

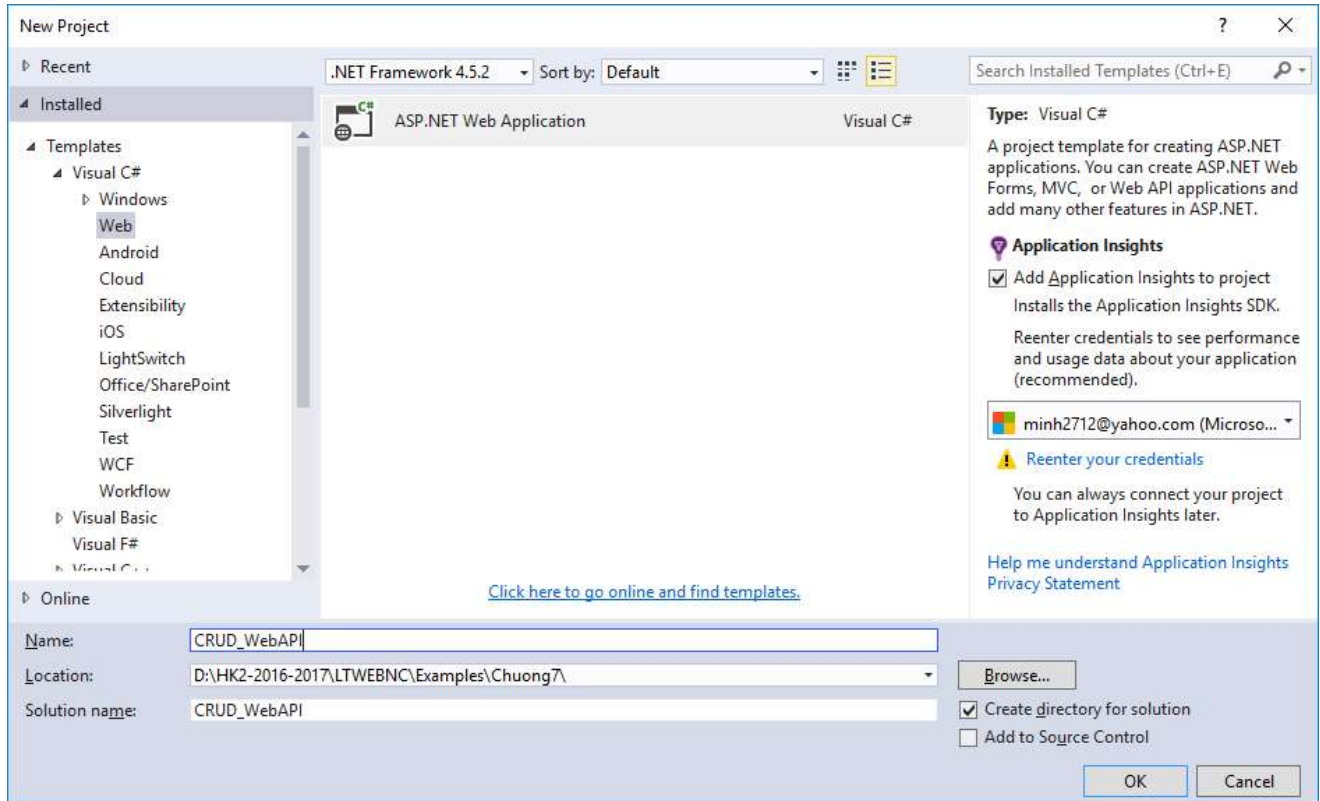
Bài tập WebAPI

Xây dựng CRUD web API cho 1 ứng dụng lưu trữ thông tin Employee, dùng webclient (html) truy xuất các phương thức CRUD web API đã cung cấp.

