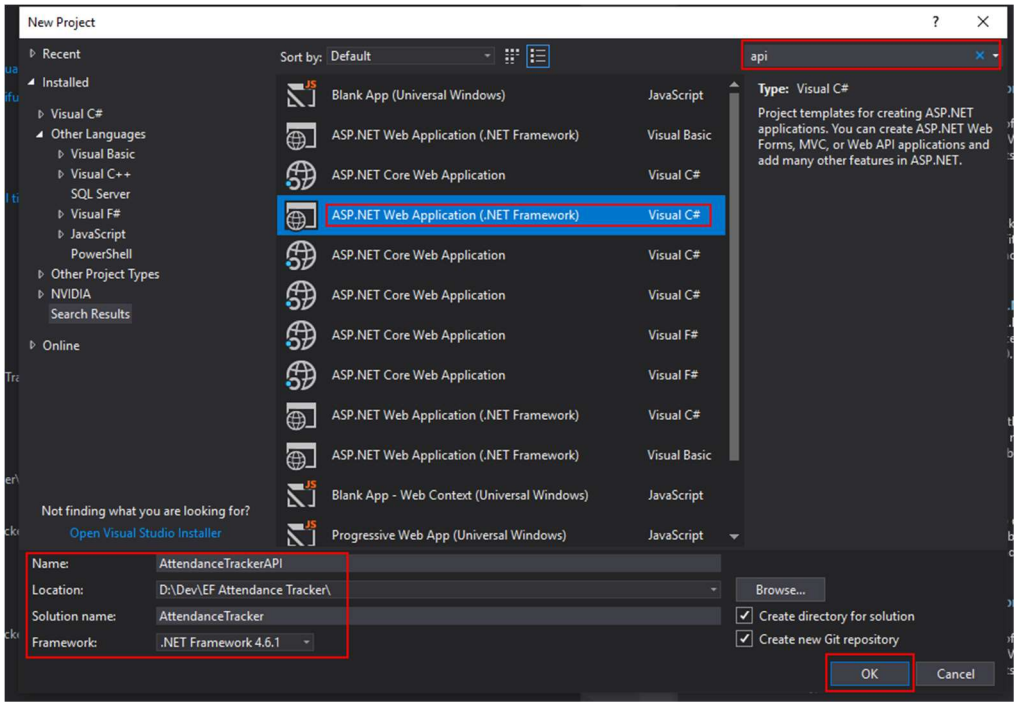
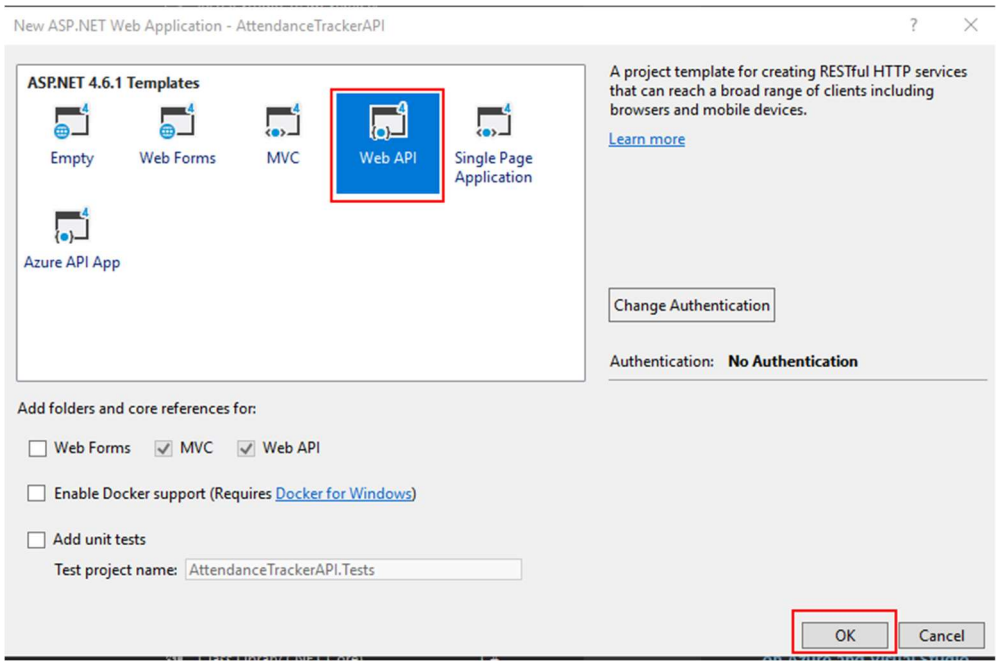
2. Create a ASP.NET Web Application (.NET Framework)
    b. Search *API*
    c. Click on ASP.NET web app for C#
    d. Name the Web Application
    e. Select location
    f. Name your solution
    g. Press OK



3. Select Web API template and press OK



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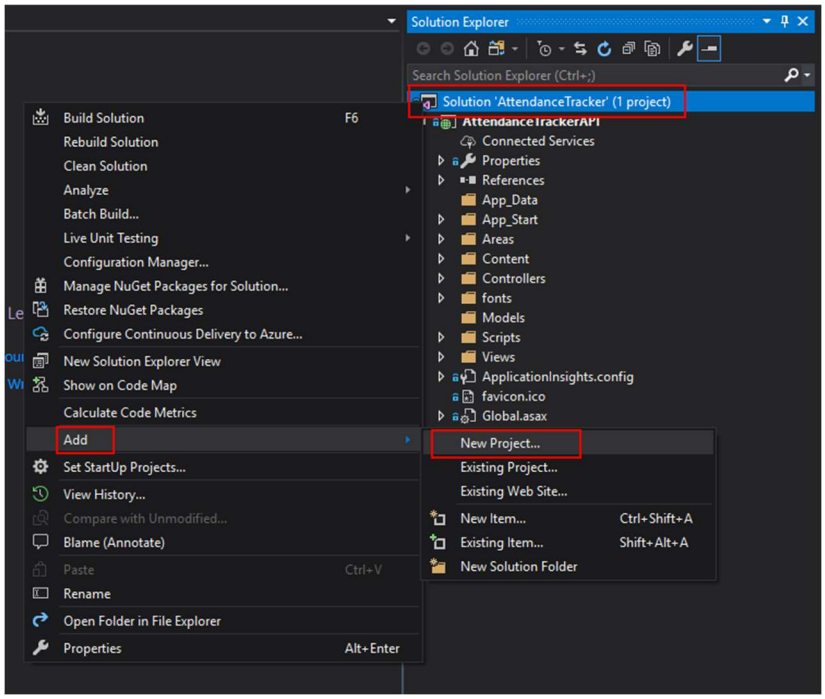
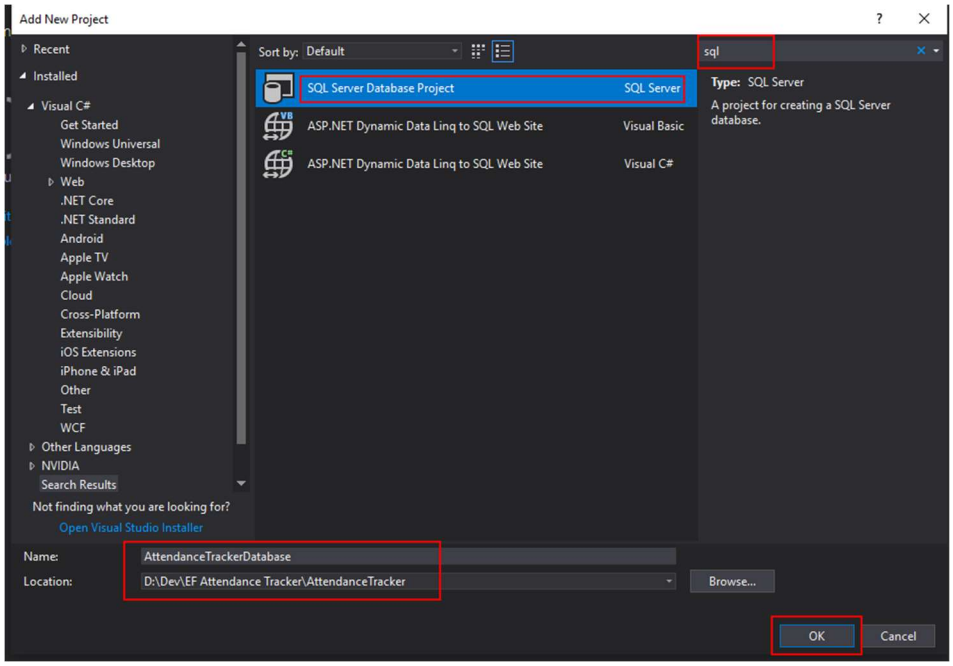
Step 2

Create a new database project

1. Add a new database project
    a. Right click on the **Solution** > **Add** > **New Project**
    b. Search for *SQL*
    c. Select SQL Server Database Project
    d. Name the Database
    e. Press OK





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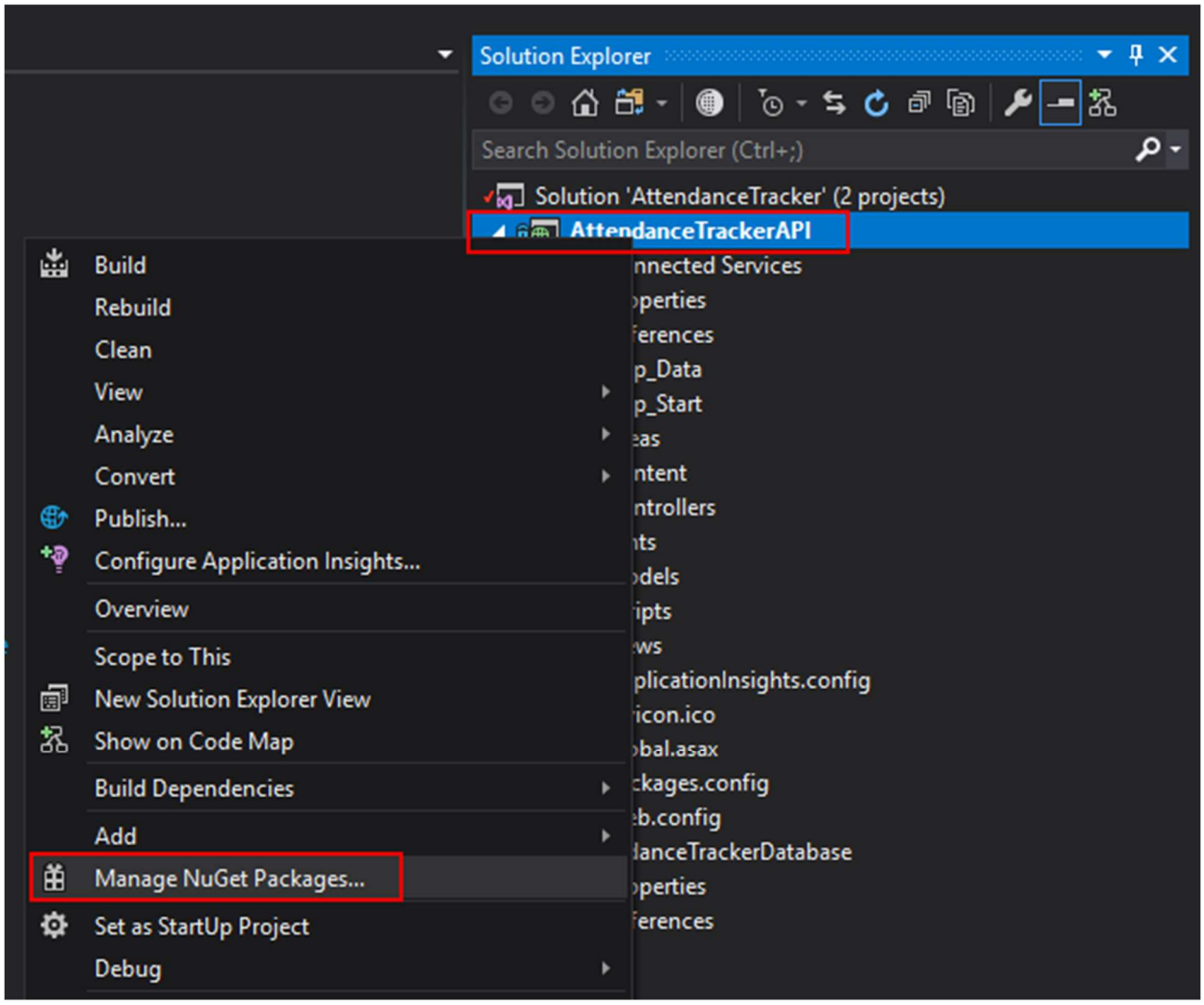
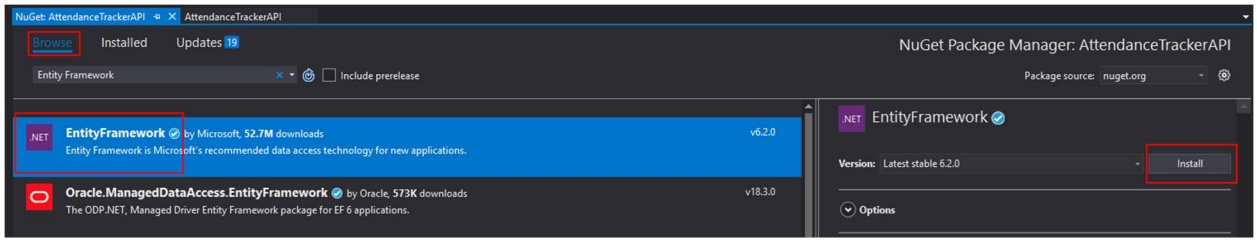
Step 3

Install Entity Framework

1. Add Entity Framework to your ASP.NET Web Application
    a. Right click on the **Project** > **Manage NuGet Packages**
    b. Select browse
    c. Search for *Entity Framework*
    d. Select Entity Framework and Install
    e. Accept the License





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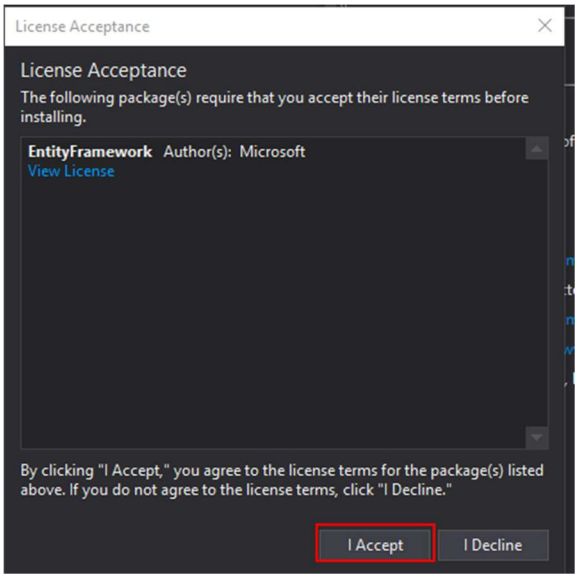
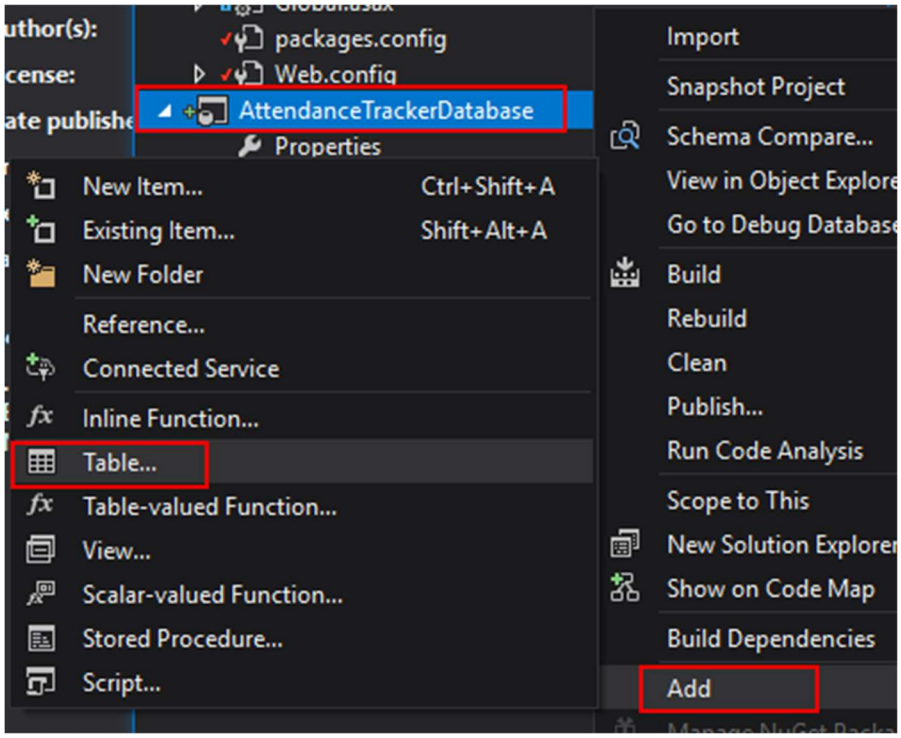


Step 4

Create Tables & Foreign Keys

1. Create some Database Tables
    a. Right click on the D**atabase Project** > **Add** > **Table**
    b. Select Table
    c. Name Table
    d. Press Add



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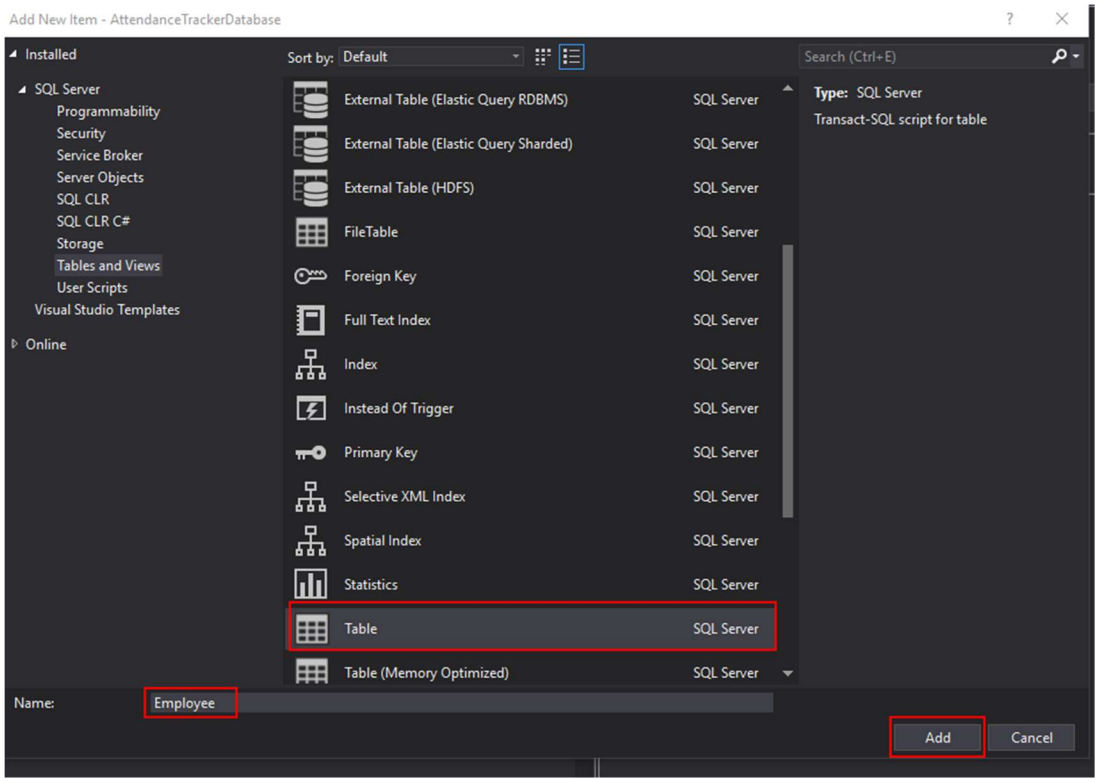
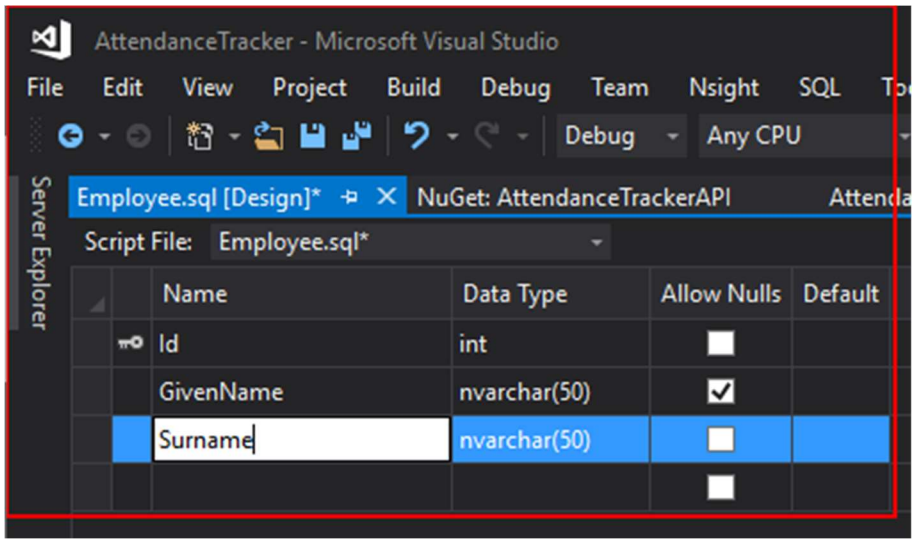


2. The table designer will open, this is where you can add columns into the table
    a. Click on a blank field to add new column headers to the table
    b. Select the appropriate data type
        i. nvarchar will dynamically size
        ii. nchar will add white space to the field value until 10 characters are in total. For example:
        Suppose GivenName has a value of "Bill" that's 4 characters,
        however, nchar adds 6 whitespace characters the result will be "Bill "
    c. Make any other necessary changes



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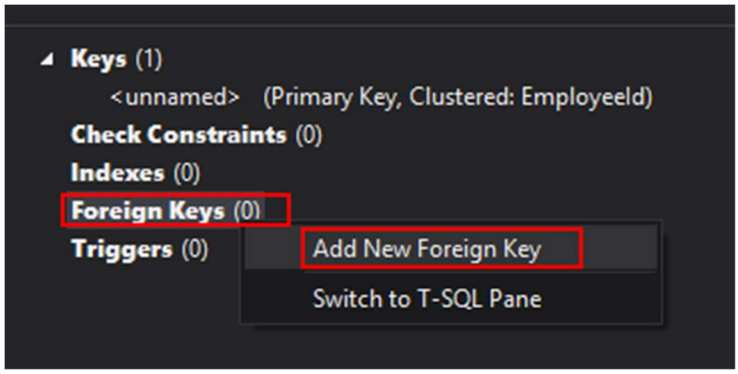
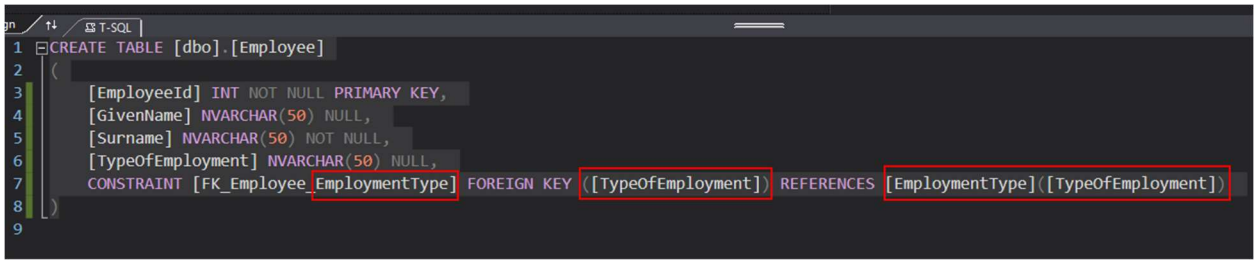
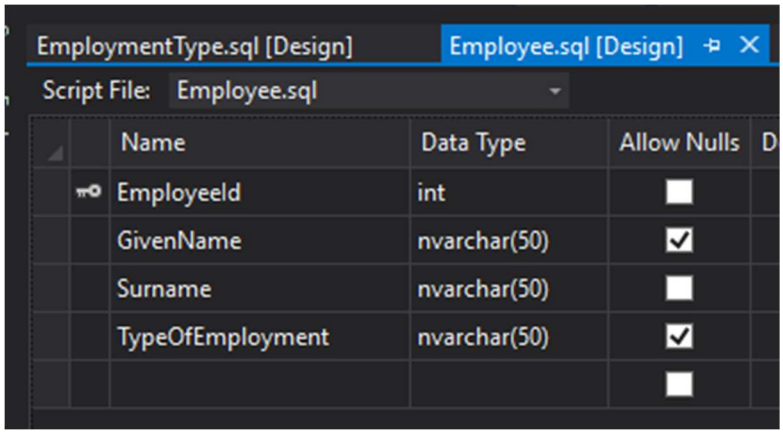
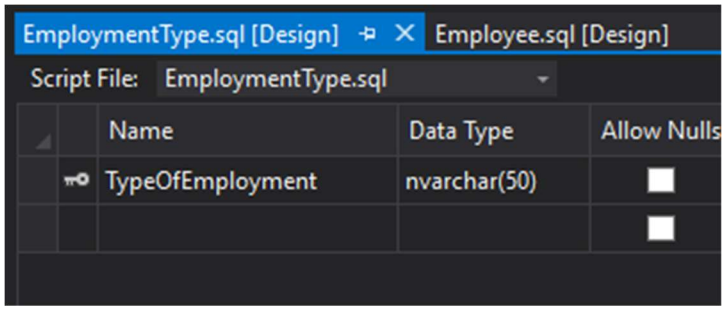
3. Once you have 2 tables created you can create a foreign key constraint
    a. Right click on **Foreign Keys** > **Add New Foreign Key**
    b. Press Enter
    c. Update the T-SQL
        i. CONSTRAINT = Foreign key name
        ii. FOREIGN KEY = Column name
        iii. REFERENCES = Table and Primary Key









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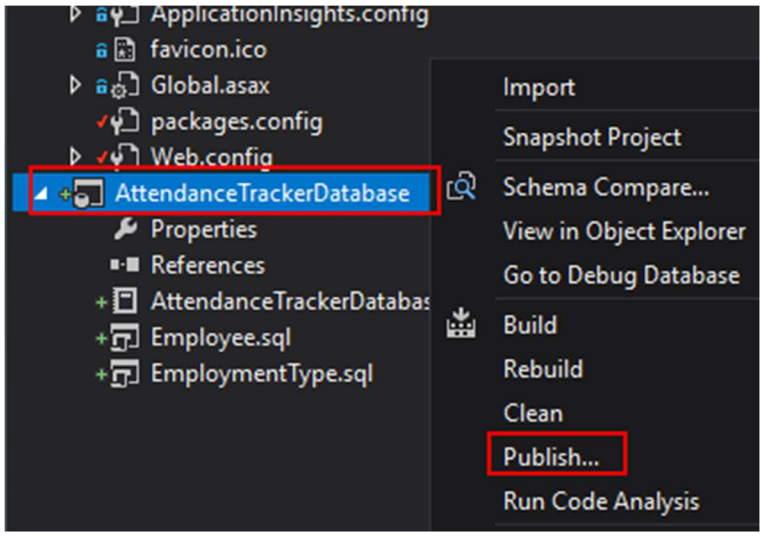
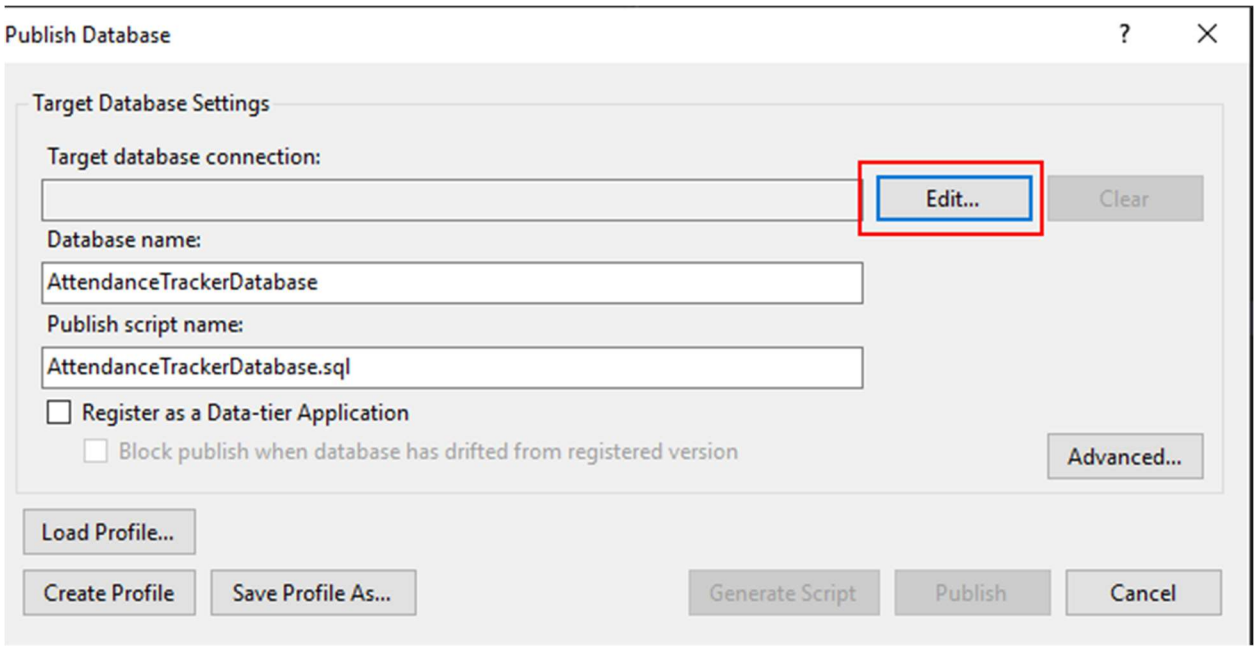
4. Publish the Database
    a. Right click on the **Database Project** > **Publish**
    b. Press Edit
    c. Select **Browse** > **Local** > **ProjectsV13**
    d. Select the Database name from the drop-down menu
    e. Press OK
    f. Confirm Database name is correct
    g. Press Publish





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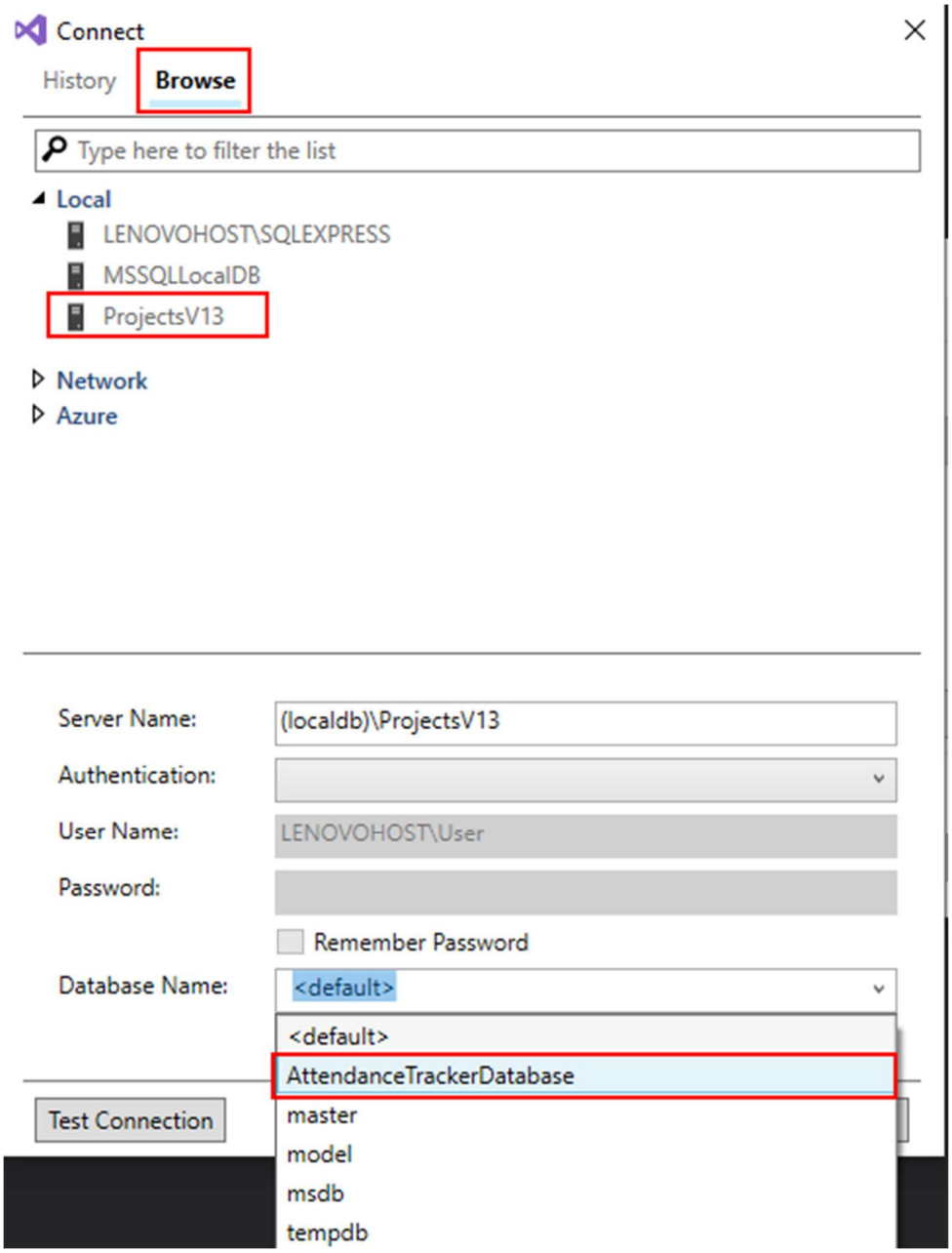

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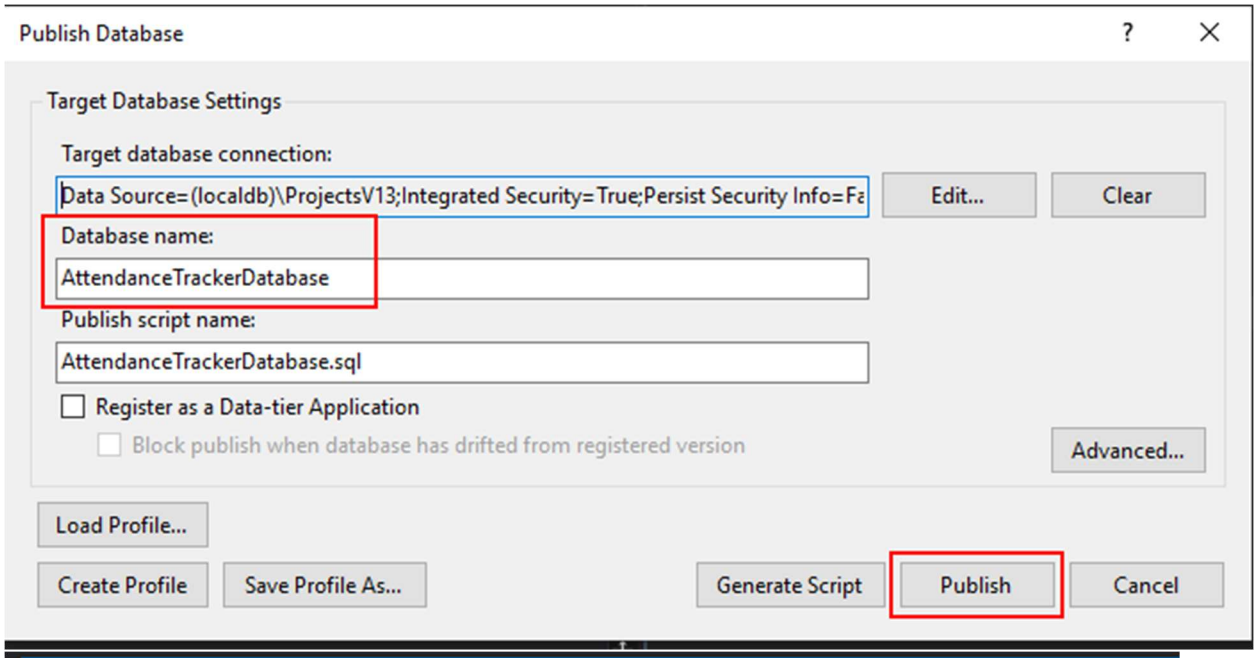

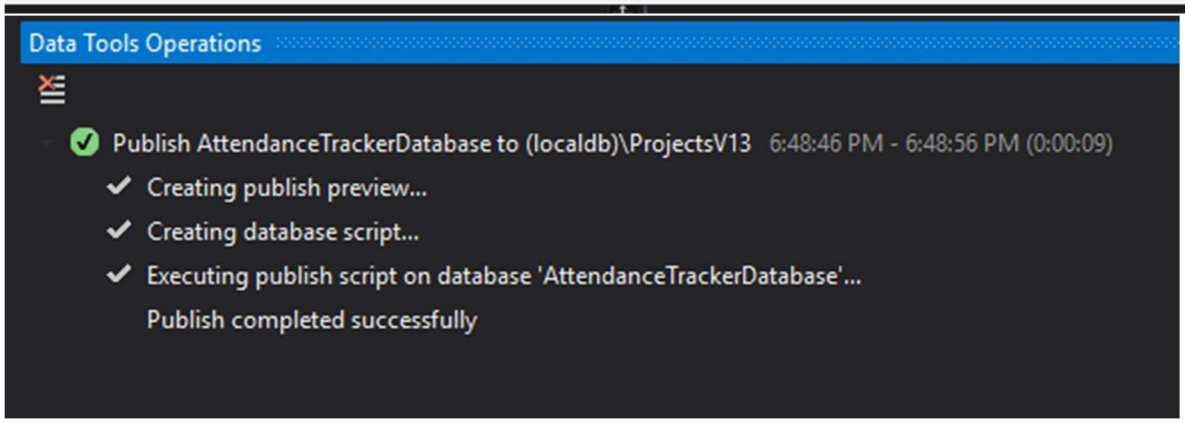

Step 5

Create Entity Data Model

1. Right click on the **Model** folder in the Web App Project > **Add** > **New Item**
2. Search *Model*
3. Select **ADO.NET Entity Data Model** > **name model** > **press Add**
4. Select EF Designer from database and press Next
5. From the drop-down menu select the Database and press Next
6. Confirm your tables are all visible
7. Press Finish

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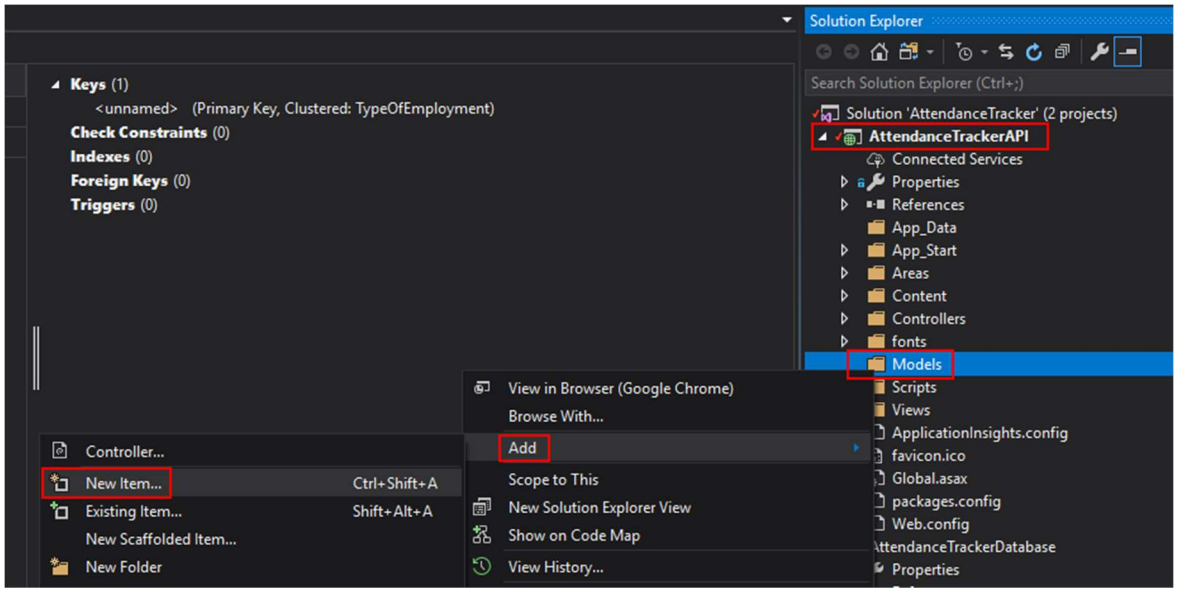

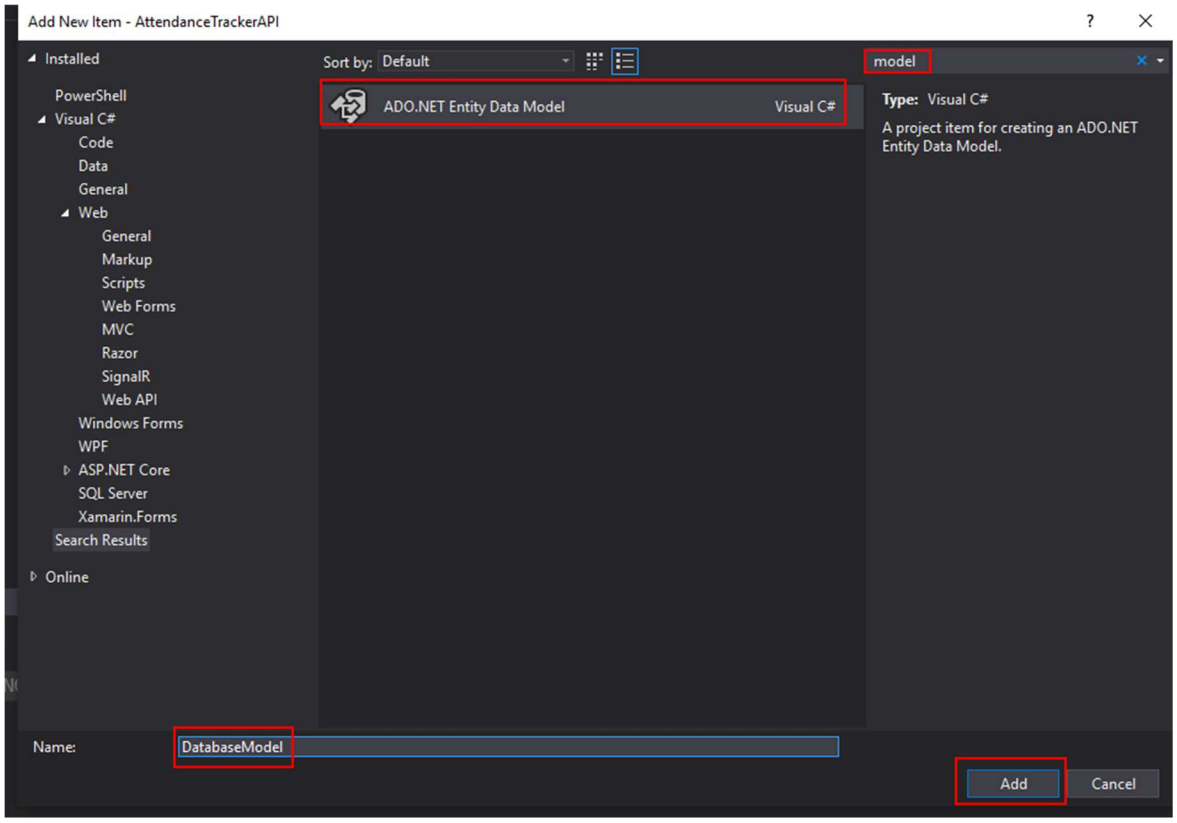

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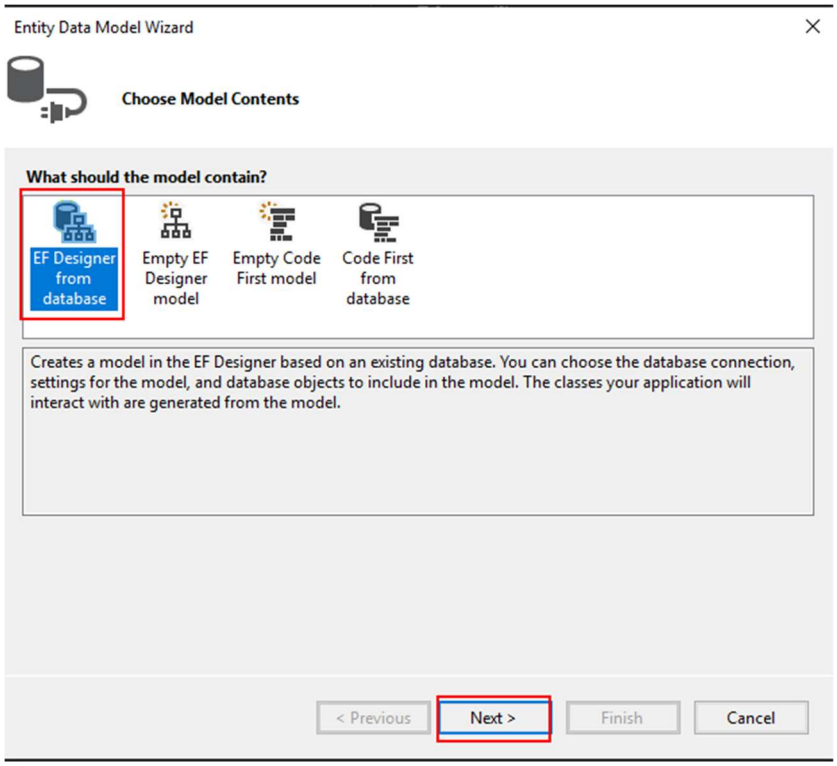

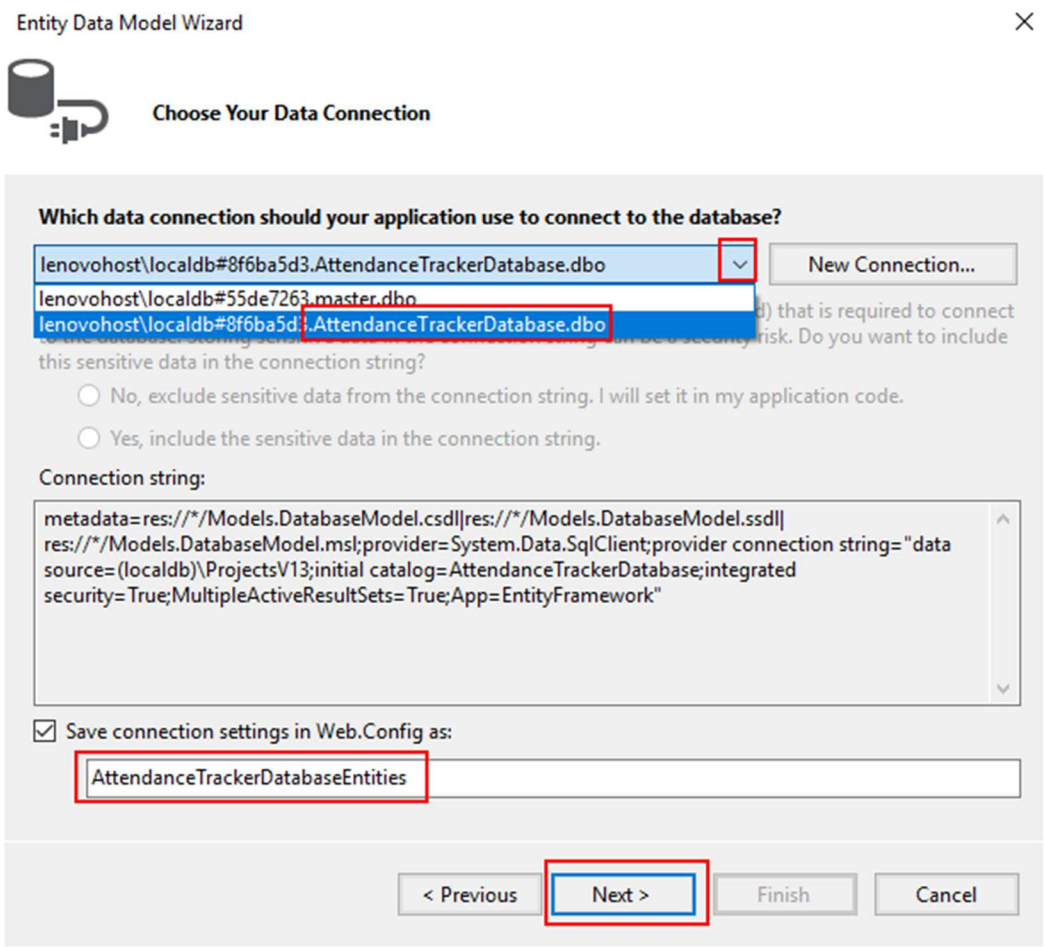

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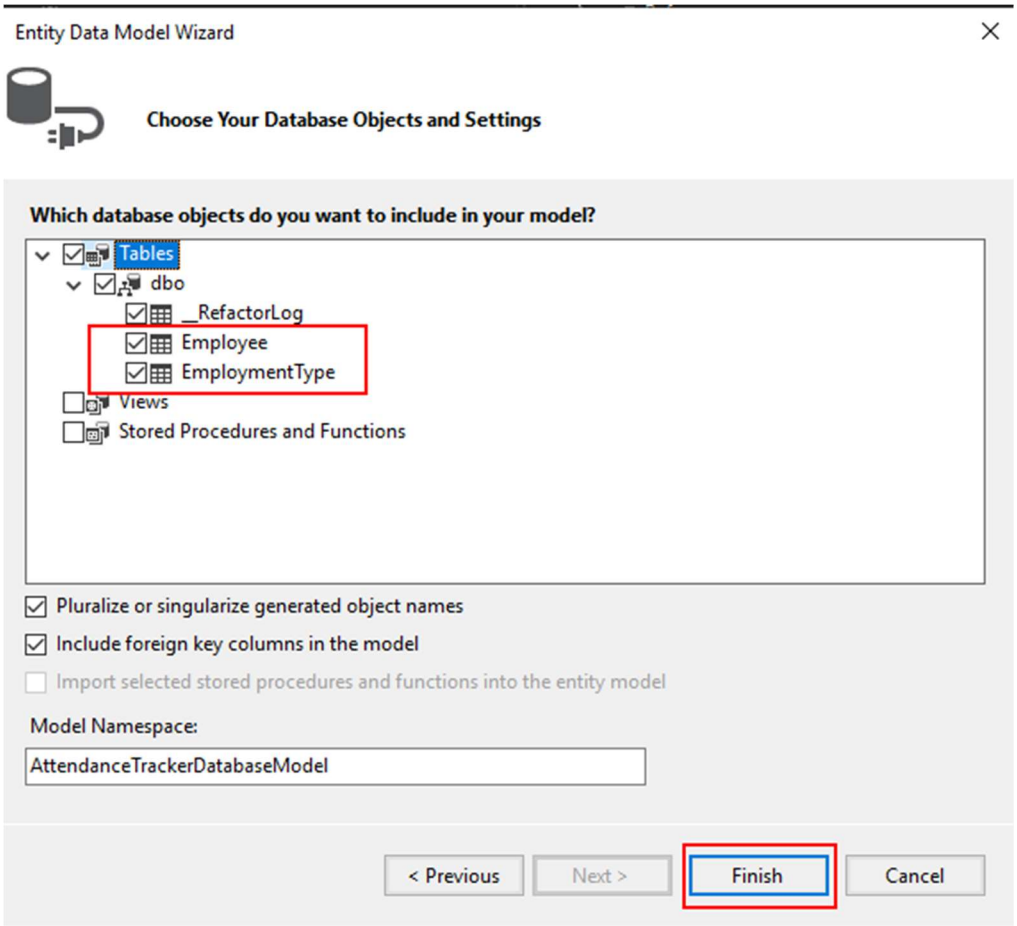
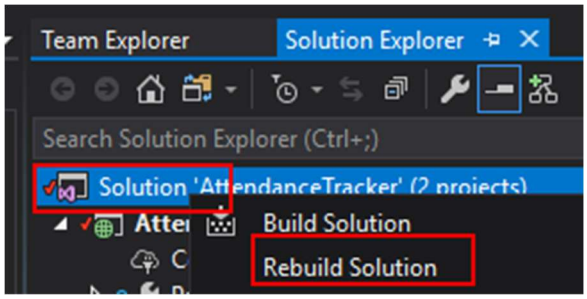


Step 6

Create a Controller

1. Rebuild the solution



2. Right click on **Controllers folder** > **Add** > **Controller**
3. Select Web API 2 Controller with actions, using Entity Framework, press Add
4. Select the Model class to base the Controller on, press Add

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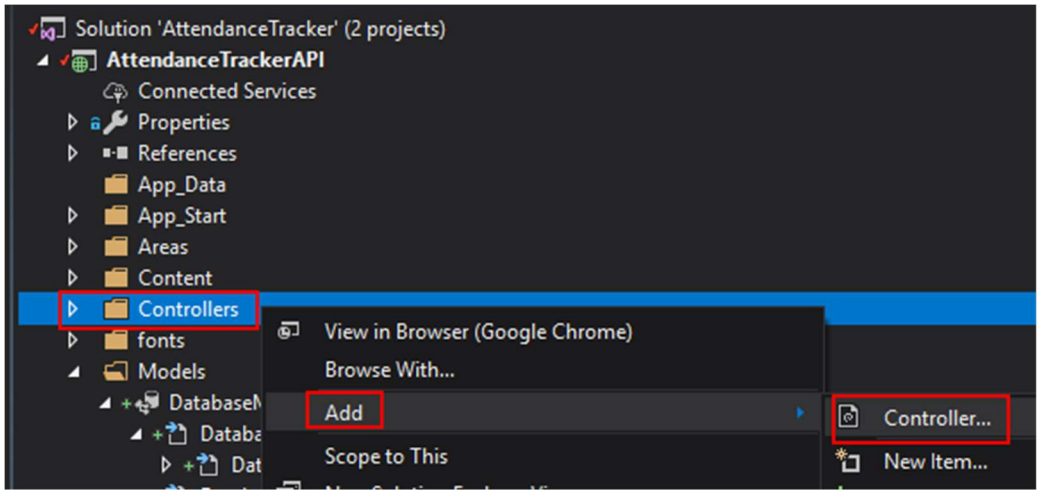

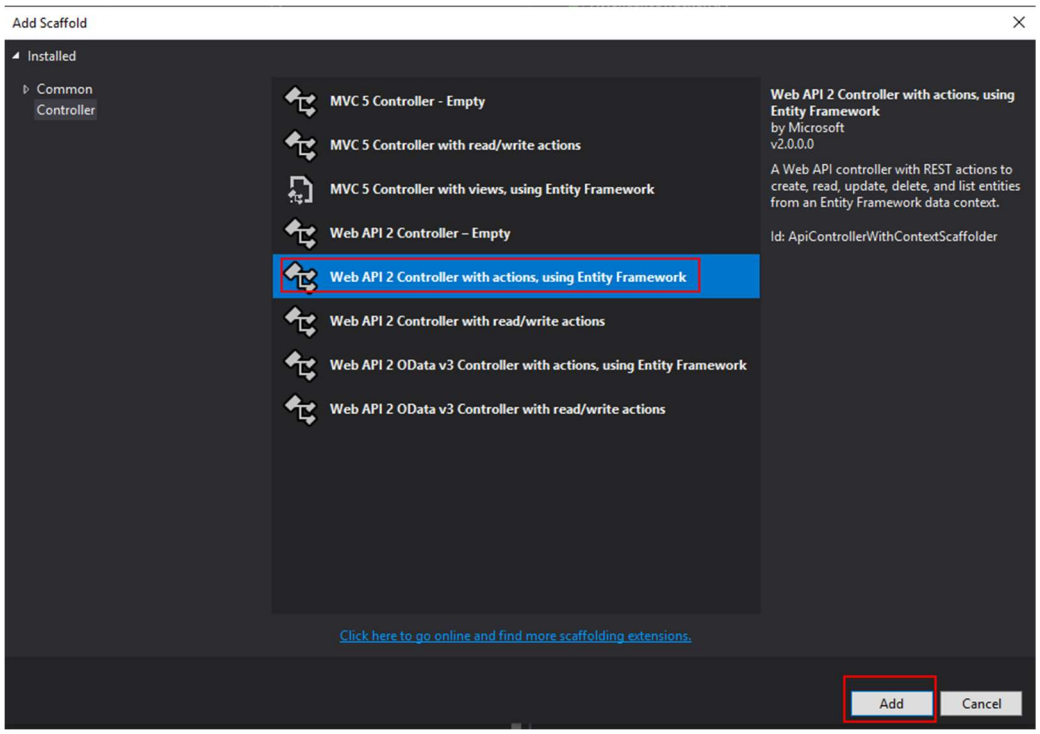

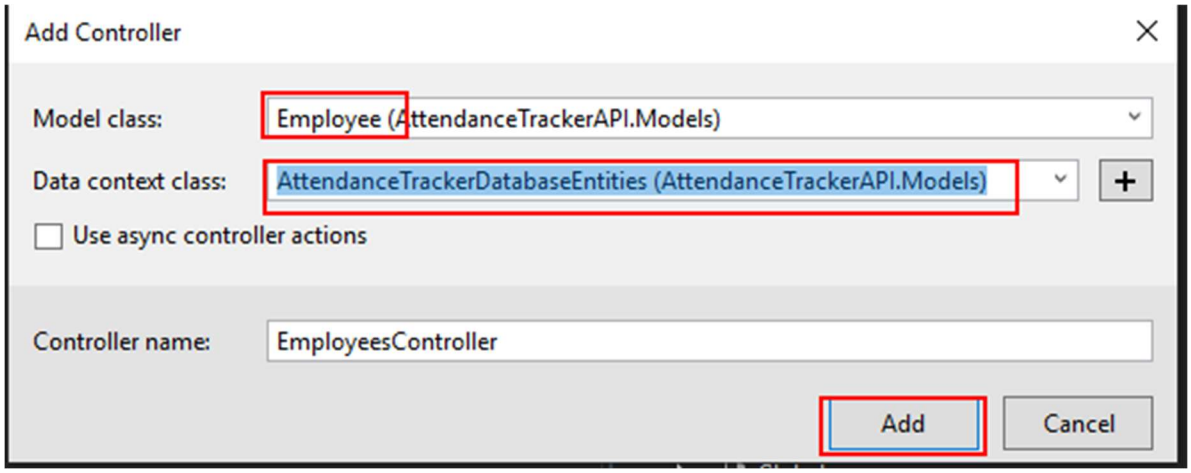

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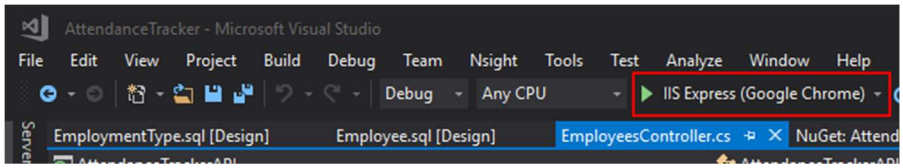
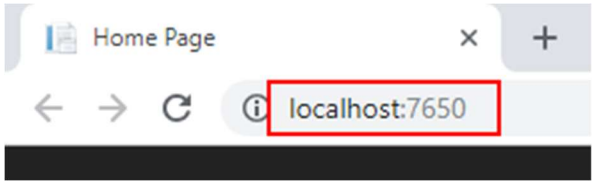
Test controller from Postman

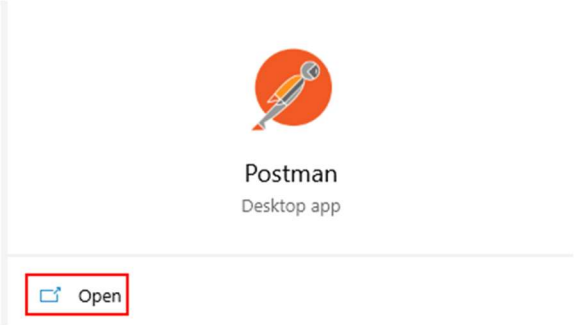
1. Start the IIS service



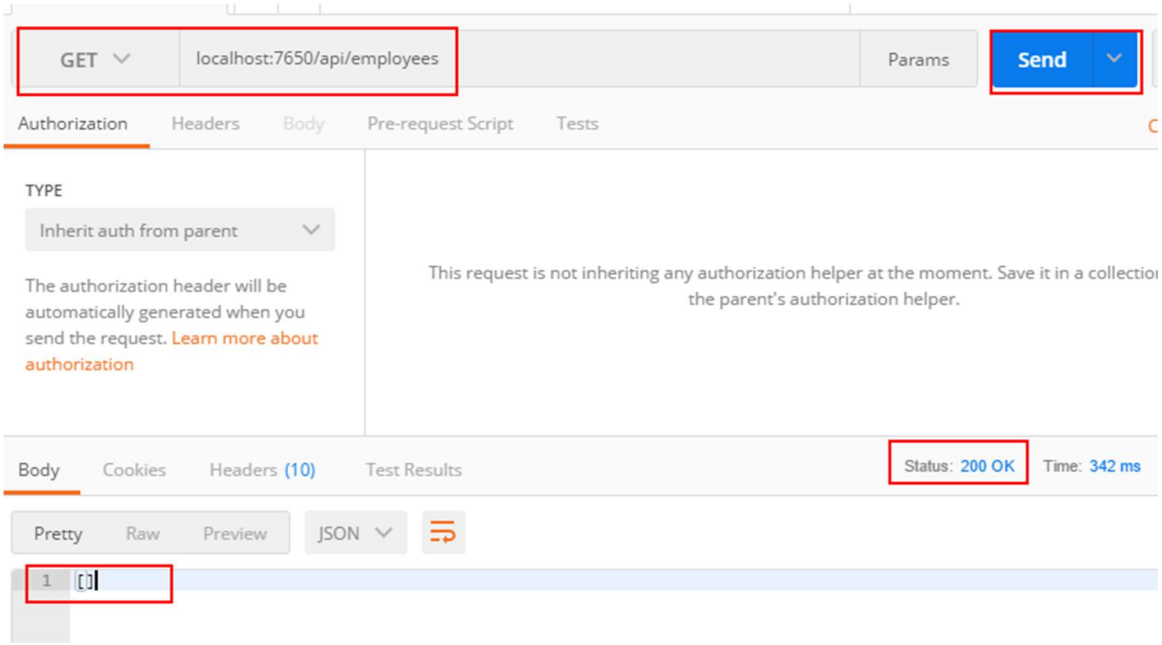
2. Gather the port number from the web browser



3. Open Postman Desktop App



4. Send a GET request to the controller
    a. Expected Status: 200 OK



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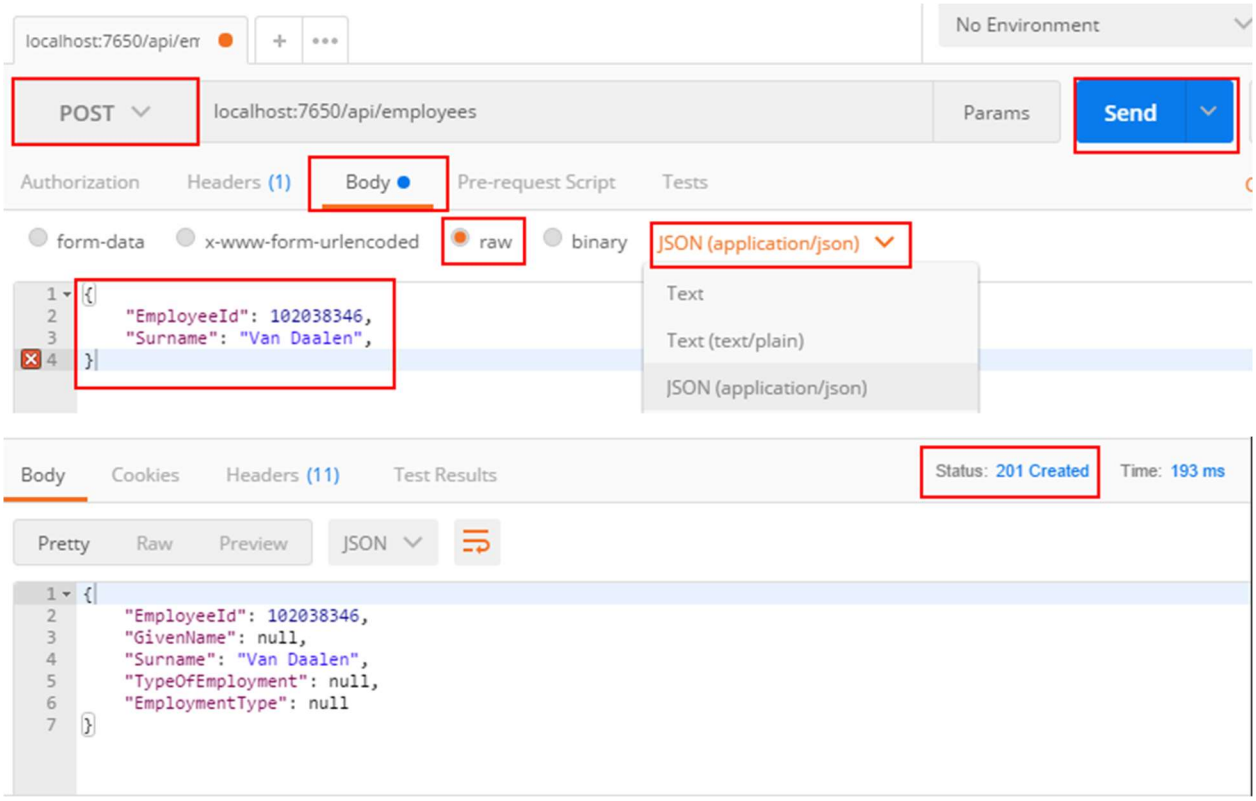
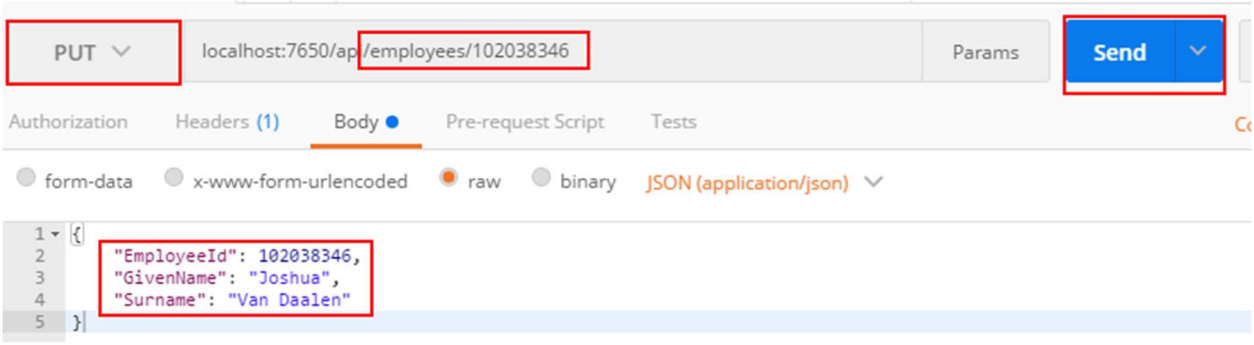
5. Send a POST request to the controller
    a. Set POST method
    b. Click on Body
    c. Click on RAW
    d. Set JSON (application/json)
    e. Create JSON Object
    f. Press Send
    g. Expected Status: 201 Created



6. Send PUT request
    a. Expected Status: 204 No Content



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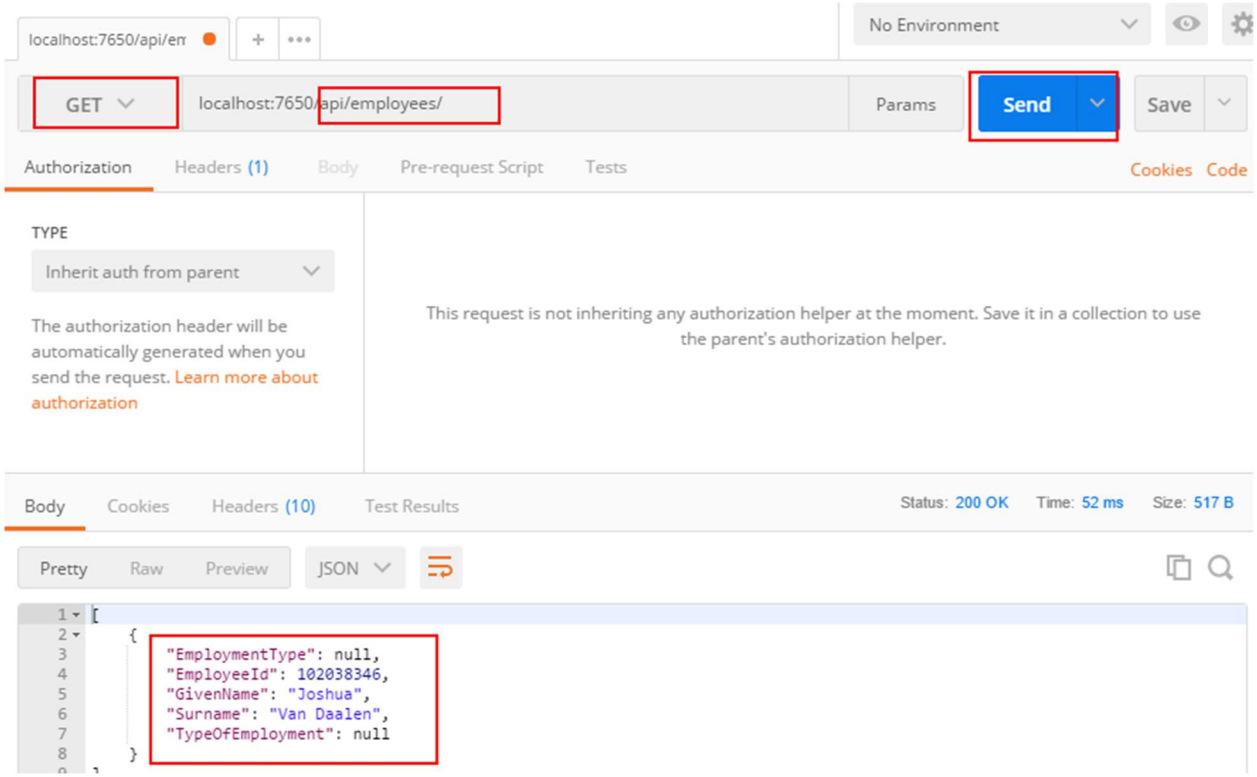
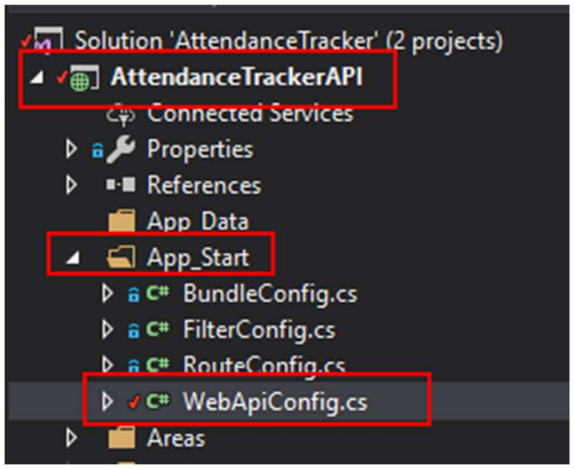
7. Send Get request again
    a. Note the return body now shows the object we just Posted



Notes:

Additional code used to view JSON response from the web browser

1. Open the WebApiConfig.cs file



2. Add the following lines
    a. jsonResponse = returns raw JSON to the web browser

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```
var jsonResponse = config.Formatters.JsonFormatter;
jsonResponse.SerializerSettings.PreserveReferencesHandling =
    Newtonsoft.Json.PreserveReferencesHandling.Objects;
config.Formatters.Remove(config.Formatters.XmlFormatter);
```

localhost:7650/api/employees/

localhost:7650/api/employees/

[{"$id":"1","EmploymentType":null,"EmployeeId":102038346,"GivenName":"Joshua","Surname":"Van Daalen","TypeOfEmployment":null}]

b. NoDollarSign = removed the $id from the returning JSON object

```
var noDollarSign = config.Formatters.JsonFormatter;
noDollarSign.SerializerSettings.PreserveReferencesHandling =
    Newtonsoft.Json.PreserveReferencesHandling.None;
```

localhost:7650/api/employees/

localhost:7650/api/employees/

[{"EmploymentType":null,"EmployeeId":102038346,"GivenName":"Joshua","Surname":"Van Daalen","TypeOfEmployment":null}]

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