

# .NET 9 App Dev Hands-On Workshop

## Blazor Lab 3 – Blazor Shared Assets

This lab begins the work with ASP.NET Core Blazor WebAssembly (WASM). Before starting this lab, you must have completed Blazor Lab 2.

### Part 1: Add the Entities to AutoLot.Blazor.Models

- Create a new folder named `Entities` in the `AutoLot.Blazor.Models` project. In that folder, create a new folder named `'Base'`. Within that folder, create a new class file named `'BaseEntity.cs'`.

Update the code to the following:

```
namespace AutoLot.Blazor.Models.Entities.Base;
```

```
public abstract class BaseEntity
{
    public int Id { get; set; }
    public long TimeStamp { get; set; }
}
```

- Rename `Class1.cs` to `GlobalUsings.cs` in the `AutoLot.Blazor.Models` project and update it to the following:

```
global using AutoLot.Blazor.Models.Entities;
global using AutoLot.Blazor.Models.Entities.Base;
global using System.ComponentModel;
global using System.ComponentModel.DataAnnotations;
```

- In the `Entities` folder, add two new files, `Car.cs` and `Make.cs`. Update them to match the following:

```
//Car.cs
namespace AutoLot.Blazor.Models.Entities;
public class Car : BaseEntity
{
    [Required, StringLength(50)]
    public string Color { get; set; }
    public string Price { get; set; }
    [DisplayName("Is Drivable")]
    public bool IsDrivable { get; set; } = true;
    public DateTime? DateBuilt { get; set; }
    public string Display { get; set; }
    [Required, StringLength(50), DisplayName("Pet Name")]
    public string PetName { get; set; }
    [Required, DisplayName("Make")]
    public int MakeId { get; set; }
    public Make MakeNavigation { get; set; }
    public string MakeName => MakeNavigation?.Name ?? "Unknown";
    public override string ToString()
    {
        return $"{PetName ?? "***No Name***"} is a {Color} {MakeNavigation?.Name} with ID {Id}.";
    }
}
```

```
//Make.cs
namespace AutoLot.Blazor.Models.Entities;
public class Make : BaseEntity
{
    [Required, StringLength(50)]
    public string Name { get; set; }
    public IEnumerable<Car> Cars { get; set; } = new List<Car>();
}
```

## Part 2: Add the Custom Validation Attributes

- Add the following to the GlobalUsings.cs file:

```
global using System.Reflection;
```

- Create a new folder named Validation in the AutoLot.Blazor.Models project. Create two new classes named MustBeGreaterThanZeroAttribute.cs and MustNotBeGreaterThanAttribute.cs in that folder. Update the classes to the following:

```
//MustBeGreaterThanZeroAttribute
namespace AutoLot.Blazor.Models.Validation;

public class MustBeGreaterThanZeroAttribute(string errorMessage)
    : ValidationAttribute(errorMessage)
{
    public MustBeGreaterThanZeroAttribute() : this("{0} must be greater than 0") { }
    public override string FormatErrorMessage(string name)
        => string.Format(ErrorMessageString, name);
    protected override ValidationResult IsValid(object value, ValidationContext validationContext)
    {
        if (!int.TryParse(value?.ToString(), out int result))
        {
            return new ValidationResult(FormatErrorMessage(validationContext.DisplayName),
                new [] {validationContext.MemberName});
        }
        return result > 0
            ? ValidationResult.Success
            : new ValidationResult(FormatErrorMessage(validationContext.DisplayName),
                new[] { validationContext.MemberName });
    }
}
```

```
//MustNotBeGreaterThanAttribute
namespace AutoLot.Blazor.Models.Validation;

[AttributeUsage(AttributeTargets.Property, AllowMultiple = true)]
public class MustNotBeGreaterThanAttribute( string otherPropertyName, string errorMessage)
    : ValidationAttribute(errorMessage)
{
    private string _otherPropertyDisplayName;
    public MustNotBeGreaterThanAttribute(string otherPropertyName)
        : this(otherPropertyName, "{0} must not be greater than {1}") { }
    public override string FormatErrorMessage(string name)
        => string.Format(ErrorMessageString, name, _otherPropertyDisplayName);
    internal void SetOtherPropertyName(PropertyInfo otherPropertyInfo)
    {
        _otherPropertyDisplayName =
            otherPropertyInfo.GetCustomAttributes<DisplayAttribute>().FirstOrDefault()?.Name
            ?? otherPropertyInfo.GetCustomAttributes<DisplayNameAttribute>()
                .FirstOrDefault()?.DisplayName
            ?? otherPropertyName;
    }
    protected override ValidationResult IsValid(object value, ValidationContext validationContext)
    {
        var otherPropertyInfo = validationContext.ObjectType.GetProperty(otherPropertyName);
        if (otherPropertyInfo == null)
        {
            return new ValidationResult("Unable to validate property. Please contact support");
        }
        SetOtherPropertyName(otherPropertyInfo);
        if (!int.TryParse(value?.ToString(), out int toValidate))
        {
            return new ValidationResult($"{{validationContext.DisplayName}} must be numeric.",
                new[] { validationContext.MemberName, otherPropertyName });
        }
        var otherPropObjectValue = otherPropertyInfo.GetValue(validationContext.ObjectInstance, null);
        if (otherPropObjectValue == null || !int.TryParse(otherPropObjectValue.ToString(),
            out var otherValue))
        {
            return new ValidationResult(FormatErrorMessage(validationContext.DisplayName),
                new[] { validationContext.MemberName, otherPropertyName });
        }
        return toValidate > otherValue
            ? new ValidationResult(FormatErrorMessage(validationContext.DisplayName),
                new[] { validationContext.MemberName, otherPropertyName })
            : ValidationResult.Success;
    }
}
}
```

- Add the following to the GlobalUsings.cs file:

```
global using AutoLot.Blazor.Models.Validation;
```

## Part 3: Add the View Models

- Create a new folder named `ViewModels` in the `AutoLot.Blazor.Models` project. Create a new file named `DealerInfo.cs`, and update the code to match the following:

```
namespace AutoLot.Blazor.Models.ViewModels;
public class DealerInfo
{
    public string DealerName { get; set; }
    public string City { get; set; }
    public string State { get; set; }
}
```

- Add a new class named `AddToCartViewModel.cs` to the `ViewModels` folder, and update the code to the following:

```
namespace AutoLot.Blazor.Models.ViewModels;
public class AddToCartViewModel
{
    public int Id { get; set; }
    [Display(Name="Stock Quantity")] public int StockQuantity { get; set; }
    public int ItemId { get; set; }
    [Required]
    [MustBeGreaterThanZero]
    [MustNotBeGreaterThan(nameof(StockQuantity))]
    public int Quantity { get; set; }
}
```

## Summary

This completes the `AutoLot.Blazor.Models` project.

## Next Steps

The following lab will add the data services.