Assessment-4-Api

Name :B Karthik

MID:M1082972

Question

Topics: EntityFramework Core, API Core, Swagger,Log4Net

Objective: To create the database tables using EntityFramework Core and build an API to perform CRUD operation on the tables.

1. Create a Db Context and domain classes using EF core code first approach and generate the database tables as per below schema:

   Entity/Table Name: Employee

   Attribute/Column Details:

Column/Attribute name	Data Type
EmpID	Int
EmployeeName	String (Max Length: 25)
Age	Int
Notes	String

   Entity/Table Name: Address

   Attribute/Column Details:

Column/Attribute name	Data Type
AddressId	Int
EmpId	Int
Lane	String
City	String
State	String

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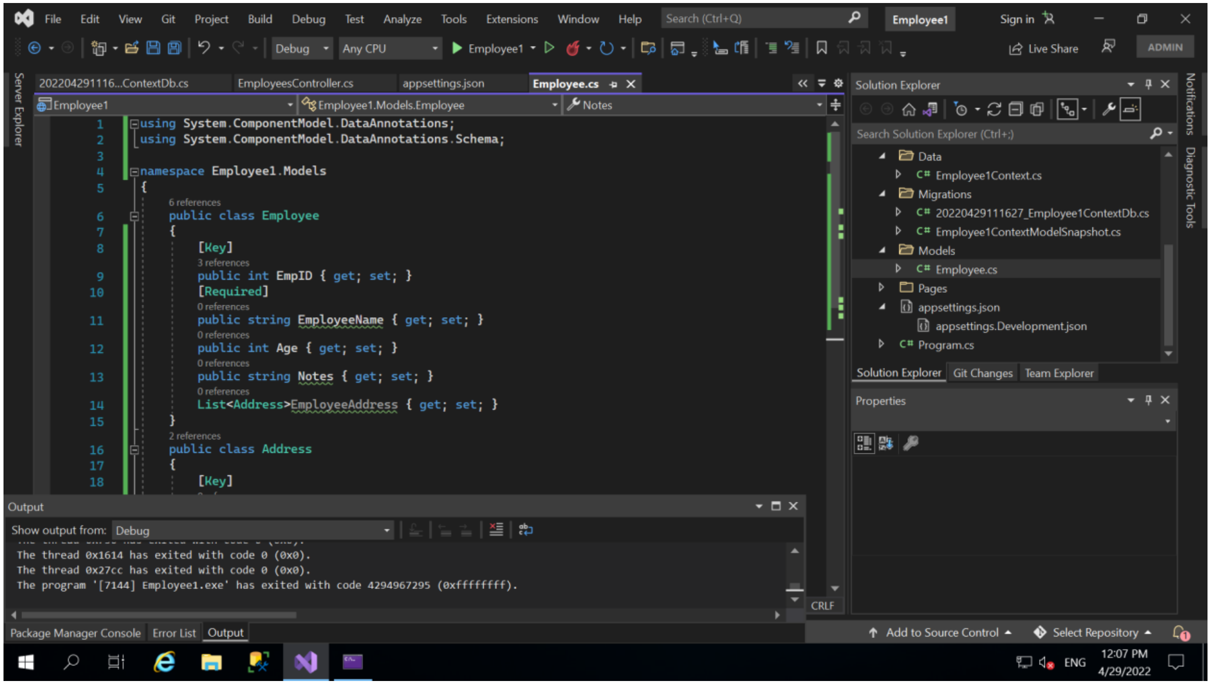
Source Code: https://github.com/BKarthik1/BKarthik1.git

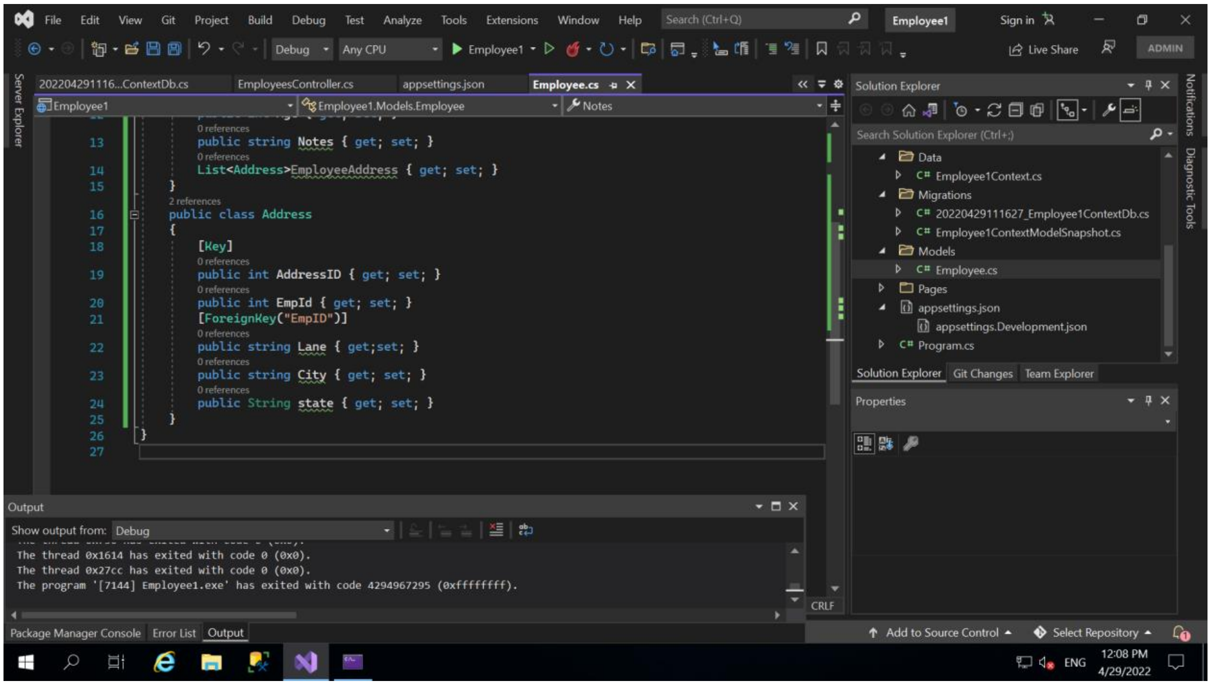
CODE FOR MODEL CLASS

```
using System.ComponentModel.DataAnnotations;
using System.ComponentModel.DataAnnotations.Schema;

namespace Employee1.Models
{
    public class Employee
    {
        [Key]
        public int EmpID { get; set; }
        [Required]
        public string EmployeeName { get; set; }
        public int Age { get; set; }
        public string Notes { get; set; }
        List<Address>EmployeeAddress { get; set; }
    }
    public class Address
    {
        [Key]
        public int AddressID { get; set; }
        public int EmpId { get; set; }
        [ForeignKey("EmpID")]
        public string Lane { get;set; }
        public string City { get; set; }
        public String state { get; set; }
    }
}
```



```
using System.ComponentModel.DataAnnotations;
using System.ComponentModel.DataAnnotations.Schema;

namespace Employee1.Models
{
    6 references
    public class Employee
    {
        [Key]
        3 references
        public int EmpID { get; set; }
        [Required]
        0 references
        public string EmployeeName { get; set; }
        0 references
        public int Age { get; set; }
        0 references
        public string Notes { get; set; }
        0 references
        List<Address>EmployeeAddress { get; set; }
    }
    2 references
    public class Address
    {
        [Key]
```

```
The thread 0x1614 has exited with code 0 (0x0).
The thread 0x27cc has exited with code 0 (0x0).
The program '[7144] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```



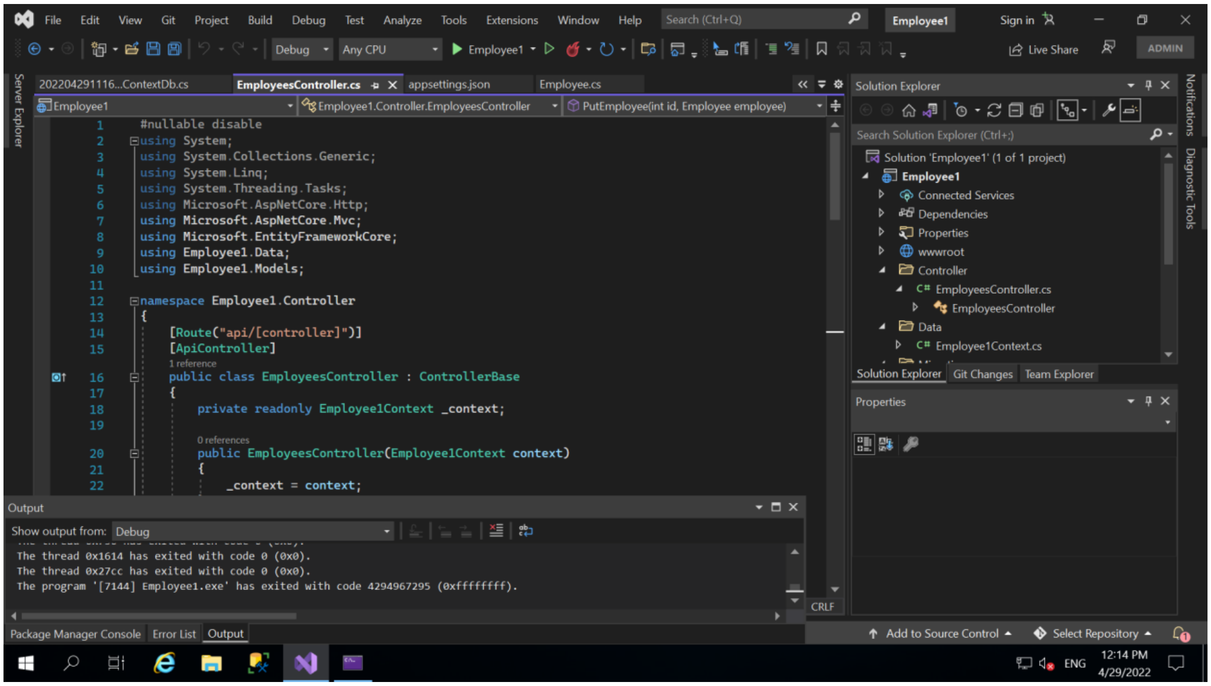
```
        public string Notes { get; set; }
        List<Address>EmployeeAddress { get; set; }
    }
    public class Address
    {
        [Key]
        public int AddressID { get; set; }
        public int EmpId { get; set; }
        [ForeignKey("EmpID")]
        public string Lane { get;set; }
        public string City { get; set; }
        public String state { get; set; }
    }
}
```

```
The thread 0x1614 has exited with code 0 (0x0).
The thread 0x27cc has exited with code 0 (0x0).
The program '[7144] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```

2.CREATING CONTROLLER

CODE FOR CONTROLLER

```
#nullable disable
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
using Microsoft.AspNetCore.Http;
using Microsoft.AspNetCore.Mvc;
using Microsoft.EntityFrameworkCore;
using Employee1.Data;
using Employee1.Models;

namespace Employee1.Controller
{
    [Route("api/[controller]")]
    [ApiController]
    public class EmployeesController : ControllerBase
    {
        private readonly Employee1Context _context;

        public EmployeesController(Employee1Context context)
        {
            _context = context;
        }
        // GET: api/Employees
        [HttpGet]
        public async Task<ActionResult<IEnumerable<Employee>>> GetEmployee()
        {
            return await _context.Employee.ToListAsync();
        }

        // GET: api/Employees/5
        [HttpGet("{id}")]
        public async Task<ActionResult<Employee>> GetEmployee(int id)
        {
            var employee = await _context.Employee.FindAsync(id);

            if (employee == null)
            {
                return NotFound();
            }

            return employee;
        }

        // PUT: api/Employees/5
        // To protect from overposting attacks, see
https://go.microsoft.com/fwlink/?linkid=2123754
        [HttpPut("{id}")]
        public async Task<IActionResult> PutEmployee(int id, Employee employee)
        {
            if (id != employee.EmpID)
            {
                return BadRequest();
            }

            _context.Entry(employee).State = EntityState.Modified;

            try
            {
                await _context.SaveChangesAsync();
            }
            catch (DbUpdateConcurrencyException)
            {
                if (!EmployeeExists(id))
                {
                    return NotFound();
                }
                else
                {
                    throw;
                }
            }

            return NoContent();
        }

        // POST: api/Employees
        // To protect from overposting attacks, see
https://go.microsoft.com/fwlink/?linkid=2123754
        [HttpPost]
        public async Task<ActionResult<Employee>> PostEmployee(Employee employee)
        {
            _context.Employee.Add(employee);
            await _context.SaveChangesAsync();

            return CreatedAtAction("GetEmployee", new { id = employee.EmpID },
employee);
        }

        // DELETE: api/Employees/5
        [HttpDelete("{id}")]
        public async Task<IActionResult> DeleteEmployee(int id)
        {
            var employee = await _context.Employee.FindAsync(id);
            if (employee == null)
            {
                return NotFound();
            }

            _context.Employee.Remove(employee);
            await _context.SaveChangesAsync();

            return NoContent();
        }

        private bool EmployeeExists(int id)
        {
            return _context.Employee.Any(e => e.EmpID == id);
        }
    }
}
```



```
#nullable disable
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
using Microsoft.AspNetCore.Http;
using Microsoft.AspNetCore.Mvc;
using Microsoft.EntityFrameworkCore;
using Employee1.Data;
using Employee1.Models;

namespace Employee1.Controller
{
    [Route("api/[controller]")]
    [ApiController]
    1 reference
    public class EmployeesController : ControllerBase
    {
        private readonly Employee1Context _context;

        0 references
        public EmployeesController(Employee1Context context)
        {
            _context = context;
```

```
The thread 0x1614 has exited with code 0 (0x0).
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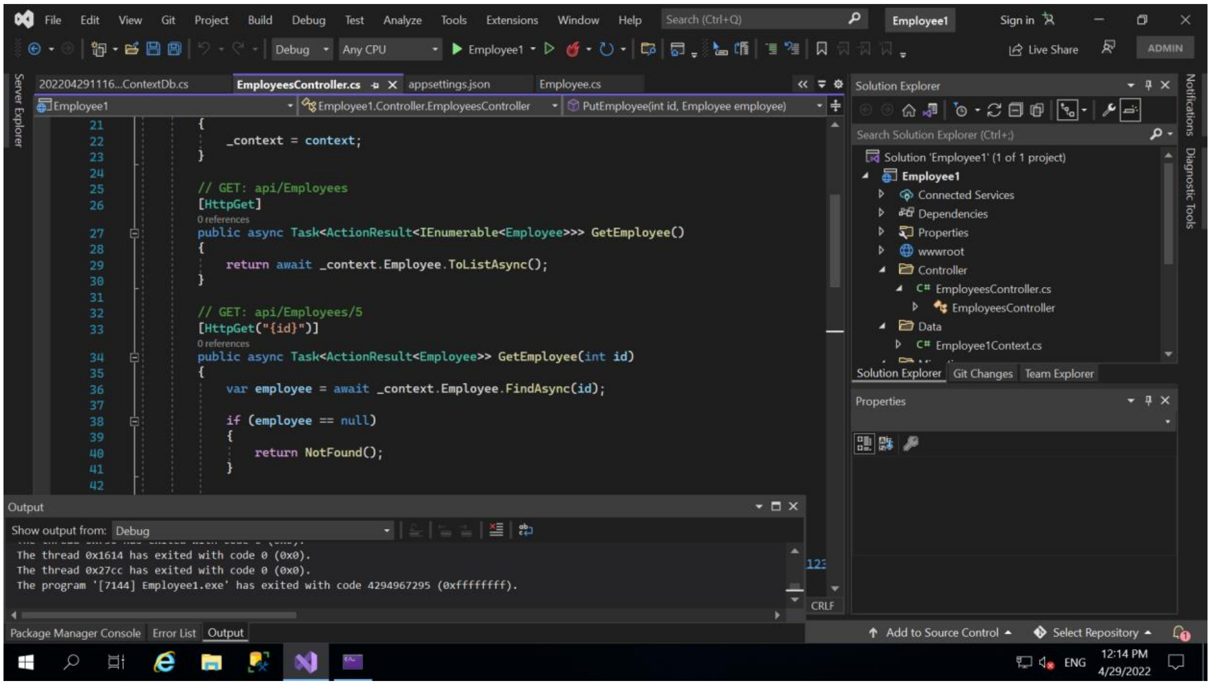

```
        {
            _context = context;
        }

        // GET: api/Employees
        [HttpGet]
        0 references
        public async Task<ActionResult<IEnumerable<Employee>>> GetEmployee()
        {
            return await _context.Employee.ToListAsync();
        }

        // GET: api/Employees/5
        [HttpGet("{id}")]
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        public async Task<ActionResult<Employee>> GetEmployee(int id)
        {
            var employee = await _context.Employee.FindAsync(id);

            if (employee == null)
            {
                return NotFound();
            }
```

```
The thread 0x1614 has exited with code 0 (0x0).
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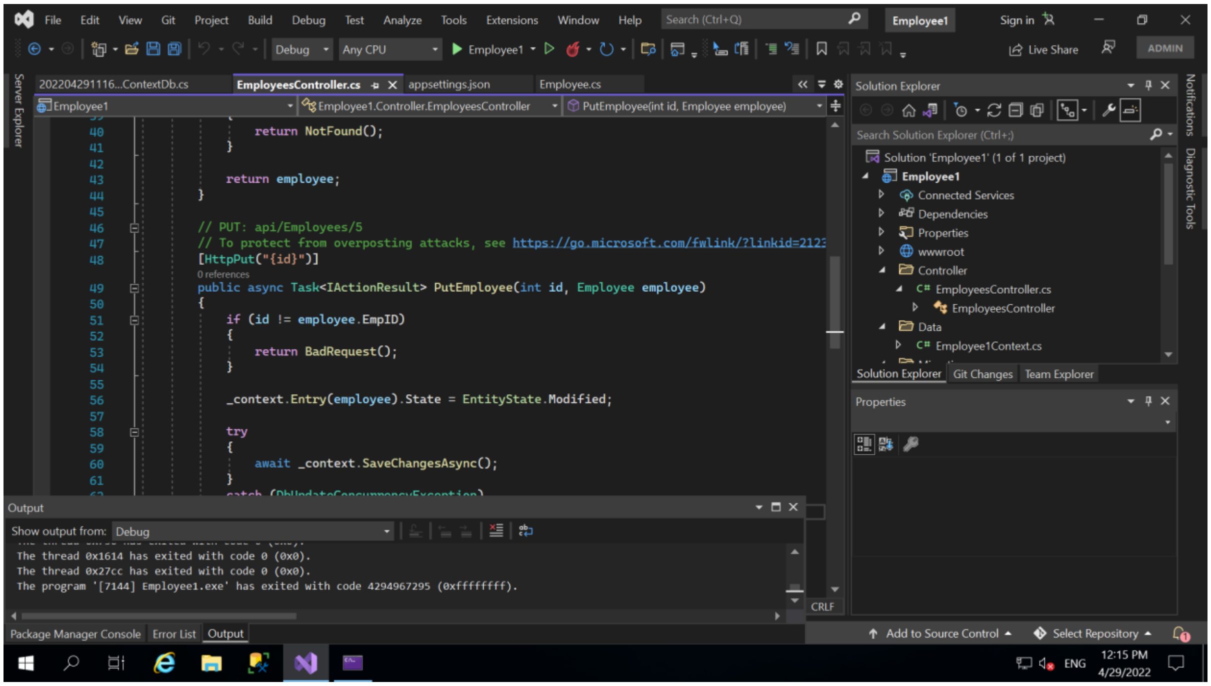

```
                return NotFound();
            }

            return employee;
        }

        // PUT: api/Employees/5
        // To protect from overposting attacks, see https://go.microsoft.com/fwlink/?linkid=2123
        [HttpPut("{id}")]
        0 references
        public async Task<IActionResult> PutEmployee(int id, Employee employee)
        {
            if (id != employee.EmpID)
            {
                return BadRequest();
            }

            _context.Entry(employee).State = EntityState.Modified;

            try
            {
                await _context.SaveChangesAsync();
            }
            catch (DbUpdateConcurrencyException)
```

```
The thread 0x1614 has exited with code 0 (0x0).
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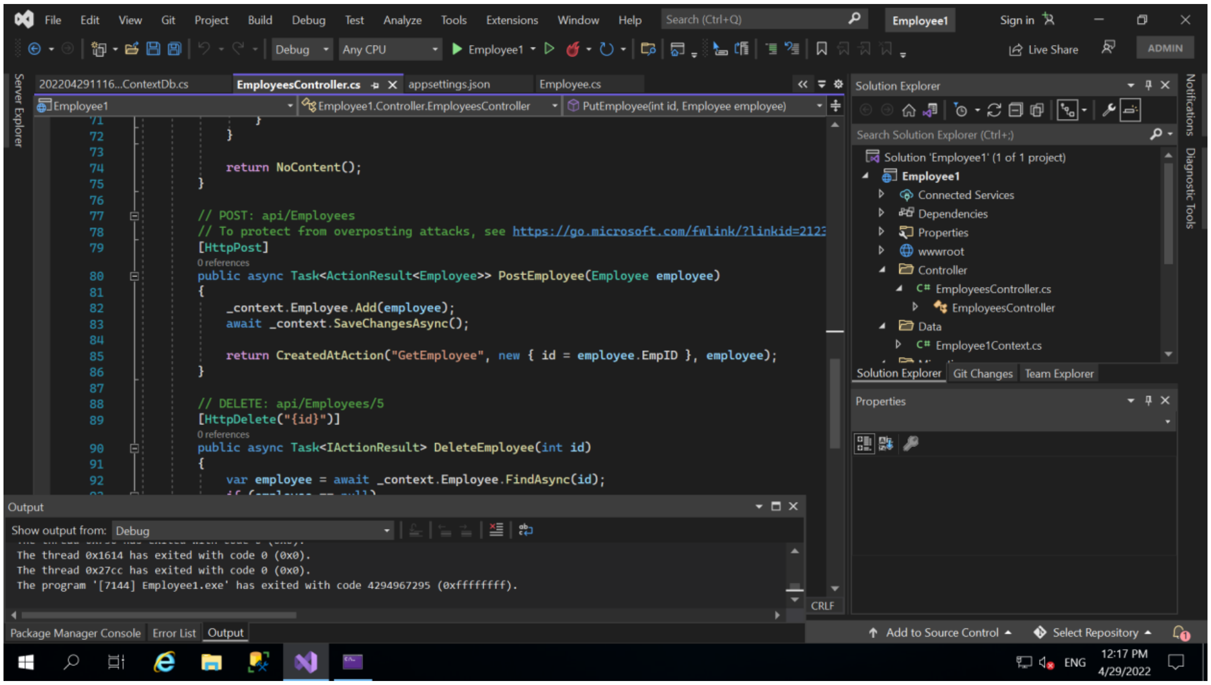

```
                }
            }

            return NoContent();
        }

        // POST: api/Employees
        // To protect from overposting attacks, see https://go.microsoft.com/fwlink/?linkid=2123
        [HttpPost]
        public async Task<ActionResult<Employee>> PostEmployee(Employee employee)
        {
            _context.Employee.Add(employee);
            await _context.SaveChangesAsync();

            return CreatedAtAction("GetEmployee", new { id = employee.EmpID }, employee);
        }

        // DELETE: api/Employees/5
        [HttpDelete("{id}")]
        public async Task<IActionResult> DeleteEmployee(int id)
        {
            var employee = await _context.Employee.FindAsync(id);
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The thread 0x1614 has exited with code 0 (0x0).
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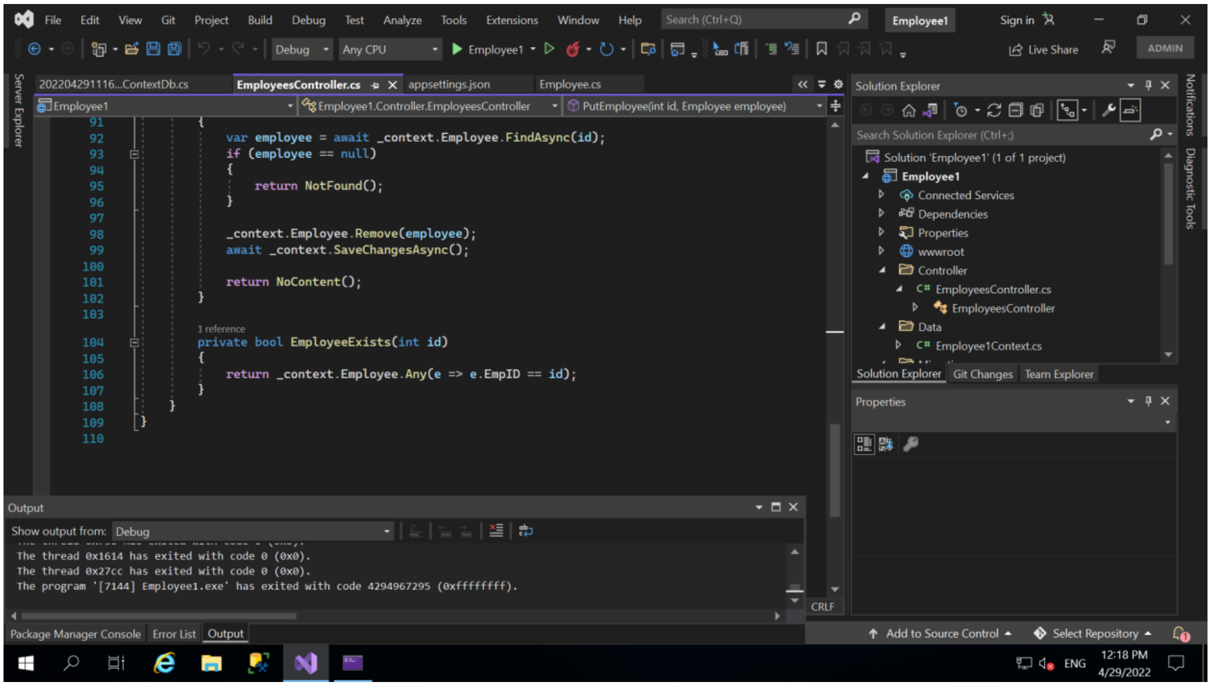


```
        {
            var employee = await _context.Employee.FindAsync(id);
            if (employee == null)
            {
                return NotFound();
            }

            _context.Employee.Remove(employee);
            await _context.SaveChangesAsync();

            return NoContent();
        }

        private bool EmployeeExists(int id)
        {
            return _context.Employee.Any(e => e.EmpID == id);
        }
    }
}
```

```
The thread 0x1614 has exited with code 0 (0x0).
The thread 0x27cc has exited with code 0 (0x0).
The program '[7144] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```

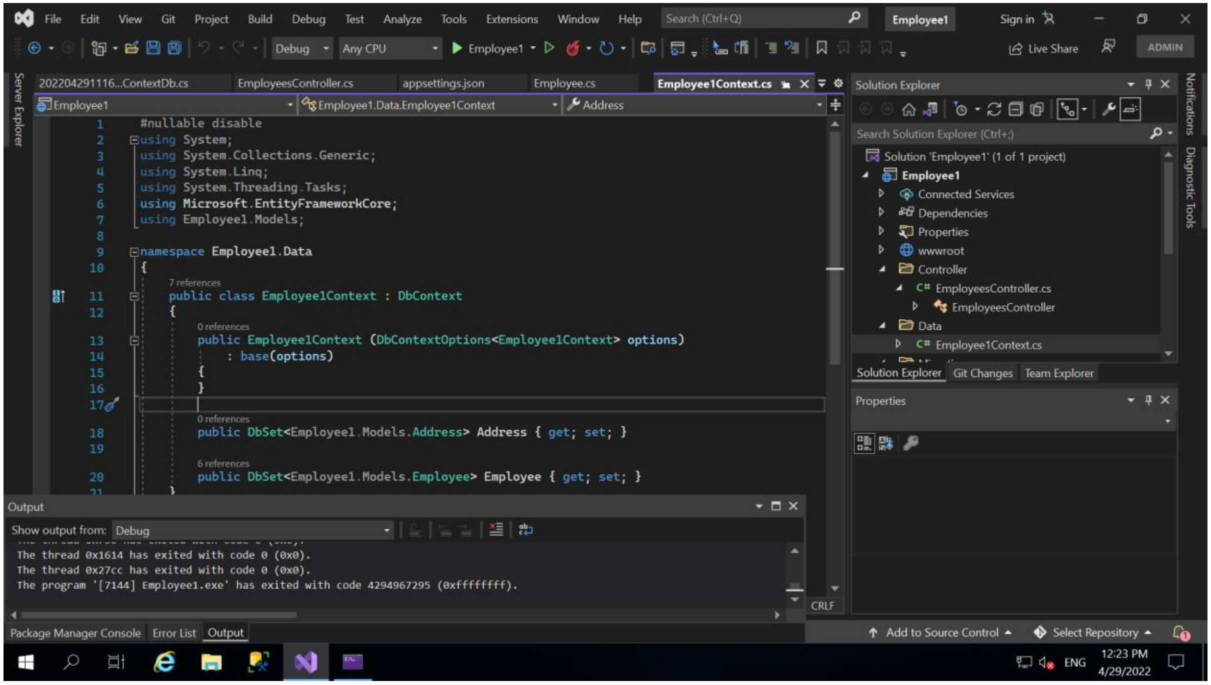
CODE FOR EMPLOYEECONTEXT .CS#nullable disable

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
using Microsoft.EntityFrameworkCore;
using Employee1.Models;

namespace Employee1.Data
{
    public class Employee1Context : DbContext
    {
        public Employee1Context (DbContextOptions<Employee1Context> options)
            : base(options)
        {
        }

        public DbSet<Employee1.Models.Address> Address { get; set; }

        public DbSet<Employee1.Models.Employee> Employee { get; set; }
    }
}
```



```
#nullable disable
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
using Microsoft.EntityFrameworkCore;
using Employee1.Models;

namespace Employee1.Data
{
    public class Employee1Context : DbContext
    {
        public Employee1Context (DbContextOptions<Employee1Context> options)
            : base(options)
        {
        }

        public DbSet<Employee1.Models.Address> Address { get; set; }

        public DbSet<Employee1.Models.Employee> Employee { get; set; }
    }
```

```
The thread 0x1614 has exited with code 0 (0x0).
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The program '[7144] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```
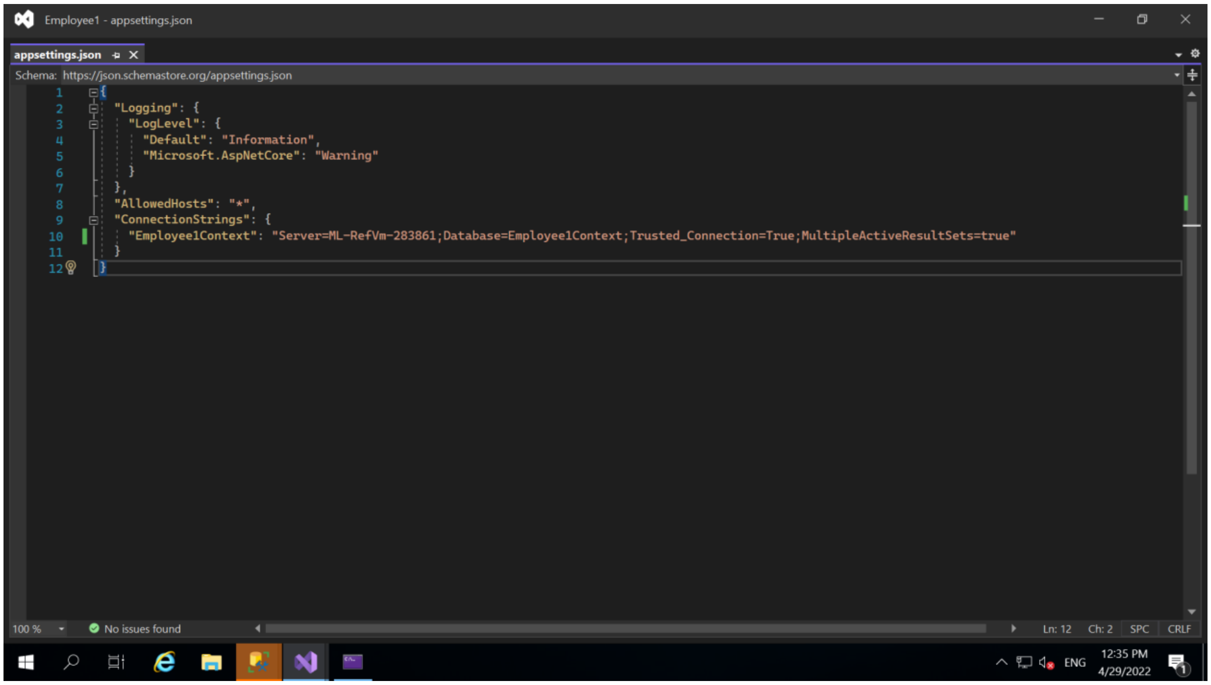
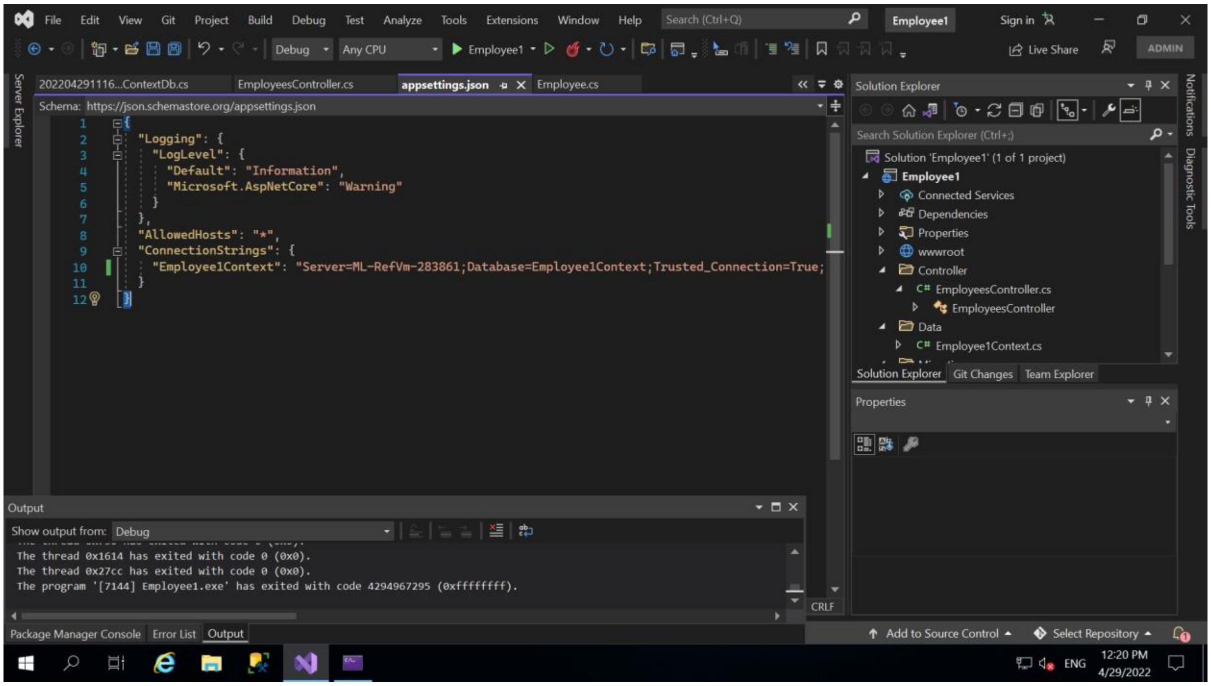

CONNECTON TO THE STRING

```
{
  "Logging": {
    "LogLevel": {
      "Default": "Information",
      "Microsoft.AspNetCore": "Warning"
    }
  },
  "AllowedHosts": "*",
  "ConnectionStrings": {
    "Employee1Context": "Server=ML-RefVm-283861;Database=Employee1Context;Trusted_Connection=True;MultipleActiveResultSets=true"
  }
}
```


Employee1 - appsettings.json
appsettings.json
Schema: https://json.schemastore.org/appsettings.json
100 %
No issues found
Ln: 12
Ch: 2
SPC
CRLF
12:35 PM
4/29/2022

```
{
  "Logging": {
    "LogLevel": {
      "Default": "Information",
      "Microsoft.AspNetCore": "Warning"
    }
  },
  "AllowedHosts": "*",
  "ConnectionStrings": {
    "Employee1Context": "Server=ML-RefVm-283861;Database=Employee1Context;Trusted_Connection=True;MultipleActiveResultSets=true"
  }
}
```



```
{
  "Logging": {
    "LogLevel": {
      "Default": "Information",
      "Microsoft.AspNetCore": "Warning"
    }
  },
  "AllowedHosts": "*",
  "ConnectionStrings": {
    "Employee1Context": "Server=ML-RefVm-283861;Database=Employee1Context;Trusted_Connection=True;
  }
}
```

```
The thread 0x1614 has exited with code 0 (0x0).
The thread 0x27cc has exited with code 0 (0x0).
The program '[7144] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```

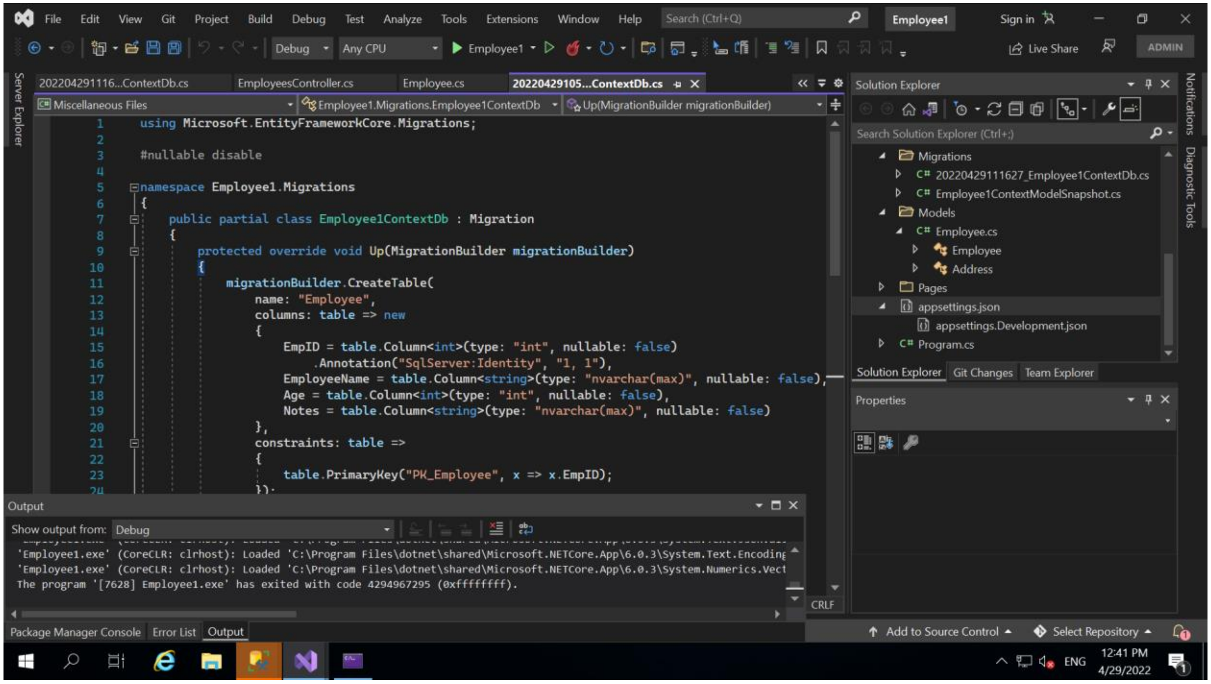
THEN ADDING MIGRATION

AFTER ADDING MIGRATIONS DATABASE IS CREATED AUTOMATICALLY

CODE FOR MIGRATION

```
using Microsoft.EntityFrameworkCore.Migrations;
```

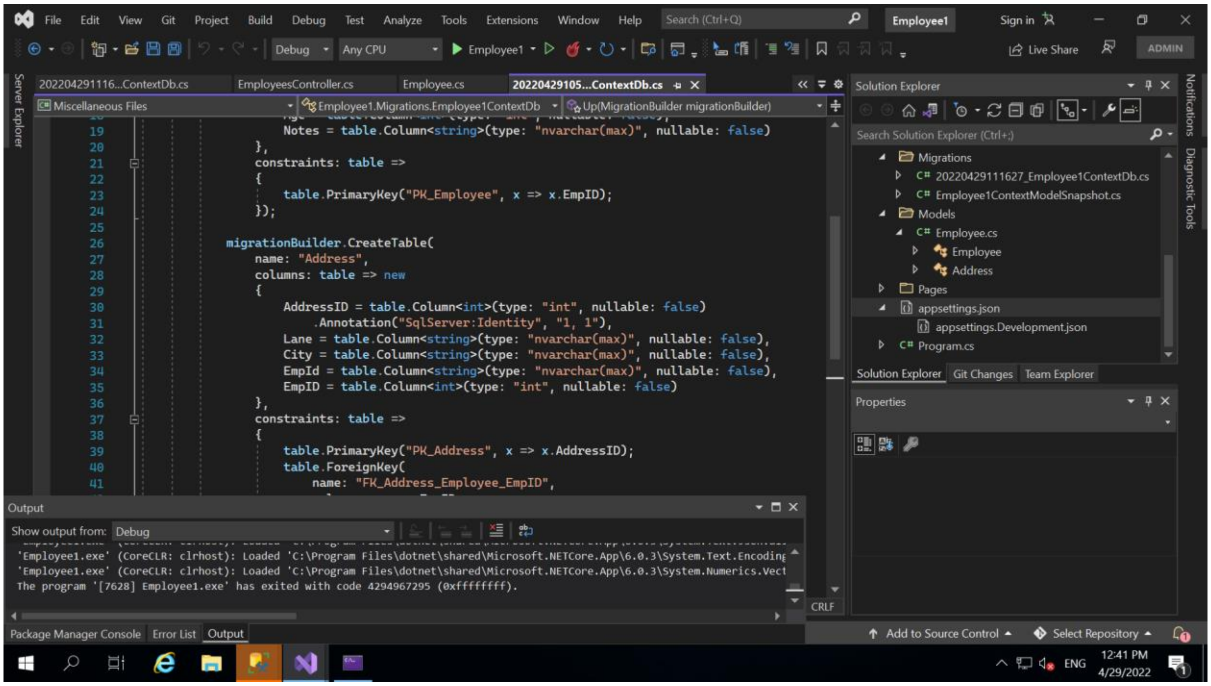
```
#nullable disable

namespace Employee1.Migrations
{
    public partial class Employee1ContextDb : Migration
    {
        protected override void Up(MigrationBuilder migrationBuilder)
        {
            migrationBuilder.CreateTable(
                name: "Employee",
                columns: table => new
                {
                    EmpID = table.Column<int>(type: "int", nullable: false)
                        .Annotation("SqlServer:Identity", "1, 1"),
                    EmployeeName = table.Column<string>(type: "nvarchar(max)",
nullable: false),
                    Age = table.Column<int>(type: "int", nullable: false),
                    Notes = table.Column<string>(type: "nvarchar(max)", nullable:
false)
                },
                constraints: table =>
                {
                    table.PrimaryKey("PK_Employee", x => x.EmpID);
                });

            migrationBuilder.CreateTable(
                name: "Address",
                columns: table => new
                {
                    AddressID = table.Column<int>(type: "int", nullable: false)
                        .Annotation("SqlServer:Identity", "1, 1"),
                    Lane = table.Column<string>(type: "nvarchar(max)", nullable:
false),

                    City = table.Column<string>(type: "nvarchar(max)", nullable:
false),

                    EmpId = table.Column<string>(type: "nvarchar(max)", nullable:
false),

                    EmpID = table.Column<int>(type: "int", nullable: false)
                },
                constraints: table =>
                {
                    table.PrimaryKey("PK_Address", x => x.AddressID);
                    table.ForeignKey(
                        name: "FK_Address_Employee_EmpID",
                        column: x => x.EmpID,
                        principalTable: "Employee",
                        principalColumn: "EmpID",
                        onDelete: ReferentialAction.Cascade);
                });

            migrationBuilder.CreateIndex(
                name: "IX_Address_EmpID",
                table: "Address",
                column: "EmpID");
        }

        protected override void Down(MigrationBuilder migrationBuilder)
        {
            migrationBuilder.DropTable(
                name: "Address");

            migrationBuilder.DropTable(
                name: "Employee");
        }
    }
}
```



```
using Microsoft.EntityFrameworkCore.Migrations;

#nullable disable

namespace Employee1.Migrations
{
    public partial class Employee1ContextDb : Migration
    {
        protected override void Up(MigrationBuilder migrationBuilder)
        {
            migrationBuilder.CreateTable(
                name: "Employee",
                columns: table => new
                {
                    EmpID = table.Column<int>(type: "int", nullable: false)
                        .Annotation("SqlServer:Identity", "1, 1"),
                    EmployeeName = table.Column<string>(type: "nvarchar(max)", nullable: false),
                    Age = table.Column<int>(type: "int", nullable: false),
                    Notes = table.Column<string>(type: "nvarchar(max)", nullable: false)
                },
                constraints: table =>
                {
                    table.PrimaryKey("PK_Employee", x => x.EmpID);
                });
```

Show output from: Debug

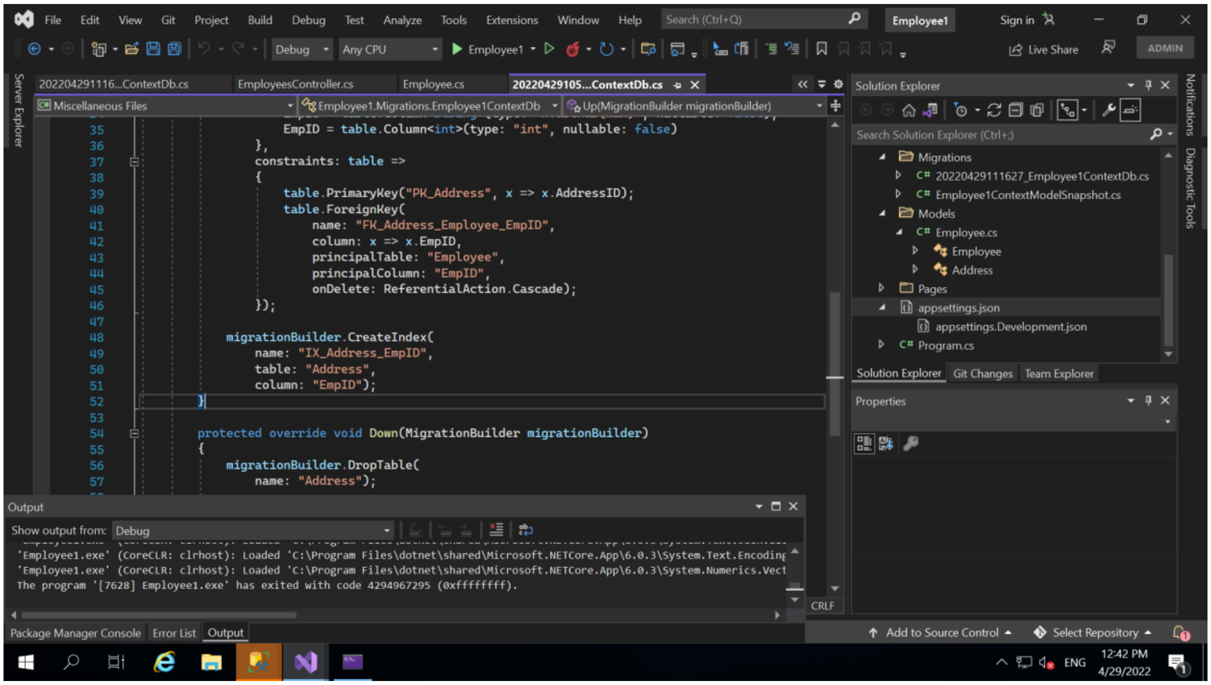
```
'Employee1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.3\System.Text.Encoding
'Employee1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.3\System.Numerics.Vect
The program '[7628] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```



```
                    Notes = table.Column<string>(type: "nvarchar(max)", nullable: false)
                },
                constraints: table =>
                {
                    table.PrimaryKey("PK_Employee", x => x.EmpID);
                });

            migrationBuilder.CreateTable(
                name: "Address",
                columns: table => new
                {
                    AddressID = table.Column<int>(type: "int", nullable: false)
                        .Annotation("SqlServer:Identity", "1, 1"),
                    Lane = table.Column<string>(type: "nvarchar(max)", nullable: false),
                    City = table.Column<string>(type: "nvarchar(max)", nullable: false),
                    EmpId = table.Column<string>(type: "nvarchar(max)", nullable: false),
                    EmpID = table.Column<int>(type: "int", nullable: false)
                },
                constraints: table =>
                {
                    table.PrimaryKey("PK_Address", x => x.AddressID);
                    table.ForeignKey(
                        name: "FK_Address_Employee_EmpID",
```

Show output from: Debug

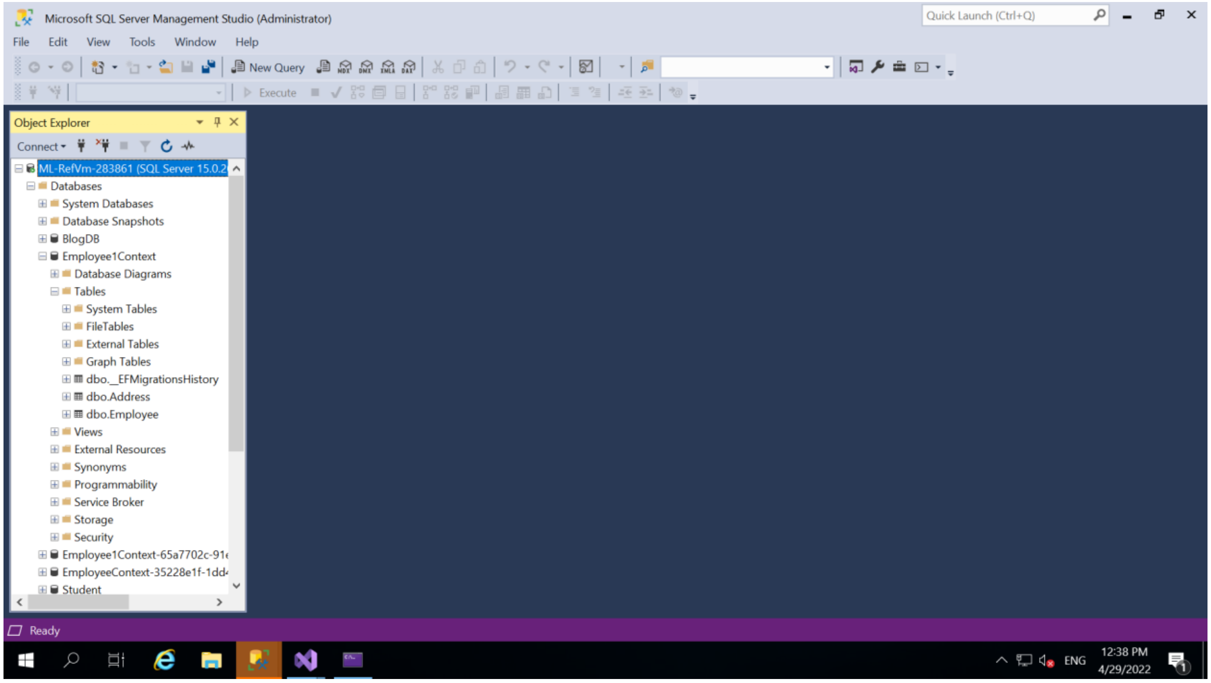
```
'Employee1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.3\System.Text.Encoding
'Employee1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.3\System.Numerics.Vect
The program '[7628] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```



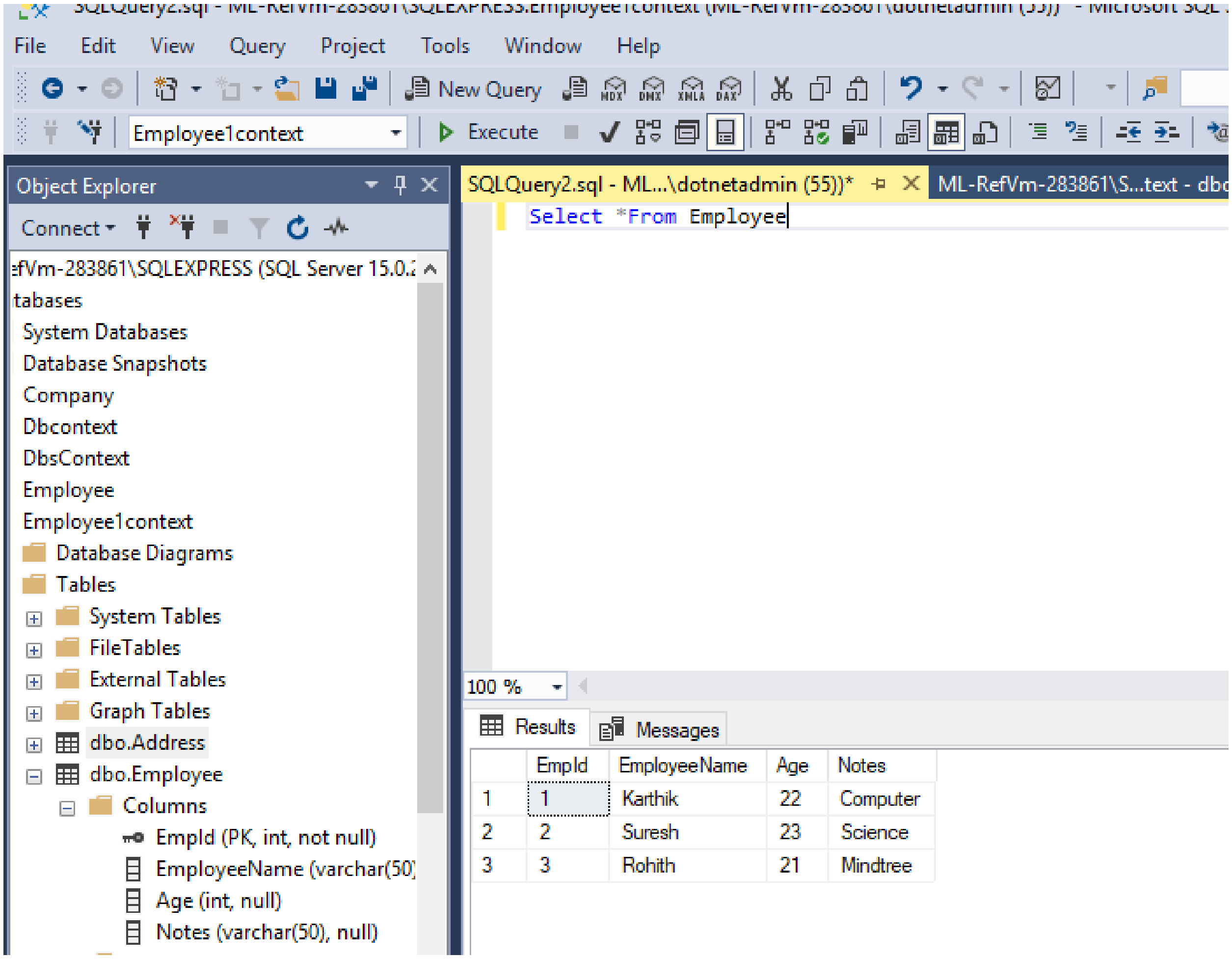
```
                    EmpID = table.Column<int>(type: "int", nullable: false)
                },
                constraints: table =>
                {
                    table.PrimaryKey("PK_Address", x => x.AddressID);
                    table.ForeignKey(
                        name: "FK_Address_Employee_EmpID",
                        column: x => x.EmpID,
                        principalTable: "Employee",
                        principalColumn: "EmpID",
                        onDelete: ReferentialAction.Cascade);
                });

            migrationBuilder.CreateIndex(
                name: "IX_Address_EmpID",
                table: "Address",
                column: "EmpID");
        }

        protected override void Down(MigrationBuilder migrationBuilder)
        {
            migrationBuilder.DropTable(
                name: "Address");
```

```
'Employee1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.3\System.Text.Encoding
'Employee1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.3\System.Numerics.Vect
The program '[7628] Employee1.exe' has exited with code 4294967295 (0xffffffff).
```

DATABASE IS CREATED AUTOMATICALLY



OUTPUT



```
Select *From Employee
```

	EmpId	EmployeeName	Age	Notes
1	1	Karthik	22	Computer
2	2	Suresh	23	Science
3	3	Rohith	21	Mindtree