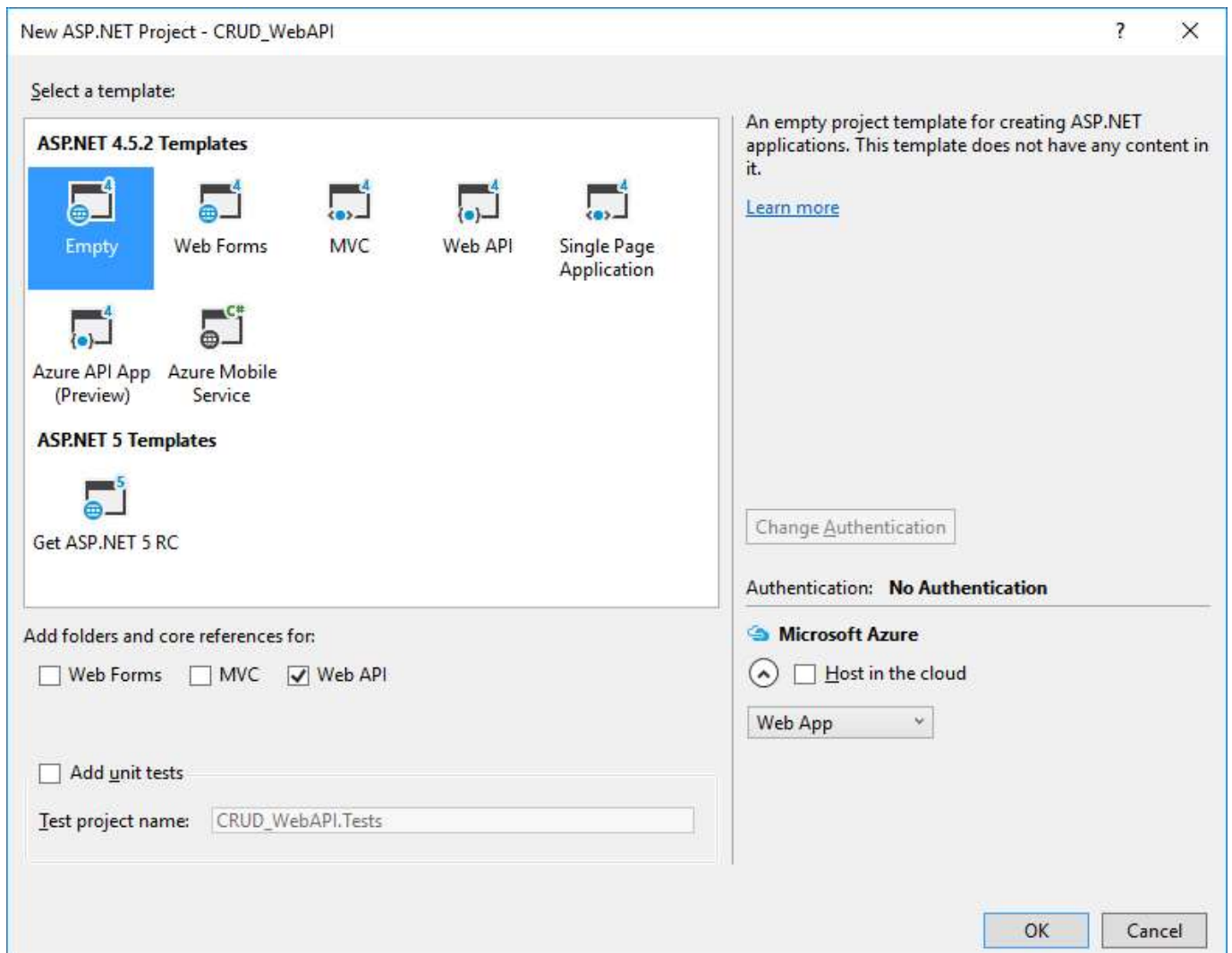
Hướng dẫn:

1. Tạo project Web API như sau:

File → New → Project:

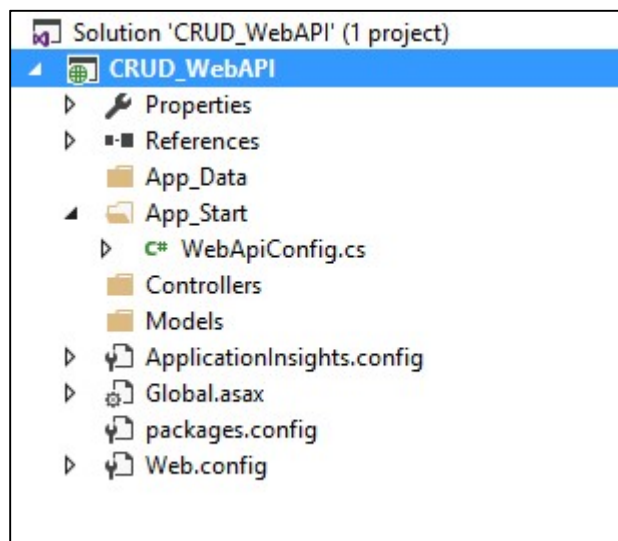


Nhập thông tin tên project, nhấn OK:



Chọn Empty project, check Web API → OK

Cửa sổ Solution:



2. Xây dựng Model:

Model Employee:

Nhấp chuột phải vào thư mục Models → Add → Class: đặt tên Employee:

```

namespace CRUD_WebAPI.Models
{
    0 references
    public class Employee
    {
        0 references | 0 exceptions
        public int id { get; set; }
        0 references | 0 exceptions
        public string name { get; set; }
        0 references | 0 exceptions
        public string gender { get; set; }
        0 references | 0 exceptions
        public int age { get; set; }
        0 references | 0 exceptions
        public int salary { get; set; }
    }
}

```

Tạo thêm class `EmployeeCollection`: để thực hiện các thao tác trên danh sách Employee như thêm, xóa, sửa, xem danh sách, xem Employee theo mã:

```

public class EmployeeCollection
{
    private List<Employee> employees = new List<Employee>();
    private int _nextId = 1;

    0 references | 0 exceptions
    public EmployeeCollection()
    {
        employees.Add(new Employee { id = 1, name = "Trần Thị A", gender = "Nữ", age = 25, salary = 1000000 });
        employees.Add(new Employee { id = 2, name = "Hồ Văn B", gender = "Nam", age = 24, salary = 5000000 });
        employees.Add(new Employee { id = 3, name = "Lê Thị C", gender = "Nữ", age = 35, salary = 4500000 });
        employees.Add(new Employee { id = 4, name = "Huỳnh Văn D", gender = "Nam", age = 27, salary = 1200000 });
    }

    0 references | 0 exceptions
    public IEnumerable<Employee> GetAll()
    {
        return employees;
    }

    0 references | 0 exceptions
    public Employee Get(int id)
    {
        return employees.Find(e => e.id == id);
    }
}

```

```

0 references | 0 exceptions
public Employee Add(Employee employee)
{
    if (employee == null)
    {
        throw new ArgumentNullException("Employee");
    }
    employee.id = _nextId++;
    employees.Add(employee);
    return employee;
}

0 references | 0 exceptions
public Employee Update(Employee employee)
{
    if (employee == null)
    {
        throw new ArgumentNullException("Employee");
    }
    int index = employees.FindIndex(e => e.id == employee.id);
    employees.RemoveAt(index);
    employees.Add(employee);
    return employee;
}

```

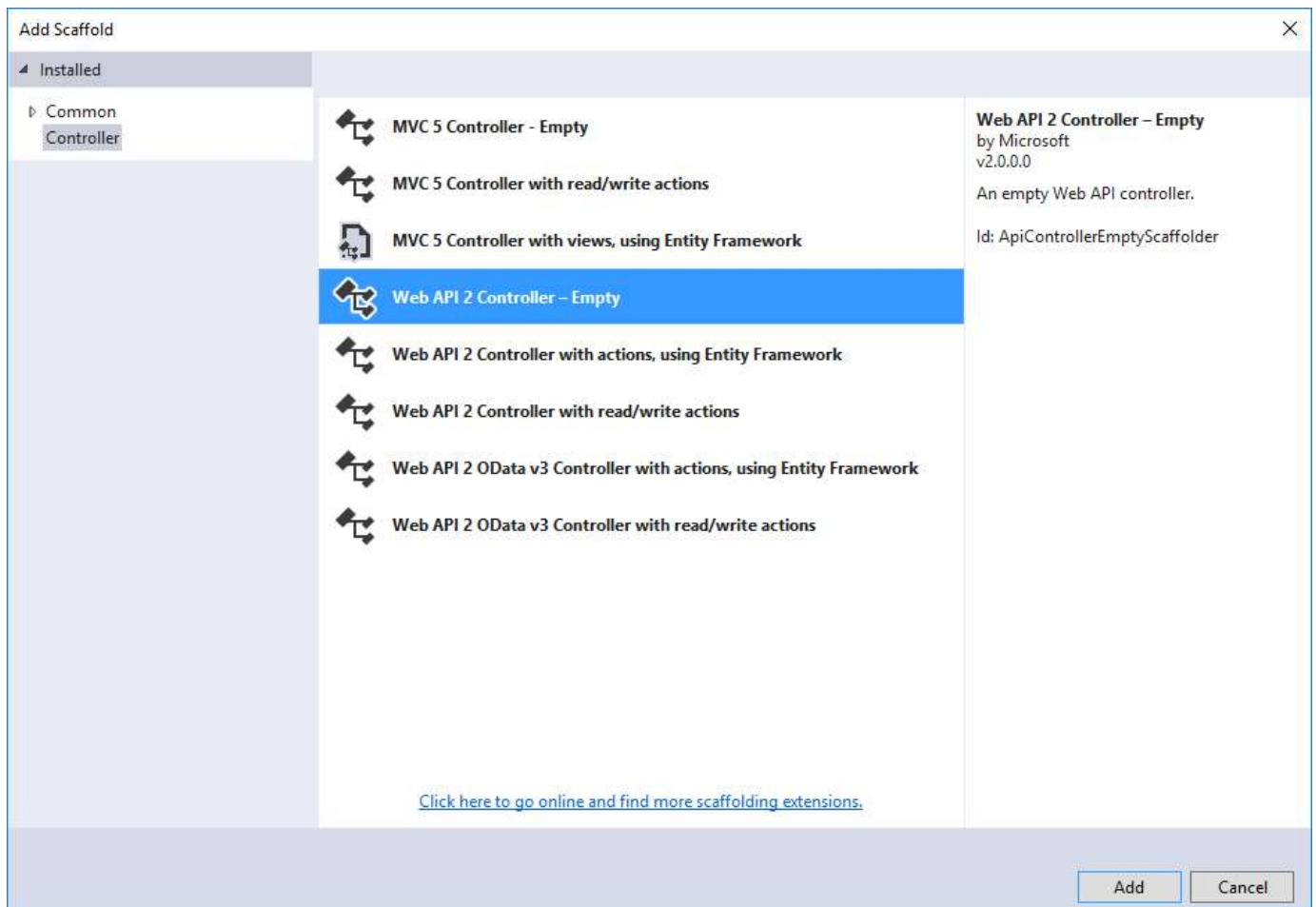
```

0 references | 0 exceptions
public IEnumerable<Employee> Delete(int id)
{
    employees.RemoveAll(e => e.id == id);
    return employees;
}
}

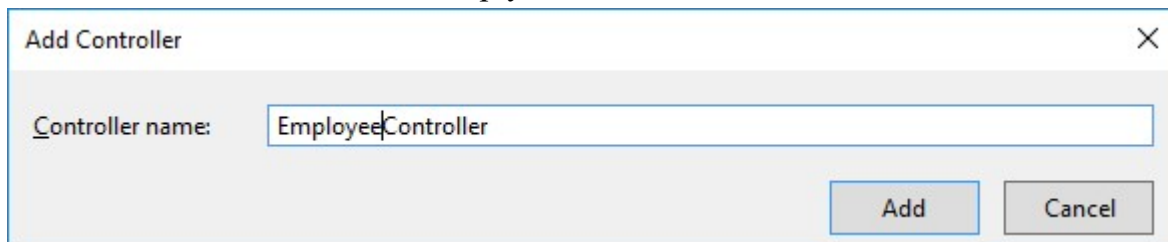
```

3. Tạo API Controller cung cấp CRUD:

Nhập phải chuột trên thư mục Controller → Add → Controller:



Chọn Web API 2 Controller – Empty → Add



Nhập tên Controller → Add

Viết các phương thức cung cấp CRUD services API:

Chú ý: lớp này thừa kế từ `ApiController`

```

public class EmployeeController : ApiController
{
    static EmployeeCollection employeeList = new EmployeeCollection();

    //api/employee GET - lấy dữ liệu
    0 references | 0 requests | 0 exceptions
    public IEnumerable<Employee> GetAllEmployees()
    {
        return employeeList.GetAll();
    }

    //api/employee/2
    0 references | 0 requests | 0 exceptions
    public Employee GetEmployee(int id)
    {
        return employeeList.Get(id); ;
    }

    //api/employee/ POST - thêm mới
    0 references | 0 requests | 0 exceptions
    public Employee PostEmployee(Employee employee)
    {
        return employeeList.Add(employee);
    }

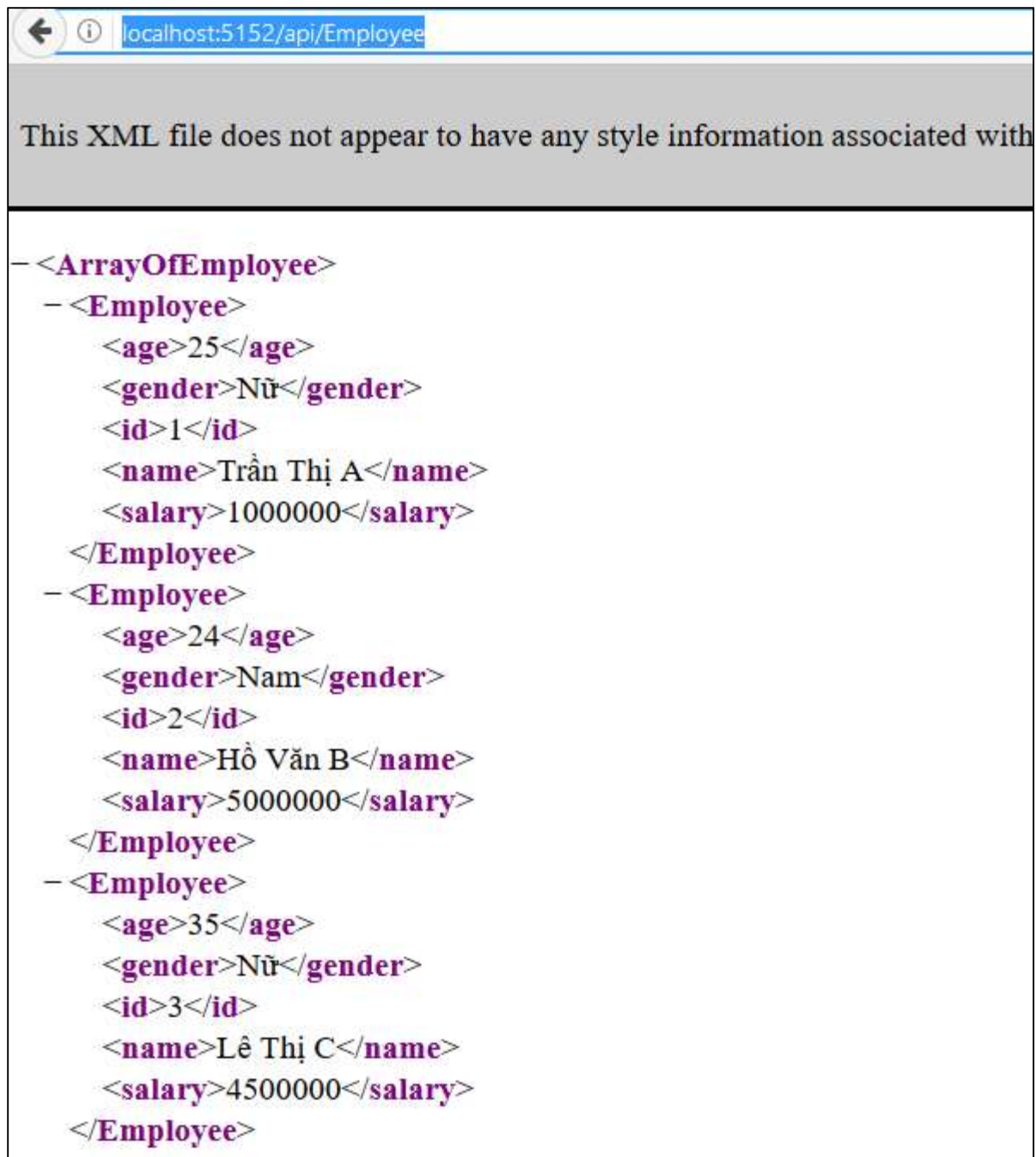
    //api/employee/{id} PUT - cập nhật
    0 references | 0 requests | 0 exceptions
    public Employee PutEmployee(int id, Employee employee)
    {
        employee.id = id;
        return employeeList.Update(employee);
    }

    //api/employee/{id} - DELETE - xóa
    0 references | 0 requests | 0 exceptions
    public IEnumerable<Employee> DeleteEmployee(int id)
    {
        return employeeList.Delete(id);
    }
}

```

Nhấn F5 kiểm tra xem Services có hoạt động không?

Nhập vào thanh địa chỉ như sau để gọi phương thức GetAll, nếu danh sách Employee hiển thị dạng XML thì service đã hoạt động:



4. Tạo Web client truy xuất CRUD API:

Nhấp phải chuột vào project CRUD_WebAPI → Add → HTML Page → Nhập tên: GetAllEmployees.html → OK:

Code cho GetAllEmployees.html như sau:

```

<!DOCTYPE html>
<html>
<head>
    <title></title>
    <meta charset="utf-8" />
    <script src="/Scripts/jquery-1.10.2.js"></script>
    <script type="text/javascript">
function GetAllEmployees() { // gọi service GetAll
    $.ajax({
        url: 'http://localhost:5152/api/employee/',
        type: 'GET',
        dataType: 'json',
        success: function (data) {
            var strResult = "";
            strResult = "<table width='100%><th>Id</th><th>Name</th><th>Gender</th><th>Age</th><th>Salary</th>";
            $.each(data, function (index, employee) {
                strResult += "<tr><td>" + employee.id + "</td><td>" + employee.name + "</td><td>" + employee.gender +
                    "</td><td>" + employee.age + "</td><td>" + employee.salary + "</td></tr>";
            });
            strResult += "</table>";
            $("#divDisplayAllEmployees").html(strResult);
        },
        error: function (x, y, z) {
            alert(x + '\n' + y + '\n' + z);
        }
    });
}
}

```

```

//gọi service GetEmployee By Id
function GetSingleEmployee() {
    var empId = $('#txtSingleEmployeeId').val();

    $.ajax({
        url: 'http://localhost:5152/api/employee/' + empId,
        type: 'GET',
        dataType: 'json',
        success: function (data) {
            var strResult = "<table width='100%><th>Id</th><th>Name</th><th>Gender</th><th>Age</th><th>Salary</th>";
            strResult += "<tr><td>" + data.id + "</td><td>" + data.name + "</td><td>" + data.gender + "</td><td>" +
                data.age + "</td><td>" + data.salary + "</td></tr>";
            strResult += "</table>";
            $("#divDisplaySingleEmployee").html(strResult);
        },
        error: function (x, y, z) {
            alert('The Employee not found in the List for the given ID');
        }
    });
}
}

```



```
//goi service Thêm Employee
function AddEmployee() {
    var employee = {
        id: $('#txtEmployeeId').val(),
        name: $('#txtEmployeeName').val(),
        gender: $('#optGender').val(),
        age: $('#txtEmployeeAge').val(),
        salary: $('#txtEmployeeSalary').val()
    };

    $.ajax({
        url: 'http://localhost:5152/api/employee/',
        type: 'POST',
        data: JSON.stringify(employee),
        contentType: "application/json;charset=utf-8",
        success: function (data) {
            alert('Employee added Successfully');
            GetAllEmployees();
        },
        error: function () {
            alert('Employee not Added');
        }
    });
}
```

```
// Gọi service cập nhật thông tin Employee
function UpdateEmployee() {
    var employee = {
        id: $('#txtEmployeeId').val(),
        name: $('#txtEmployeeName').val(),
        gender: $('#optGender').val(),
        age: $('#txtEmployeeAge').val(),
        salary: $('#txtEmployeeSalary').val()
    };

    $.ajax({
        url: '/api/employee/' + $('#txtEmployeeId').val(),
        type: 'PUT',
        data: JSON.stringify(employee),
        contentType: "application/json;charset=utf-8",
        success: function (data) {
            alert('Employee updated Successfully');
            GetAllEmployees();
        },
        error: function () {
            alert('Employee could not be updated');
        }
    });
}
```

```
//Gọi service Xóa Employee theo Id
function DeleteEmployee() {
    var id = $('#txtEmpId').val()

    $.ajax({
        url: '/api/employee/' + id,
        type: 'DELETE',
        contentType: "application/json;charset=utf-8",
        success: function (data) {
            GetAllEmployees();
        },
        error: function (x, y, z) {
            alert(x + '\n' + y + '\n' + z);
        }
    });
}
</script>
</head>
```

```
<!--Nội dung trang html-->
<body>
    <a href="GetAllEmployees.html" id="btnAllEmployee" onclick="GetAllEmployees();return false;">List Employees</a>
    <table border="0" width="600">
        <tr>
            <td>
                <div id="divDisplayAllEmployees"></div>
            </td>
        </tr>
    </table>
    <hr />
    <table border="0" width="600">
        <tr>
            <td>
                <h3 style="color: green">Add/Update Employee</h3>
                <table border="0">
                    <tr>
                        <td>Employee Id</td>
                        <td><input id="txtEmployeeId" type="text" /></td>
                    </tr>
                    <tr>
                        <td>Employee Name</td>
                        <td><input id="txtEmployeeName" type="text" /></td>
                    </tr>
                </table>
            </td>
        </tr>
    </table>
```

```

        <tr>
            <td>Employee Gender</td>
            <td>
                <select id="optGender">
                    <option value="Male">Male</option>
                    <option value="Female">Female</option>
                </select>
            </td>
        </tr>
        <tr>
            <td>Employee Age</td>
            <td><input id="txtEmployeeAge" type="text" /></td>
        </tr>
        <tr>
            <td>Employee Salary</td>
            <td><input id="txtEmployeeSalary" type="text" /></td>
        </tr>
        <tr>
            <td><button id="btnPostEmployee" onclick="AddEmployee()">Add New Employee</button></td>
            <td><button id="btnPutEmployee" onclick="UpdateEmployee()">Update Employee</button></td>
        </tr>
    </table>
</td>
</tr>
</table>

```

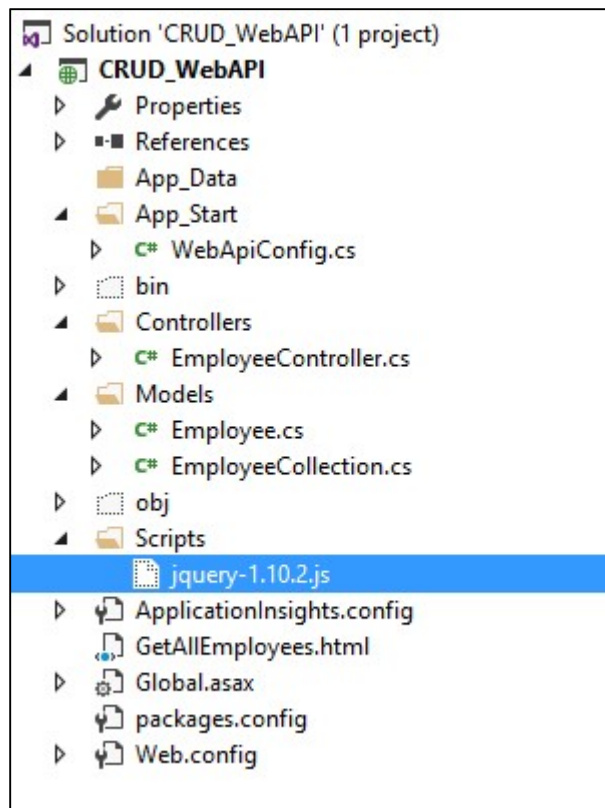
```

<hr />
<table border="0" width="600">
    <tr>
        <td>
            <h3 style="color: green">Get Single Employee Record</h3>
            Enter EmployeeId:<input id="txtSingleEmployeeId" type="text" />
            <button id="btnSingleEmployee" onclick="GetSingleEmployee();return false;">
                Get Single Employee Record</button><br>
            <div id="divDisplaySingleEmployee"></div>
        </td>
    </tr>
</table>



<hr />
<table border="0" width="600">
    <tr>
        <td>
            <h3 style="color: green">Delete Employee</h3>
            Enter EmployeeId to delete:<input id="txtEmpId" type="text" />
            <button id="btnDeleteEmployee" onclick="DeleteEmployee();return false;">Delete Employee</button><br>
        </td>
    </tr>
</table>
</body>
</html>

```

Tạo thư mục Scripts trong project, copy thư viện jquery: để gọi trong trang html:



Chạy trang html để kiểm tra services:

  localhost:5152/GetAllEmployees.html

[List Employees](#)

Add/Update Employee

Employee Id	<input type="text"/>
Employee Name	<input type="text"/>
Employee Gender	<input type="text" value="Male"/>
Employee Age	<input type="text"/>
Employee Salary	<input type="text"/>

Get Single Employee Record

Enter EmployeeId:

Delete Employee

Enter EmployeeId to delete: