COLLEGE OF APPLIED BUSINESS AND TECHNOLOGY

Gangahity, Chabahil Kathmandu

NET Centric Computing

PRACTICAL FILE-2081

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B.Sc.CSIT 6th Semester

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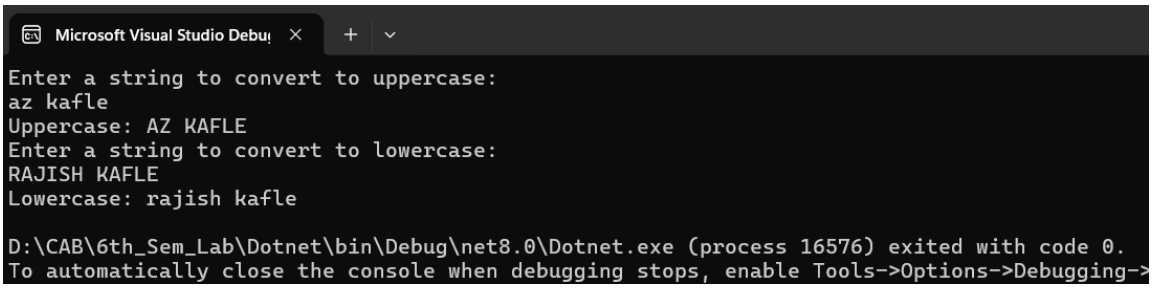
1. **Write a program to convert input strings from lower to upper and upper to lower case.**

Source Code:

```
using System;
namespace lab
{
    internal class ConvertString
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter a string to convert to uppercase:");
            string inputUpper = Console.ReadLine();
            string upperCase = inputUpper.ToUpper();
            Console.WriteLine("Uppercase: " + upperCase);
            Console.WriteLine("Enter a string to convert to lowercase:");
            string inputLower = Console.ReadLine();
            string lowerCase = inputLower.ToLower();
            Console.WriteLine("Lowercase: " + lowerCase);
        }
    }
}
```

Output:



2. **Write a program to create a new string from a given string where first and last characters will be interchanged.**

Source Code:

```
using System;
namespace lab
{
    internal class StringInterchange
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter a string:");
            string input = Console.ReadLine();
            string result = SwapFirstAndLastCharacters(input);
            Console.WriteLine("Modified string: " + result);
        }
        static string SwapFirstAndLastCharacters(string input)
        {
            if (string.IsNullOrEmpty(input) || input.Length == 1) return input;
            char[] charArray = input.ToCharArray();
            char firstChar = charArray[0];
            char lastChar = charArray[input.Length - 1];
            charArray[0] = lastChar;
            charArray[input.Length - 1] = firstChar;
            return new string(charArray);
        }
    }
}
```

Output:

```
Microsoft Visual Studio Debu
Enter a string:
Kafleaz
Modified string: zafleaK

D:\CAB\6th_Sem_Lab\Dotnet\bin\Debug\net8.0\Dotnet.exe (process 29136) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->
le when debugging stops.
Press any key to close this window . . .
```

3. Write a program to demonstrate the basics of class and object.

Source Code:

```
using System;
namespace lab
{
    internal class Basic_class_obj
    {
        class Person
        {
            public string? Name { get; set; }
            public int Age { get; set; }
            public void DisplayInfo()
            {
                Console.WriteLine($"Name: {Name}, Age: {Age}");
            }

        class Program
        {
            static void Main(string[] args)
            {
                Person person1 = new Person();
                    person1.Name = "AZ";
                    person1.Age = 23;
                Person person2 = new Person();
                    person2.Name = "Rajish";
                    person2.Age = 24;
                Console.WriteLine("Person 1:");
                    person1.DisplayInfo();
                Console.WriteLine("\nPerson 2:");
                    person2.DisplayInfo();
            }
        }
    }
}
```

Output:

```
Microsoft Visual Studio Debu

Person 1:
Name: AZ, Age: 23

Person 2:
Name: Rajish, Age: 24

D:\CAB\6th_Sem_Lab\Dotnet\bin\Debug\net8.0\Dotnet.exe (process 27948) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->
le when debugging stops.
Press any key to close this window . . .
```

4. Write a program to illustrate encapsulation with properties and indexers.

Source Code:

```
using System;
namespace lab
{
    internal class Encapsulation
    {
        class Student
        {
            private string[] subjects = new string[5];
            public string this[int index]
            {
                get { return subjects[index]; }
                set { subjects[index] = value; }
            }
            public int TotalSubjects
            {
                get { return subjects.Length; }
            }
        }

        class Program
        {
            static void Main(string[] args)
            {
                Student student = new Student();
                    student[0] = "Math";
                    student[1] = "Science";
                    student[2] = "History";
                    student[3] = "English";
                    student[4] = "Computer Science";
                Console.WriteLine("Subjects:");

                for (int i = 0; i < student.TotalSubjects; i++)
```

```
            {
                Console.WriteLine($"Subject {i + 1}: {student[i]}");
            }
        }
    }
  }
}
```

Output:

```
Microsoft Visual Studio Debu

Subjects:
Subject 1: Math
Subject 2: Science
Subject 3: History
Subject 4: English
Subject 5: Computer Science

D:\CAB\6th_Sem_Lab\Dotnet\bin\Debug\net8.0\Dotnet.exe (process 11156) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->
le when debugging stops.
Press any key to close this window . . .
```

5. **Write a program that reflects the overloading and overriding of constructor and function.**

