Weather Stack Net Core

Sample .NET Core Application for consuming Weather Stack API

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1.1.1 AutoComplete.cs

This is file AutoComplete.cs.

Body Source

```
?namespace WeatherStackNetCore.Utils;
```

```
/// <summary>
/// API Request Result Class
/// </summary>
public class AutoComplete
{
    public LocationRequest request { get; set; }
    public List<Location> results { get; set; }
    public string success { get; set; }
    public Error error { get; set; }
}
```

1.1.2 AutoCompleteController.cs

This is file AutoCompleteController.cs.

Body Source

```
?using System.Runtime.Serialization.Json;
using System.Text;
using Microsoft.AspNetCore.Mvc;
using WeatherStackNetCore.Models;
using WeatherStackNetCore.Utils;

namespace WeatherStackNetCore.Controllers;

/// <summary>
/// This controller is used to
/// Call API function which is about location searching
/// </summary>
public class AutoCompleteController : BaseController
{
    /// <summary>
    /// Config element
    /// </summary>
    private readonly IConfiguration _configuration;

    /// <summary>
    /// This is the constructor of controller
    /// </summary>
    /// <param name="config"></param>
    public AutoCompleteController(IConfiguration config)
    {
        // this is used to get some key values from appSettings.Json
        _configuration = config;
    }

    /// <summary>
    /// This is used to show Location search page
    /// </summary>
    /// <returns>Location search page</returns>
    public IActionResult IndexWithJQuery()
    {
        var model = new AutoCompleteViewModel();
        return View(model);
    }

    /// <summary>
    /// This is used to show Location search page
    /// </summary>
    /// <returns>Location search page</returns>
    public IActionResult IndexWithModel(AutoCompleteViewModel? model)
    {
        model ??= new AutoCompleteViewModel();
        return View(model);
    }
```

```
        /// <summary>
        /// This method is used to make WeatherStack Current API call
        /// And bring the result to the screen
        /// </summary>
        /// <param name="placeName">General Parameter (Like City Name, County Name etc)</param>
        /// <returns>Location Info</returns>
        [HttpPost]
        public async Task<AutoComplete?> GetLocations(string placeName)
        {
            try
            {
                var autoComplete = await CallAutoCompleteFromAPI(placeName);
                return autoComplete;
            }
            catch (Exception e)
            {
                return null;
            }
        }

        /// <summary>
        /// This method is used to make WeatherStack Current API call
        /// And bring the result to the screen
        /// But in this method we use the whole model
        /// </summary>
        /// <param name="model">Location Search Page Elements</param>
        /// <returns>Result Page</returns>
        [HttpPost]
        [ValidateModel]
        public async Task<IActionResult> GetLocationsWithModel(AutoCompleteViewModel model)
        {
            try
            {
                // if (!ModelState.IsValid) return View("IndexWithModel", model);

                var autoComplete = await CallAutoCompleteFromAPI(model.PlaceName);

                model = new AutoCompleteViewModel
                {
                    AutoComplete = autoComplete
                };

                if (model.AutoComplete.error != null)
                    SetErrorMessage(model.AutoComplete.error.info);
                else
                    SetSuccessMessage();

                return View("IndexWithModel", model);
            }
            catch (Exception e)
            {
                model = new AutoCompleteViewModel
                {
                    AutoComplete = null
                };

                SetErrorMessage("Something has gone wrong");

                return View("IndexWithModel", model);
            }
        }

        /// <summary>
        /// This method is used to call WeatherStack API with place name
        /// And get the city info
        /// </summary>
        /// <param name="placeName">Place Name</param>
        /// <returns>Auto Complete Data (City etc. Data)</returns>
        private async Task<AutoComplete> CallAutoCompleteFromAPI(string? placeName)
        {
            var apiKey = _configuration.GetValue<string>("API_Key");

            var httpClient = new HttpClient();
            httpClient.Timeout = new TimeSpan(0, 0, 30);

            var requestString = "http://api.weatherstack.com/" +
    $"autocomplete?access_key={apiKey}&query={placeName}";

            var response = await httpClient.GetAsync(requestString);
            var result = await response.Content.ReadAsStringAsync();

            var serializer = new DataContractJsonSerializer(typeof(AutoComplete));
            var memoryStream = new MemoryStream(Encoding.UTF8.GetBytes(result));
            var autoComplete = (AutoComplete) serializer.ReadObject(memoryStream)!;
            return autoComplete;
        }
    }
```

1.1.3 AutoCompleteControllerTests.cs

This is file AutoCompleteControllerTests.cs.

Body Source

```
using Microsoft.Extensions.Configuration;
using Moq;
using WeatherStackNetCore.Controllers;
using WeatherStackNetCore.Models;

namespace WeatherStackNetCore.Tests.Controllers;

/// <summary>
/// Test class for the controller
/// Which is used to get location info from the
/// WeatherStack API
/// </summary>
public class AutoCompleteControllerTests
{
    /// <summary>
    /// Location Info Model
    /// </summary>
    private AutoCompleteViewModel? _model;
    /// <summary>
    /// Config file for controller constructor
    /// </summary>
    private IConfiguration? _config;
    /// <summary>
    /// Mock class instance
    /// </summary>
    private Mock? _mock;
    /// <summary>
    /// Controller instance
    /// </summary>
    private AutoCompleteController? _controller;

    /// <summary>
    /// This method is used to create setup
    /// Assign values which are necessary
    /// Before using test methods
    /// </summary>
    [SetUp]
    public void Setup()
    {
        _model = new AutoCompleteViewModel
        {
            PlaceName = "Ankara"
        };
        _config = new ConfigurationManager();
        _controller = new AutoCompleteController(_config);
    }

    /// <summary>
    /// Test method which is used for
    /// Index action with model
    /// </summary>
    [Test]
    public void IndexWithModel_Test()
    {
        var result = _controller?.IndexWithModel(_model);
        Assert.That(result, Is.Not.Null);
    }

    /// <summary>
    /// Test method which is used for
    /// Get Location action with Model
    /// </summary>
    [Test]
    public void GetLocationsWithModel_Test()
    {
        var result = _controller?.GetLocationsWithModel(_model);
        Assert.That(result, Is.Not.Null);
    }

    /// <summary>
    /// Test method which is used for
    /// Index action with JQuery
    /// </summary>
    [Test]
    public void IndexWithJQuery_Test()
    {
        var result = _controller?.IndexWithJQuery();
        Assert.That(result, Is.Not.Null);
    }

    /// <summary>
    /// Test method which is used for
    /// Get Location action with JQuery
    /// </summary>
    [Test]
    public void GetLocationsWithJQuery_Test()
    {
        var result = _controller?.GetLocations(_model.PlaceName);
        Assert.AreSame(result.Exception, null);
    }
}
```

1.1.4 AutoCompleteViewModel.cs

This is file AutoCompleteViewModel.cs.

Body Source

```
using System.ComponentModel.DataAnnotations;
using WeatherStackNetCore.Utils;

namespace WeatherStackNetCore.Models;

/// <summary>
/// This model class is used to create the search page
/// And stores the result info too
/// </summary>
```

```
public class AutoCompleteViewModel
{
    #region Fields

    [Required(ErrorMessage = "Please Enter A Place Name")]
    [Display(Name = "Place Name:")]
    public string? PlaceName { get; set; }

    public AutoComplete? AutoComplete { get; init; }

    #endregion
}
```

1.1.5 BaseController.cs

This is file BaseController.cs.

Body Source

```
using Microsoft.AspNetCore.Mvc;

namespace WeatherStackNetCore.Controllers;

/// <summary>
/// This class is Base Controller class that
/// Some methods for all controllers have been added to this class
/// For recuding code lines etc.
/// </summary>
public class BaseController : Controller
{
    /// <summary>
    /// This method is used to set success message to ViewBag
    /// </summary>
    protected void SetSuccessMessage()
    {
        ViewBag.MessageType = "success";
        ViewBag.BoxType = "normal";
        ViewBag.Message = "Operation is successful";
    }

    /// <summary>
    /// This method is used to set error message to ViewBag
    /// </summary>
    /// <param name="errorMessage">Specific Error Message</param>
    protected void SetErrorMessage(string errorMessage)
    {
        ViewBag.MessageType = "error";
        ViewBag.BoxType = "large";
        ViewBag.Message = errorMessage;
    }
}
```

1.1.6 Current.cs

This is file Current.cs.

Body Source

```
?namespace WeatherStackNetCore.Utils;

/// <summary>
/// Query Place Current Weather Information Class
/// </summary>
public class Current
{
    public string observation_time { get; set; }
    public decimal temperature { get; set; }
    public decimal weather_code { get; set; }
    public List<string> weather_icons { get; set; }
    public List<string> weather_descriptions { get; set; }
    public decimal wind_speed { get; set; }
    public decimal wind_degree { get; set; }
    public string wind_dir { get; set; }
    public decimal pressure { get; set; }
    public decimal precip { get; set; }
    public decimal humidity { get; set; }
    public decimal cloudcover { get; set; }
    public decimal feelslike { get; set; }
    public decimal uv_index { get; set; }
    public decimal visibility { get; set; }
}
```

1.1.7 CurrentWeather.cs

This is file CurrentWeather.cs.

Body Source

```
?namespace WeatherStackNetCore.Utils;

/// <summary>
/// API Request Result Class
/// </summary>
public class CurrentWeather
{
    public GeneralRequest request { get; set; }
    public Location location { get; set; }
    public Current current { get; set; }
    public string success { get; set; }
    public Error error { get; set; }
}
```

1.1.8 CurrentWeatherController.cs

This is file CurrentWeatherController.cs.

Body Source

```
?using System.Runtime.Serialization.Json;
using System.Text;
using Microsoft.AspNetCore.Mvc;
using WeatherStackNetCore.Models;
using WeatherStackNetCore.Utils;

namespace WeatherStackNetCore.Controllers;

/// <summary>
/// This controller is used to
/// Call API function which is about Current Weather Info searching
/// </summary>
public class CurrentWeatherController : BaseController
{
    /// <summary>
    /// Config element
    /// </summary>
    private readonly IConfiguration _configuration;

    /// <summary>
    /// This is the constructor of controller
    /// </summary>
    /// <param name="config"></param>
    public CurrentWeatherController(IConfiguration config)
    {
        // this is used to get some key values from appSettings.Json
        _configuration = config;
    }

    /// <summary>
    /// This is used to show Current Weather search page
    /// </summary>
    /// <returns>Current Weather search page</returns>
    public IActionResult IndexWithJQuery()
    {
        var model = new CurrentWeatherViewModel();
        return View(model);
    }

    /// <summary>
    /// This is used to show Current Weather search page
    /// </summary>
    /// <returns>Current Weather search page</returns>
    public IActionResult IndexWithModel(CurrentWeatherViewModel? model)
    {
        model ??= new CurrentWeatherViewModel();
        return View(model);
    }

    /// <summary>
    /// This method is used to make WeatherStack Current API call
    /// And bring the result to the screen
    /// </summary>
    /// <param name="placeName">General Parameter (Like City Name, County Name etc)</param>
    /// <param name="unit">Unit Parameter</param>
    /// <param name="language">Language Parameter (You shouldn't fill this parameter if
your key is free version)</param>
    /// <returns>Current Weather Info</returns>
    [HttpPost]
    public async Task<CurrentWeather?> GetCurrentWeather(string placeName, string unit,
string language)
    {
        try
        {
            var currentWeather = await GetCurrentWeatherFromAPI(placeName, unit, language);
            return currentWeather;
        }
        catch (Exception e)
        {
            return null;
        }
    }

    /// <summary>
    /// This method is used to make WeatherStack Current API call
    /// And bring the result to the screen
    /// But in this method we use the whole model
    /// </summary>
    /// <param name="model">Current Weather Search Page Elements</param>
    /// <returns>Result Page</returns>
    [HttpPost]
    [ValidateModel]
    public async Task<IActionResult> GetCurrentWeatherWithModel(CurrentWeatherViewModel
model)
    {
```

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```
        try
        {
            // if (!ModelState.IsValid) return View("IndexWithModel", model);

            var currentWeather = await GetCurrentWeatherFromAPI(model.PlaceName,
  model.Unit, model.Language);

            model = new CurrentWeatherViewModel
            {
                CurrentWeather = currentWeather
            };

            if (model.CurrentWeather.error != null)
                SetErrorMessage(model.CurrentWeather.error.info);
            else
                SetSuccessMessage();

            return View("IndexWithModel", model);
        }
        catch (Exception e)
        {
            model = new CurrentWeatherViewModel
            {
                CurrentWeather = null
            };

            SetErrorMessage("Something has gone wrong");

            return View("IndexWithModel", model);
        }
    }

    /// <summary>
    /// This method is used to get Current Weather Info from Weather Stack API
    /// And return the result
    /// </summary>
    /// <param name="placeName">Place Name Info</param>
    /// <param name="unit">Unit Info</param>
    /// <param name="language">Language Info</param>
    /// <returns></returns>
    private async Task<CurrentWeather> GetCurrentWeatherFromAPI(string placeName, string
  unit, string language)
    {
        var apiKey = _configuration.GetValue<string>("API_Key");

        var httpClient = new HttpClient();
        httpClient.Timeout = new TimeSpan(0, 0, 30);

        var requestString = "http://api.weatherstack.com/" +
  $"current?access_key={apiKey}&query={placeName}";
        if (!string.IsNullOrEmpty(unit))
            requestString += $"&unit={unit}";
        if (!string.IsNullOrEmpty(language))
            requestString += $"&language={language}";

        var response = await httpClient.GetAsync(requestString);
        var result = await response.Content.ReadAsStringAsync();

        var serializer = new DataContractJsonSerializer(typeof(CurrentWeather));
        var memoryStream = new MemoryStream(Encoding.UTF8.GetBytes(result));
        var currentWeather = (CurrentWeather) serializer.ReadObject(memoryStream)!;

        return currentWeather;
    }
  }
```

1.1.9 CurrentWeatherControllerTests.cs

This is file CurrentWeatherControllerTests.cs.

Body Source

```
using Microsoft.Extensions.Configuration;
using Moq;
using WeatherStackNetCore.Controllers;
using WeatherStackNetCore.Models;

namespace WeatherStackNetCore.Tests.Controllers;

/// <summary>
/// Test class for the controller
/// Which is used to get current weather info from the
/// WeatherStack API
/// </summary>
public class CurrentWeatherControllerTests
{
    /// <summary>
    /// Current Weather Info Model
    /// </summary>
    private CurrentWeatherViewModel? _model;
    /// <summary>
    /// Config file for controller constructor
    /// </summary>
    private IConfiguration? _config;
    /// <summary>
    /// Mock class instance
    /// </summary>
    private Mock? _mock;
    /// <summary>
    /// Controller instance
    /// </summary>
    private CurrentWeatherController? _controller;

    /// <summary>
    /// This method is used to create setup
    /// Assign values which are necessary
    /// Before using test methods
    /// </summary>
    [SetUp]
    public void Setup()
    {
        _model = new CurrentWeatherViewModel
        {
            PlaceName = "Konya"
        };
        _config = new ConfigurationManager();
        _controller = new CurrentWeatherController(_config);
    }

    /// <summary>
    /// Test method which is used for
    /// Index action with model
    /// </summary>
    [Test]
    public void IndexWithModel_Test()
    {
        var result = _controller?.IndexWithModel(_model);
        Assert.That(result, Is.Not.Null);
    }

    /// <summary>
```

```
        /// Test method which is used for
        /// Get Current Weather Info action with Model
        /// </summary>
        [Test]
        public void GetCurrentWeatherWithModel_Test()
        {
            var result = _controller?.GetCurrentWeatherWithModel(_model);
            Assert.That(result, Is.Not.Null);
        }

        /// <summary>
        /// Test method which is used for
        /// Index action with JQuery
        /// </summary>
        [Test]
        public void IndexWithJQuery_Test()
        {
            var result = _controller?.IndexWithJQuery();
            Assert.That(result, Is.Not.Null);
        }

        /// <summary>
        /// Test method which is used for
        /// Get Current Weather Info action with JQuery
        /// </summary>
        [Test]
        public void GetCurrentWeatherWithJQuery_Test()
        {
            var result = _controller?.GetCurrentWeather(_model.PlaceName, _model.Unit,
    _model.Language);
            Assert.AreSame(result.Exception, null);
        }
    }
```

1.1.10 CurrentWeatherViewModel.cs

This is file CurrentWeatherViewModel.cs.

Body Source

```
    using System.ComponentModel.DataAnnotations;
    using WeatherStackNetCore.Utils;

    namespace WeatherStackNetCore.Models;

    /// <summary>
    /// This model class is used to create the search page
    /// And stores the result info too
    /// </summary>
    public class CurrentWeatherViewModel
    {
        #region Fields

        [StringLength(60, MinimumLength = 3)]
        [Required(ErrorMessage = "Please Enter A Place Name")]
        [Display(Name = "Place Name:")]
        public string? PlaceName { get; set; }

        [Display(Name = "Unit:")] public string? Unit { get; init; }

        [Display(Name = "Language:")] public string? Language { get; init; }

        /// <summary>
        /// This is used to fill dropdownlist for units
        /// </summary>
        public List<ItemList> UnitList { get; init; }
        /// <summary>
        /// This is used to fill dropdownlist for languages
        /// </summary>
        public List<ItemList> LanguageList { get; init; }

        /// <summary>
        /// API Call result
        /// </summary>
        public CurrentWeather? CurrentWeather { get; init; }

        #endregion

        public CurrentWeatherViewModel()
        {
            UnitList = new List<ItemList>
            {
                new() {Text = "Metric", Value = "m"},
                new() {Text = "Scientific", Value = "s"},
                new() {Text = "Fahrenheit", Value = "f"}
            };

            LanguageList = new List<ItemList>
            {
                new() {Text = "English", Value = "en"},
                new() {Text = "Turkish", Value = "tr"},
                new() {Text = "German", Value = "de"}
            };
        }
    }
```

1.1.11 Error.cs

This is file Error.cs.

Body Source

```
    ?namespace WeatherStackNetCore.Utils;

    /// <summary>
    /// Error Class
    /// </summary>
    public class Error
    {
        public string type { get; set; }
        public string info { get; set; }
        public int code { get; set; }
    }
```

1.1.12 ErrorResult.cs

This is file ErrorResult.cs.

Body Source

```
    ?namespace WeatherStackNetCore.Utils;

    /// <summary>
    /// Error Class
    /// </summary>
    public class ErrorResult
    {
```

```
    public string success { get; set; }
    public Error error { get; set; }
}
```

1.1.13 ErrorViewModel.cs

This is file ErrorViewModel.cs.

Body Source

```
namespace WeatherStackNetCore.Models;

public class ErrorViewModel
{
    public string? RequestId { get; init; }

    public bool ShowRequestId => !string.IsNullOrEmpty(RequestId);
}
```

1.1.14 GeneralRequest.cs

This is file GeneralRequest.cs.

Body Source

```
?namespace WeatherStackNetCore.Utils;

/// <summary>
/// API Request Class
/// </summary>
public class GeneralRequest
{
    public string type { get; set; }
    public string query { get; set; }
    public string language { get; set; }
    public string unit { get; set; }
}
```

1.1.15 HomeController.cs

This is file HomeController.cs.

Body Source

```
?using System.Diagnostics;
using Microsoft.AspNetCore.Mvc;
using WeatherStackNetCore.Models;

namespace WeatherStackNetCore.Controllers;

public class HomeController : Controller
{
    private readonly ILogger<HomeController> _logger;

    public HomeController(ILogger<HomeController> logger)
    {
        _logger = logger;
    }
```

```
        public IActionResult Index()
        {
            return View();
        }

        public IActionResult Privacy()
        {
            return View();
        }

        [ResponseCache(Duration = 0, Location = ResponseCacheLocation.None, NoStore = true)]
        public IActionResult Error()
        {
            return View(new ErrorViewModel {RequestId = Activity.Current?.Id ??
    HttpContext.TraceIdentifier});
        }
    }
```

1.1.16 ItemList.cs

This is file ItemList.cs.

Body Source

```
?namespace WeatherStackNetCore.Utils;

public class ItemList
{
    public string Text { get; set; }
    public string Value { get; set; }
}
```

1.1.17 Location.cs

This is file Location.cs.

Body Source

```
?namespace WeatherStackNetCore.Utils;

/// <summary>
/// Query Place Detailed Location Info Class
/// </summary>
public class Location
{
    public string name { get; set; }
    public string country { get; set; }
    public string region { get; set; }
    public string lat { get; set; }
    public string lon { get; set; }
    public string timezone_id { get; set; }
    public string localtime { get; set; }
    public decimal localtime_epoch { get; set; }
    public string utc_offset { get; set; }
}
```

1.1.18 LocationRequest.cs

This is file LocationRequest.cs.

Body Source

```
?namespace WeatherStackNetCore.Utils;

/// <summary>
/// API Request Class
/// </summary>
public class LocationRequest
{
    public string query { get; set; }
    public int results { get; set; }
}
```

1.1.19 Program.cs

This is file Program.cs.

Body Source

```
var builder = WebApplication.CreateBuilder(args);

// Add services to the container.
builder.Services.AddControllersWithViews();

var app = builder.Build();

// Configure the HTTP request pipeline.
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");
    // The default HSTS value is 30 days. You may want to change this for production
scenarios, see https://aka.ms/aspnetcore-hsts.
    app.UseHsts();
}

app.UseHttpsRedirection();
app.UseStaticFiles();

app.UseRouting();

app.UseAuthorization();

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

app.Run();
```

1.1.20 Usings.cs

This is file Usings.cs.

Body Source

```
global using NUnit.Framework;
```

1.1.21 ValidateModelAttribute.cs

This is file ValidateModelAttribute.cs.

Body Source

```
?using Microsoft.AspNetCore.Mvc;
using Microsoft.AspNetCore.Mvc.Filters;

namespace WeatherStackNetCore.Utils;

/// <summary>
/// Model Validation Attribute Class
/// </summary>
public class ValidateModelAttribute : ActionFilterAttribute
{
    /// <summary>
    /// In this method, if model is not valid
    /// App sends automatically bad request
    /// </summary>
    /// <param name="context">Context Info</param>
    public override void OnActionExecuting(ActionExecutingContext context)
    {
        if (!context.ModelState.IsValid)
            context.Result = new BadRequestResult();
    }
}
```

1.1.22 WeatherStackNetCore.csproj

This is file WeatherStackNetCore.csproj.

1.1.23 WeatherStackNetCore.sln

This is file WeatherStackNetCore.sln.

1.1.24 WeatherStackNetCore.Tests.csproj

This is file WeatherStackNetCore.Tests.csproj.

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