Source Code:

```
using System;
namespace lab
{
    internal class Overloading_Riding
    {
        class Shape
        {
            public string Name { get; }
            public Shape(string name)
            {
                Name = name;
            }
            public virtual void Display()
            {
                Console.WriteLine($"This is a {Name}");
            }
        }
        class Rectangle : Shape
        {
            public double Width { get; }
            public double Height { get; }
            public Rectangle(string name, double width, double height) : base(name)
            {
                Width = width;
                Height = height;
            }
            public override void Display()
            {
                base.Display();
                Console.WriteLine($"It has width: {Width} and height: {Height}");
            }
```

```
        }

        class Circle : Shape
        {
            public double Radius { get; }
            public Circle(string name, double radius) : base(name)
            {
                Radius = radius;
            }
            public void Display(double area)
            {
                Console.WriteLine($"This is a {Name} with radius {Radius}");
                Console.WriteLine($"Area: {area}");
            }
        }
        class Program
        {
            static void Main(string[] args)
            {
                Rectangle rectangle = new Rectangle("Rectangle", 5, 10);
rectangle.Display();
                Circle circle = new Circle("Circle", 7);
                double circleArea = CalculateCircleArea(circle.Radius);
                circle.Display(circleArea);
            }
            static double CalculateCircleArea(double radius)
            {
                return Math.PI * Math.Pow(radius, 2);
            }
        }
    }
}
```

Output:

```
Microsoft Visual Studio Debu

This is a Rectangle
It has width: 5 and height: 10
This is a Circle with radius 7
Area: 153.93804002589985

D:\CAB\6th_Sem_Lab\Dotnet\bin\Debug\net8.0\Dotnet.exe (process 17524) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->
le when debugging stops.
Press any key to close this window . . .
```

6. Write a program to implement multiple inheritance with the use of interfaces.

Source Code:

```
using System;
namespace lab
{
    internal class Multiple_Inheritance
    {
        interface IShape
        {
            double CalculateArea();
        }
        interface IColor
        {
            string GetColor();
        }

        class Circle : IShape, IColor
        {
            private double Radius { get; }
            private string Color { get; }

            public Circle(double radius, string color)
            {
                Radius = radius;
                Color = color;
            }
            public double CalculateArea()
            {
                return Math.PI * Math.Pow(Radius, 2);
            }
            public string GetColor()
            {
                return Color;
            }
```

```
        }

        class Program
        {
            static void Main(string[] args)
            {
                Circle redCircle = new Circle(5, "Red");

                double area = redCircle.CalculateArea();
                string color = redCircle.GetColor();
                Console.WriteLine($"Circle Area: {area}");
                Console.WriteLine($"Circle Color: {color}");
            }
        }
    }
}
```

Output:

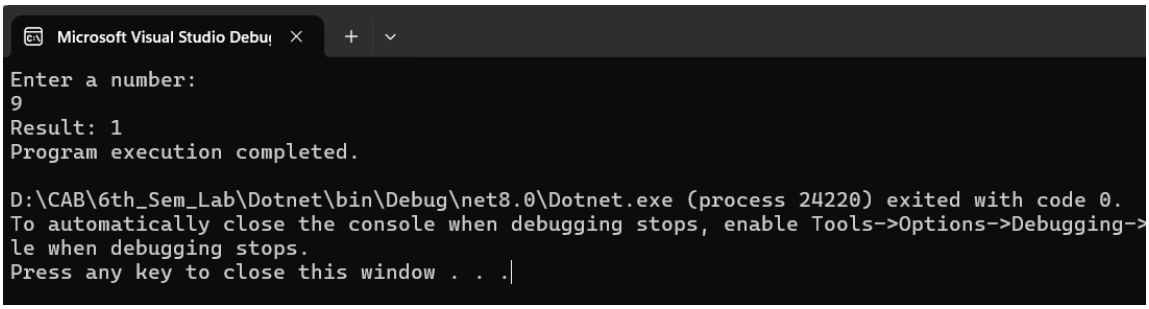
7. Write a program to show how to handle exception in C#.

Source Code:

```
using System;
namespace lab
{
    internal class ExceptionHandle
    {
        static void Main(string[] args)
        {
            try
            {
                Console.WriteLine("Enter a number:"); int num =
int.Parse(Console.ReadLine());

                int result = 10 / num;
                Console.WriteLine($"Result: {result}");
            }
            catch (FormatException)
            {
                Console.WriteLine("Invalid input. Please enter a valid number.");
            }
            catch (DivideByZeroException)
            {
                Console.WriteLine("Division by zero is not allowed.");
            }
            catch (Exception ex)
            {
                Console.WriteLine($"An error occurred: {ex.Message}");
            }
            finally
            {
                Console.WriteLine("Program execution completed.");
            }
        }
```

```
        }
    }
```

Output:


Microsoft Visual Studio Debu
Enter a number:
9
Result: 1
Program execution completed.
D:\CAB\6th_Sem_Lab\Dotnet\bin\Debug\net8.0\Dotnet.exe (process 24220) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->
le when debugging stops.
Press any key to close this window . . .

8. Write a program to demonstrate use of Delegate and Events.

Source Code:

```
using System;
namespace lab
{
    internal class Use_Delegeate_Events
    {
        public delegate void EventHandler(string message); class Publisher
        {
            public event EventHandler Notify;
            public void DoSomething()
            {
                Console.WriteLine("Loading. . . . . ");
                Notify?.Invoke("Loaded Successfully.");
            }
        }
        class Subscriber
        {
            public void Subscribe(Publisher publisher)
            {
                publisher.Notify += HandleEvent;
            }
            public void Unsubscribe(Publisher publisher)
            {
                publisher.Notify -= HandleEvent;
            }
            private void HandleEvent(string message)
            {
                Console.WriteLine($"Event handled: {message}");
            }
        }
        class Program
        {
            static void Main(string[] args)
```

```
            {
                Publisher publisher = new Publisher();
                Subscriber subscriber = new Subscriber();

                subscriber.Subscribe(publisher);
                publisher.DoSomething();
                subscriber.Unsubscribe(publisher);
                publisher.DoSomething();
            }
        }
    }
}
```

Output:

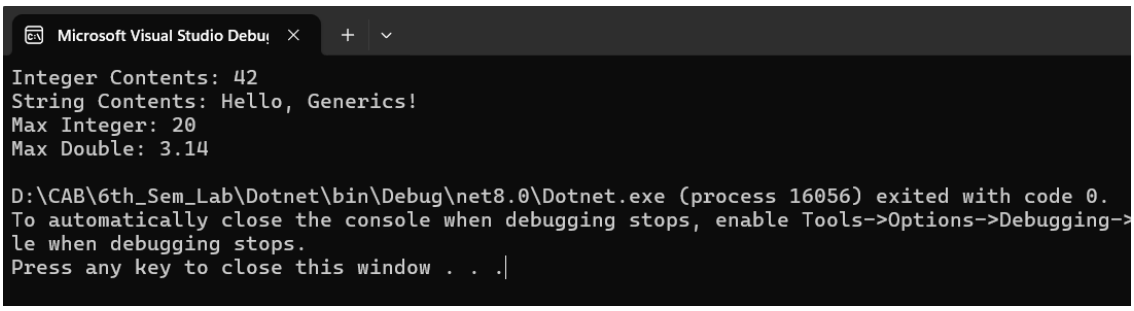
9. Write a program to show the use of generic classes and methods.

Source Code:

```
using System;
namespace lab
{
    internal class Generic_Class
    {
        class Box<T>
        {
            private T contents; public Box(T item)
            {
                contents = item;
            }
            public T GetContents()
            {
                return contents;
            }
        }
        class MathHelper
        {
            public static T Max<T>(T a, T b) where T : IComparable<T>
            {
                return a.CompareTo(b) > 0 ? a : b;
            }
        }

        class Program
        {
            static void Main(string[] args)
            {
                Box<int> intBox = new
                    Box<int>(42); int intContents = intBox.GetContents();
                Console.WriteLine($"Integer Contents: {intContents}");
```

```
            Box<string> stringBox = new
                Box<string>("Hello, Generics!");
            string stringContents = stringBox.GetContents();
            Console.WriteLine($"String Contents: {stringContents}");

            int maxInt = MathHelper.Max(10, 20);
            Console.WriteLine($"Max Integer: {maxInt}");

            double maxDouble = MathHelper.Max(3.14, 2.71);
            Console.WriteLine($"Max Double: {maxDouble}");
        }
    }
  }
}
```

Output:



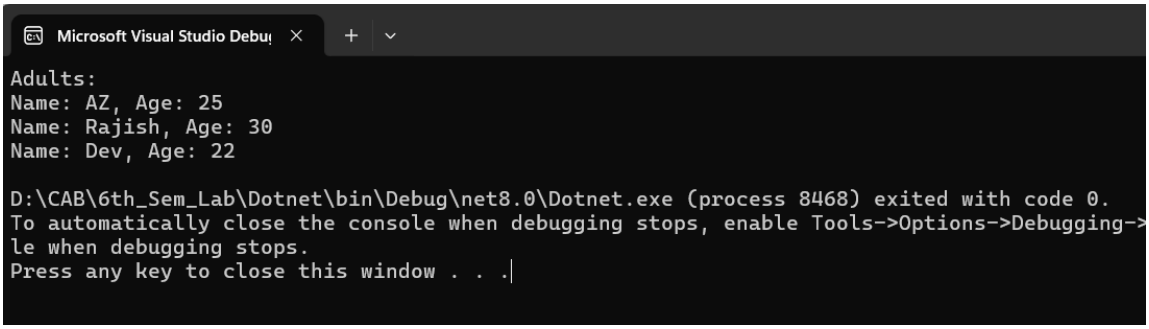
10. Write a program to demonstrate the use of the method as a condition in the LINQ.

Source Code:

```
using System;
using System.Linq;
namespace lab
{
    internal class Linq
    {
        class Person
        {
            public string Name { get; set; }
            public int Age { get; set; }
        }
        class Program
        {
            static void Main(string[] args)
            {
                List<Person> people = new List<Person>
            {
                new Person { Name = "AZ", Age = 25 },
                new Person { Name = "Rajish", Age = 30 },
                new Person { Name = "Dev", Age = 22 }
            };
                var result = from person in people where IsAdult(person.Age) select person;

                Console.WriteLine("Adults:");
                foreach (var person in result)
                {
                    Console.WriteLine($"Name: {person.Name}, Age: {person.Age}");
                }
            }
            static bool IsAdult(int age)
            {
                return age >= 18;
```

```
            }
        }
    }
}
```

Output:


Microsoft Visual Studio Debu
Adults:
Name: AZ, Age: 25
Name: Rajish, Age: 30
Name: Dev, Age: 22
D:\CAB\6th_Sem_Lab\Dotnet\bin\Debug\net8.0\Dotnet.exe (process 8468) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->
le when debugging stops.
Press any key to close this window . . .

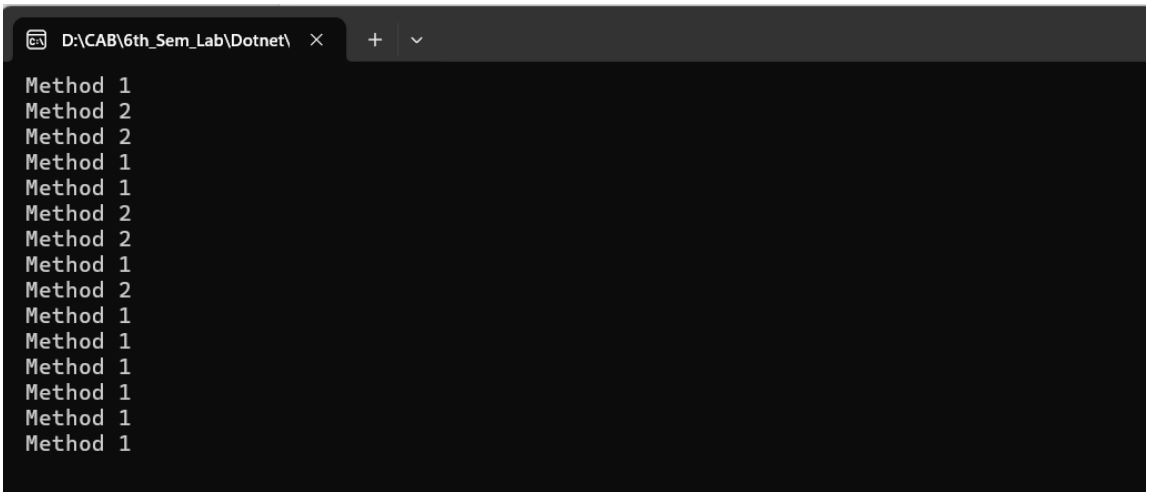
11. Demonstrate Asynchronous programming with async, await, Task in C#.

Source Code:

```
using System;
namespace lab2
{
    internal class Asynchronous
    {
        static void Main(string[] args)
        {
            Method1();
            Method2();
            Console.ReadKey();
        }

        public static async Task Method1()
        {
            await Task.Run(() =>
            {
                for (int i = 0; i < 10; i++)
                {
                    Console.WriteLine(" Method 1");
                    // Do something
                    Task.Delay(100).Wait();
                }
            });
        }


        public static void Method2()
        {
            for (int i = 0; i < 5; i++)
            {
                Console.WriteLine(" Method 2");
                // Do something
```

```
                Task.Delay(100).Wait();
            }
        }
    }
}
```

Output:



12. Write a program to demonstrate dependency injection in asp.net core.

Source code:

Controllers/WeatherController.cs

```
using Dependency_inj.Services;
using Microsoft.AspNetCore.Mvc;

namespace Dependency_inj.Controllers
{
    public class WeatherController : Controller
    {
        private readonly IWeatherService _weatherService;
        public WeatherController(IWeatherService weatherService)
        {
            _weatherService = weatherService;
        }
        public IActionResult Index()
        {
            string forecast = _weatherService.GetForecast();
            return View((object)forecast);
        }
    }
}
```

Services/WeatherService.cs

```
using Microsoft.AspNetCore.Mvc;

namespace Dependency_inj.Services
{
    public class WeatherService : IWeatherService
    {
        public string GetForecast()
        {
```

```
            return "Today's weather is sunny!";
        }
    }
}
```

Services/IWeatherService.cs

```
using Microsoft.AspNetCore.Mvc;
namespace Dependency_inj.Services
{
        public interface IWeatherService
        {
            string GetForecast();
        }
}
```

Index.cshtml

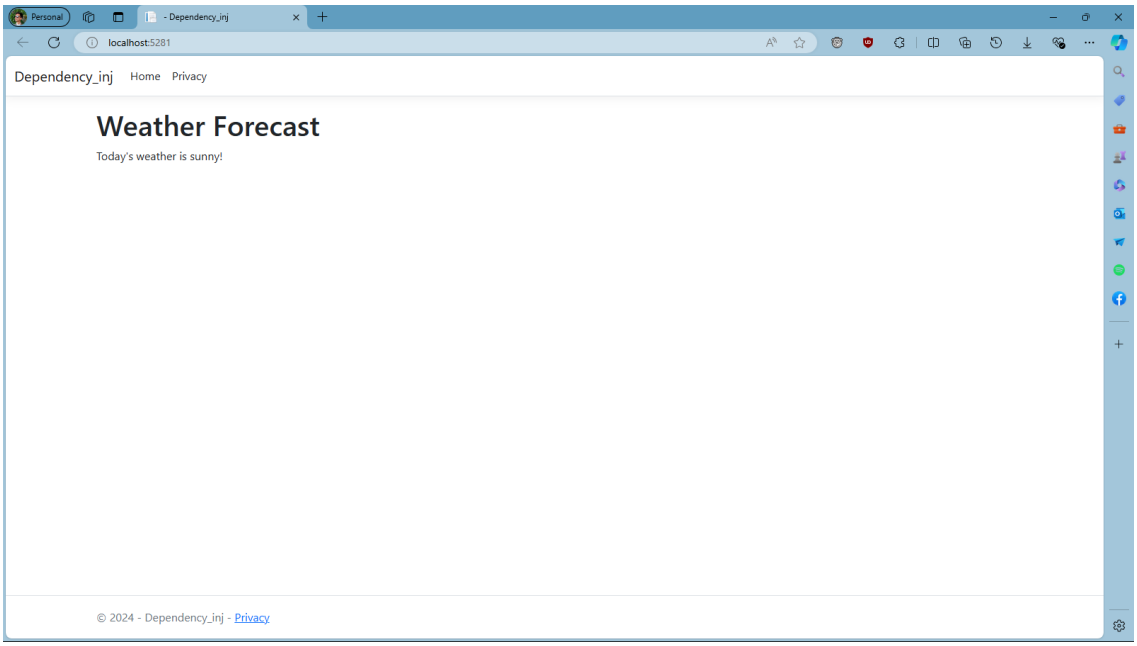
```
@model string

<h1>Weather Forecast</h1>
<p>@Model</p>
```

Program.cs

```
using Dependency_inj.Services;
var builder = WebApplication.CreateBuilder(args);
// Add services to the container.
builder.Services.AddControllersWithViews();
builder.Services.AddScoped<IWeatherService, WeatherService>();
var app = builder.Build();
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");
}
app.UseStaticFiles();
app.UseRouting();
app.UseAuthorization();
```

```
app.MapControllerRoute(
    name: "default",
    pattern: "{controller=Weather}/{action=Index}/{id?}");
app.Run();
```

Output:



13. Create an ASP.NET Core application to perform CRUD operation using ADO.NET

Source code:

Controllers/ProductController.cs

```
using CrudOperation.Models;
using Microsoft.AspNetCore.Mvc;
using System.Data.SqlClient;
namespace CrudOperation.Controllers
{
    public class ProductController : Controller
    {
        private string _connectionString =
"Server=(localdb)\\mssqllocaldb;Database=DotNet_Lab;Trusted_Connection=True;M
ultipleActiveResultSets=true";
        public IActionResult Create()
        {
            return View();
        }
        [HttpPost]
        public IActionResult Create(Product product)
        {
            using (SqlConnection connection = new SqlConnection(_connectionString))
            {
                connection.Open();
                string query = "INSERT INTO Products (Name, Price, Description)
VALUES (@Name, @Price, @Description)";
                using SqlCommand command = new SqlCommand(query, connection);
                command.Parameters.AddWithValue("@Name", product.Name);
                command.Parameters.AddWithValue("@Price", product.Price);
                command.Parameters.AddWithValue("@Description",
product.Description);
                command.ExecuteNonQuery();
            }
            return RedirectToAction("Index");
```

```
}
public IActionResult Index()
{
    List<Product> products = new List<Product>();
    using (SqlConnection connection = new SqlConnection(_connectionString))
    {
        connection.Open();
        string query = "SELECT * FROM Products";
        using SqlCommand command = new SqlCommand(query, connection);
        using SqlDataReader reader = command.ExecuteReader();
        while (reader.Read())
        {
            Product product = new Product
            {
                Id = Convert.ToInt32(reader["Id"]),
                Name = reader["Name"].ToString(),
                Price = Convert.ToDecimal(reader["Price"]),
                Description = reader["Description"].ToString()
            };
            products.Add(product);
        }
    }
    return View(products);
}
public IActionResult Edit(int id)
{
    Product product = new Product();
    using (SqlConnection connection = new SqlConnection(_connectionString))
    {
        connection.Open();
        string query = "SELECT * FROM Products WHERE Id = @Id";
        using SqlCommand command = new SqlCommand(query, connection);
        command.Parameters.AddWithValue("@Id", id);
        using SqlDataReader reader = command.ExecuteReader();
```

```
            while (reader.Read())
            {
                product.Id = Convert.ToInt32(reader["Id"]);
                product.Name = reader["Name"].ToString();
                product.Price = Convert.ToDecimal(reader["Price"]);
                product.Description = reader["Description"].ToString();
            }
        }
        return View(product);
    }
    [HttpPost]
    public IActionResult Edit(Product product)
    {
        using (SqlConnection connection = new SqlConnection(_connectionString))
        {
            connection.Open();
            string query = "UPDATE Products SET Name = @Name, Price = @Price,
Description = @Description WHERE Id = @Id";
            using SqlCommand command = new SqlCommand(query, connection);
            command.Parameters.AddWithValue("@Id", product.Id);
            command.Parameters.AddWithValue("@Name", product.Name);
            command.Parameters.AddWithValue("@Price", product.Price);
            command.Parameters.AddWithValue("@Description",
product.Description);
            command.ExecuteNonQuery();
        }
        return RedirectToAction("Index");
    }
    public IActionResult Delete(int id)
    {
        using (SqlConnection connection = new SqlConnection(_connectionString))
        {
            connection.Open();
            string query = "DELETE FROM Products WHERE Id = @Id";
```

```
            using SqlCommand command = new SqlCommand(query, connection);
            command.Parameters.AddWithValue("@Id", id);
            command.ExecuteNonQuery();
        }
        return RedirectToAction("Index");
    }
  }
}
```

Models/Product.cs

```
namespace CrudOperation.Models
{
    public class Product
    {
        public int Id { get; set; }
        public string? Name { get; set; }
        public decimal Price { get; set; }
        public string? Description { get; set; }
    }
}
```

Views/Product/Create.cshtml

```
@model CrudOperation.Models.Product

<h2>Create Product</h2>

<form asp-action="Create">
    <div class="form-group">
        <label asp-for="Name"></label>
        <input asp-for="Name" class="form-control" />
    </div>
    <div class="form-group">
        <label asp-for="Price"></label>
        <input asp-for="Price" class="form-control" />
```

```
    </div>
    <div class="form-group">
        <label asp-for="Description"></label>
        <input asp-for="Description" class="form-control" />
    </div>
    <button type="submit" class="btn btn-primary">Create</button>
</form>
```

Views/Product/Edit.cshtml

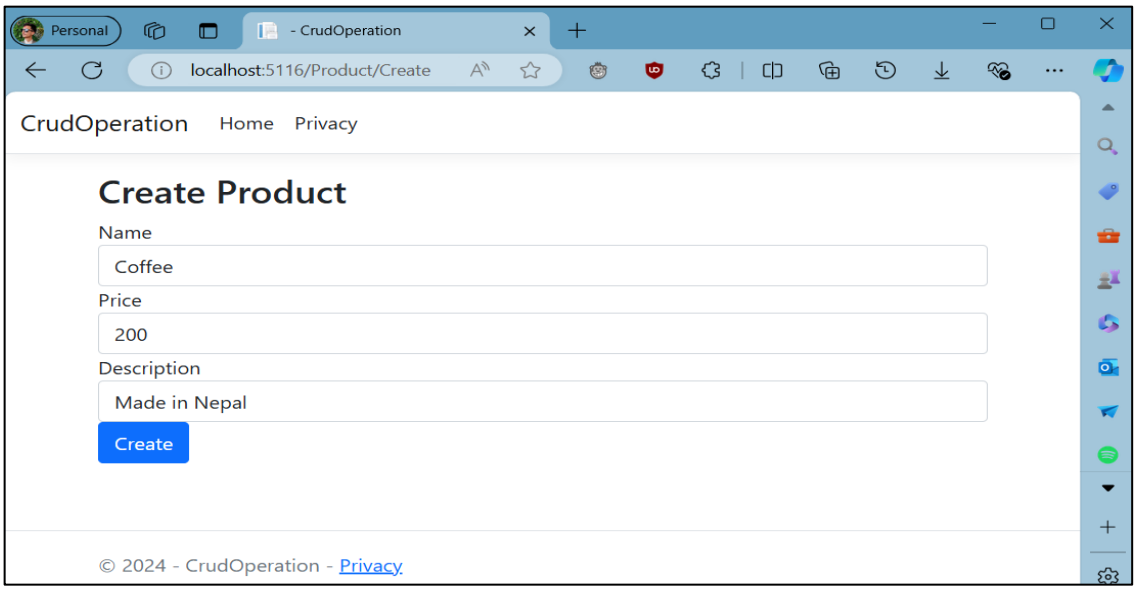
```
@model CrudOperation.Models.Product

<h2>Edit Product</h2>

<form asp-action="Edit">
    <input type="hidden" asp-for="Id" />
    <div class="form-group">
        <label asp-for="Name"></label>
        <input asp-for="Name" class="form-control" />
    </div>
    <div class="form-group">
        <label asp-for="Price"></label>
        <input asp-for="Price" class="form-control" />
    </div>
    <div class="form-group">
        <label asp-for="Description"></label>
        <input asp-for="Description" class="form-control" />
    </div>
    <button type="submit" class="btn btn-primary">Save Changes</button>
</form>
```

Views/Product/Index.cshtml

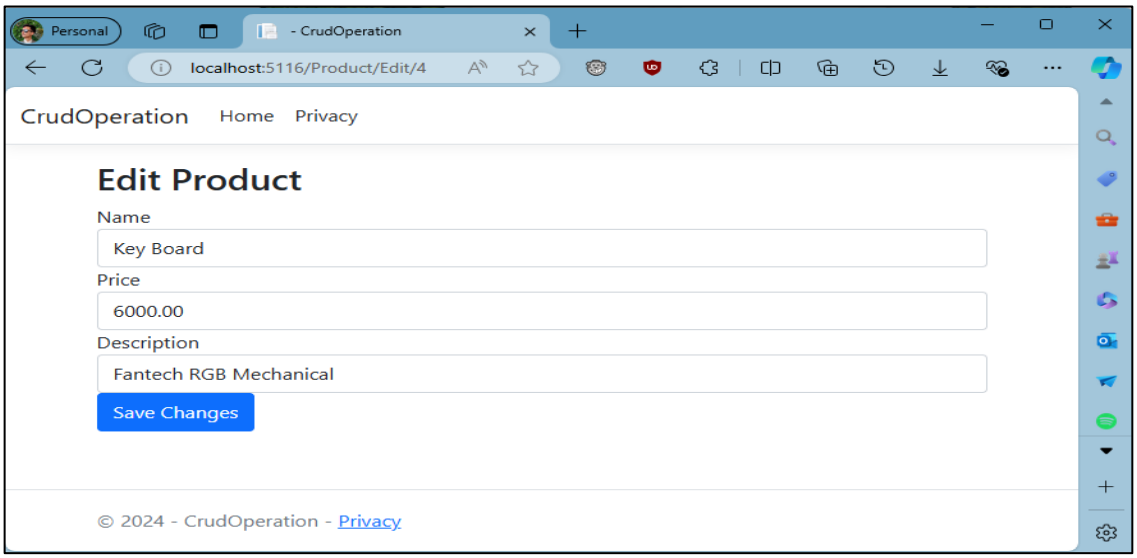
```
@model IEnumerable<CrudOperation.Models.Product>

<h2>Product List</h2>
```

```
<p>
    <a asp-action="Create" class="btn btn-primary">Create New</a>
</p>
<table class="table">
    <thead>
        <tr>
            <th>Id</th>
            <th>Name</th>
            <th>Price</th>
            <th>Description</th>
            <th></th>
        </tr>
    </thead>
    <tbody>
        @foreach (var product in Model)
        {
                <tr>
                    <td>@product.Id</td>
                    <td>@product.Name</td>
                    <td>@product.Price</td>
                    <td>@product.Description</td>
                    <td>
                        <a asp-action="Edit" asp-route-id="@product.Id">Edit</a> |
                        <a asp-action="Delete" asp-route-id="@product.Id">Delete</a>
                    </td>
                </tr>
        }
    </tbody>
</table>
```

Output:


Personal
- CrudOperation
localhost:5116/Product/Create
CrudOperation
Home
Privacy
Create Product
Name
Coffee
Price
200
Description
Made in Nepal
Create
© 2024 - CrudOperation - Privacy


CrudOperation
Home
Privacy
Product List
Create New
Id
Name
Price
Description
2
Laptop
100000.00
Acer-Swift go 14
Edit | Delete
3
Processor
95000.00
i9-10gen
Edit | Delete
4
Key Board
6000.00
Fantech RGB Mechanical
Edit | Delete
1002
Coffee
200.00
Made in Nepal
Edit | Delete


Personal
- CrudOperation
localhost:5116/Product/Edit/4
CrudOperation
Home
Privacy
Edit Product
Name
Key Board
Price
6000.00
Description
Fantech RGB Mechanical
Save Changes
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14. Write a program to store and display employee information using DbContext.

Source code:

Controllers/HomeController.cs

```
using Microsoft.AspNetCore.Mvc;
using Microsoft.Extensions.Logging;
using System.Collections.Generic;
using System.Linq;
using UsingDbContext.Models;

namespace PurpleStore.Controllers
{
    public class HomeController : Controller
    {
        private readonly ApplicationContext context;
        private readonly ILogger<HomeController> _logger;
        public HomeController(ILogger<HomeController> logger, ApplicationContext
_context)
        {
            _logger = logger;
            context = _context;
        }
        public void Add()
        {
            var cat1 = new Category { Name = "Toy", Description = "This is a Car Toy!"
};
            context.Categories.Add(cat1);
            context.SaveChanges();
            _logger.LogInformation("Category added: {@cat1}", cat1);
        }
        public IActionResult Index()
        {
            Add();  // Ensure this is called to add data
            List<Category> categorylist = context.Categories.ToList();
```

```
            return View(categorylist);
        }
    }
}
```

Models/ApplicationContext.cs

```
using Microsoft.EntityFrameworkCore;
using Microsoft.Extensions.Configuration;
using UsingDbContext.Models;
namespace UsingDbContext.Models
{
    public class ApplicationContext : DbContext
    {
        private readonly IConfiguration configuration;
        public ApplicationContext(IConfiguration _configuration)
        {
            configuration = _configuration;
        }
        protected override void OnConfiguring(DbContextOptionsBuilder
optionsBuilder)
        {
            if (!optionsBuilder.IsConfigured)
            {
                optionsBuilder.UseSqlServer(configuration.GetConnectionString("test"));
            }
        }
        protected override void OnModelCreating(ModelBuilder modelBuilder)
        {
        }
        public DbSet<Category> Categories { get; set; }
    }
}
```

Models/Category.cs

```
using Microsoft.EntityFrameworkCore;
using System.ComponentModel.DataAnnotations;
namespace UsingDbContext.Models
{
    public class Category
    {
        [Key]
        public int Id { get; set; }
        public string? Name { get; set; }
        public string? Description { get; set; }
    }
}
```

Views/Home/Index.cshtml

```
@model List<UsingDbContext.Models.Category>
<h2>Categories</h2>
<table class="table">
    <thead>
        <tr>
            <th>ID</th>
            <th>Name</th>
            <th>Description</th>
        </tr>
    </thead>
    <tbody>
        @foreach (var category in Model)
        {
            <tr>
                <td>@category.Id</td>
                <td>@category.Name</td>
                <td>@category.Description</td>
            </tr>
        }
```

```
    </tbody>
</table>
```

appsettings.json

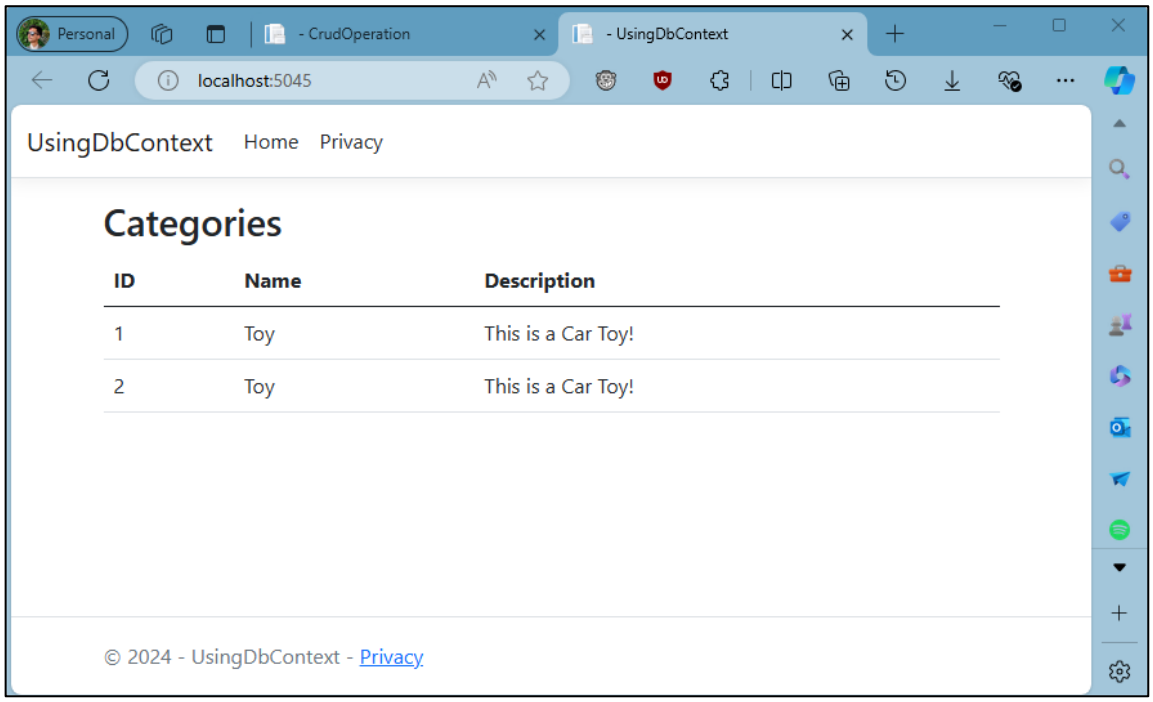
```
{
  "Logging": {
    "LogLevel": {
      "Default": "Information",
      "Microsoft.AspNetCore": "Warning"
    }
  },
  "AllowedHosts": "*",
  "ConnectionStrings": {
    "test":
"Server=(localdb)\\mssqllocaldb;Database=Lab_DBcontext;Trusted_Connection=Tru
e;MultipleActiveResultSets=true"
  }
}
```

Program.cs

```
using Microsoft.EntityFrameworkCore;
using UsingDbContext.Models;

var builder = WebApplication.CreateBuilder(args);
builder.Services.AddControllersWithViews();
builder.Services.AddDbContext<ApplicationContext>(options =>
{
    options.UseSqlServer(builder.Configuration.GetConnectionString("test"));
});

builder.Services.AddSession(options => { options.IdleTimeout =
TimeSpan.FromMinutes(10); });

var app = builder.Build();
```

```
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");
    app.UseHsts();
}

app.UseHttpsRedirection();
app.UseStaticFiles();
app.UseSession();
app.UseRouting();
app.UseAuthorization();
app.MapControllerRoute(
    name: "default",
    pattern: "{controller=Home}/{action=Index}/{id?}");
app.Run();
```

Output:



15. Write a program to demonstrate state management server-side in asp.net core application.

Source code:

Controller/StateController.cs

```
using Microsoft.AspNetCore.Mvc;
namespace Server_Side.Controllers
{
    public class StateController : Controller
    {
        public IActionResult Add()
        {
            return View();
        }
        [HttpPost]
        public IActionResult SetUserData(string username, string message)
        {
            HttpContext.Session.SetString("Username", username);
            TempData["Message"] = message;
            return RedirectToAction("Display");
        }
        public IActionResult Display()
        {
            string username = HttpContext.Session.GetString("Username");
            string message = TempData["Message"] as string;
            ViewBag.Username = username; ViewBag.Message = message;
            return View();
        }
    }
}
```

Views/State/Add.cshtml

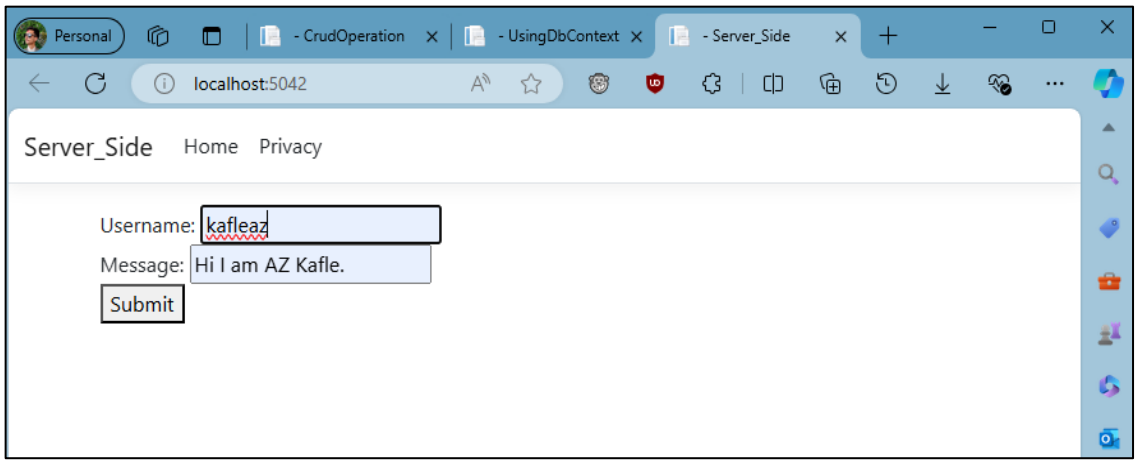
```
@model Server_Side.Controllers.StateController
<form method="post" asp-action="SetUserData">
  <label for="username">Username:</label>
```

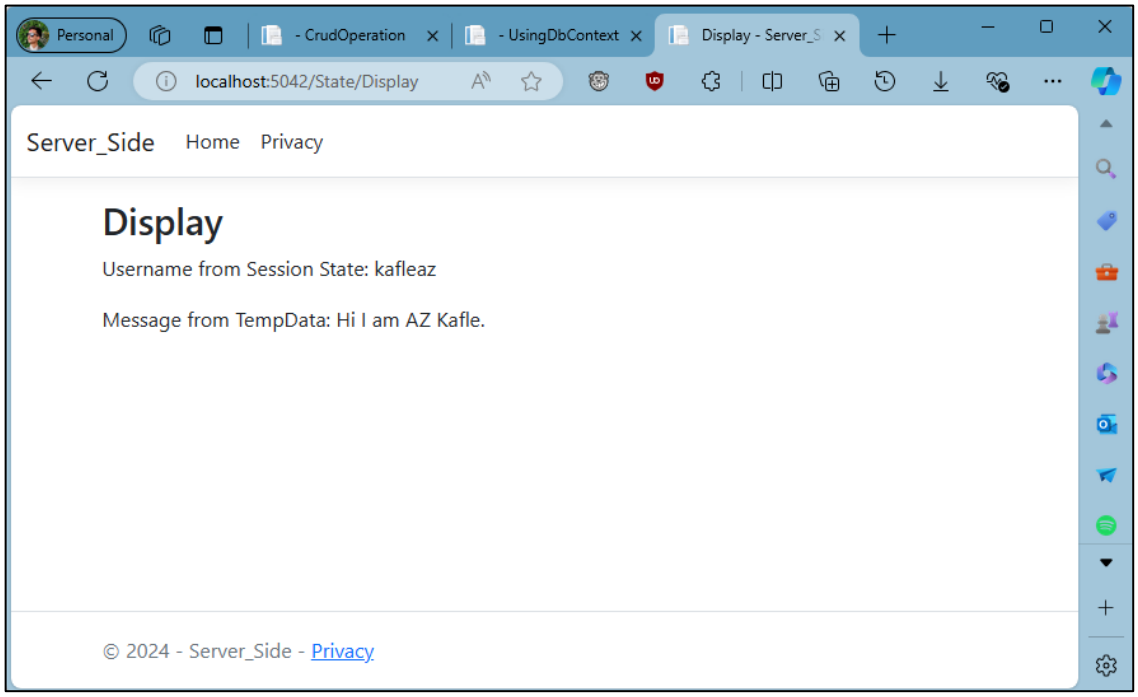
```
    <input type="text" id="username" name="username" required><br>
    <label for="message">Message:</label>
    <input type="text" id="message" name="message" required><br>
    <button type="submit">Submit</button>
</form>
```

Program.cs

```
var builder = WebApplication.CreateBuilder(args);
builder.Services.AddControllersWithViews();
builder.Services.AddDistributedMemoryCache(); // For session state
builder.Services.AddSession(options =>
{
    options.Cookie.Name = "MySessionCookie";
    options.IdleTimeout = TimeSpan.FromMinutes(30);
    options.Cookie.IsEssential = true;
});
var app = builder.Build();
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");
    app.UseHsts();
}
app.UseHttpsRedirection();
app.UseStaticFiles();
app.UseSession();
app.UseRouting();
app.UseAuthorization();
app.MapControllerRoute(
    name: "default",
    pattern: "{controller=State}/{action=Add}/{id?}");
app.Run();
```

Output:


Personal
- CrudOperation
- UsingDbContext
- Server_Side
localhost:5042
Server_Side
Home
Privacy
Username:
kafleaz
Message:
Hi I am AZ Kafle.
Submit


Personal
- CrudOperation
- UsingDbContext
Display - Server_S
localhost:5042/State/Display
Server_Side
Home
Privacy
Display
Username from Session State: kafleaz
Message from TempData: Hi I am AZ Kafle.
© 2024 - Server_Side - Privacy

16. Write a program to demonstrate state management client-side in asp.net core application.

Source code:

Controllers/StateController.cs

```
using Microsoft.AspNetCore.Mvc;
using Microsoft.AspNetCore.Http;
using System;
namespace Client_side.Controllers
{
    public class StateController : Controller
    {
        public IActionResult Index()
        {
            return View();
        }
        [HttpPost]
        public IActionResult SetCookie(string data)
        {
            // Set a cookie with the user-provided data
            CookieOptions option = new CookieOptions
            {
                Expires = DateTime.Now.AddMinutes(30) // Cookie expiration time
            };
            Response.Cookies.Append("UserData", data, option);
            return RedirectToAction("GetCookie"); }
        public IActionResult GetCookie()
        {
            // Retrieve the user data from the cookie
            string userData = Request.Cookies["UserData"];
            ViewBag.UserData = userData;
            return View();
        }
    }
}
```

Views/State/Index.cshtml

```
@page
@model Client_side.Controllers.StateController
<form method="post" asp-action="SetCookie">
    <label for="data">Enter data:</label>
    <input type="text" name="data" required />
    <button type="submit">Submit</button>
</form>
```

Views/State/GetCookie.cshtml

```
@page
@model Client_side.Controllers.StateController
<h2>Stored User Data:</h2>
<p>@ViewBag.UserData</p>
```

Output: