WEB APPLICATION FOR A FLEET MANAGEMENT SYSTEM

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Contents

Introduction

This is a fleet web application for the management of Vehicles and their corresponding MOT(s).

The design of this web application involves access of different users (Guest, Manager and Administrator) to different functionalities to the web data ranging from view/read only to edit functions.

Functional Requirements

The application is to be built to enable:

1) The inputting of Vehicles and their corresponding MOTs.

2) System ability to create, delete, view and edit Vehicle

3) System ability to create, delete and view each MOT tied to a Vehicle without affecting the Vehicle

Models

Vehicle Model:


```csharp
using System;
using System.ComponentModel.DataAnnotations;
using FMS.Data.Validators; // allows access to UrlResource
using FMS.Data.Models;

namespace FMS.Data.Models
{
    public class Vehicle
    {
        public int Id { get; set; }

        // suitable vehicle properties/relationships

        [Required]
        public string Make { get; set; }

        [Required]
        public string Model { get; set; }

        [Required]
        public int Year { get; set; }

        [Required]
        public string RegistrationNo { get; set; }

        [Required]
        public string FuelType { get; set; }

        [Required]
        public string Transmission { get; set; }

        [Required]
        public int CC { get; set; }

        [Required]
        public int NoofDoors { get; set; }

        public DateTime MOTDue { get; set; }

        [UrlResource]
        public string CarPhotoUrl { get; set; }

        // Relationship 1-N MOT History
        public IList<Mot> Mot {get; set; } = new List<Mot>();

    }
}
```

Mot Model:

```csharp
using System;
using System.ComponentModel.DataAnnotations;

namespace FMS.Data.Models
{

    // 2 references | 0 references | 1 reference
    public enum TestStatus { Pass, Fail }

    // 32 references
    public class Mot
    {
        // 9 references
        public int Id { get; set; }

        // suitable mot attributes / relationships


        // 7 references
        public DateTime DateOfMOT { get; set; } = DateTime.Now;

        // 10 references
        public string TesterName { get; set; }

        [Required]
        // 10 references
        public string TestStatus { get; set; }

        [Required]
        // 10 references
        public int Mileage { get; set; }

        [Required]
        // 10 references
        public string TestReport { get; set; }

        // 1 reference
        public string MotClosure {get; set; }

        // 9 references
        public int VehicleId { get; set; }      // foreign key
        // 4 references
        public Vehicle Vehicle { get; set; }    // navigation property

        // 0 references
        public User User { get; set; }

    }
}
```

User Model:

```csharp
1   using System;
2   namespace FMS.Data.Models
3   {
        13 references | 6 references | 1 reference | 1 reference
4       public enum Role { admin, manager, guest }
5
        10 references
6       public class User
7       {
            0 references
8           public int Id { get; set; }
            2 references
9           public string Name { get; set; }
            4 references
10          public string Email { get; set; }
            2 references
11          public string Password { get; set; }
            2 references
12          public Role Role { get; set; }
13      }
14  }
```

View screenshots and codes

User (Registration View)

Fleet Management   Home   Vehicle   Privacy   Login   Register

Create Account

Name

Email

Password

Confirm Password

Role

Select Role

[Register] [Cancel]

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```cshtml
1    @model UserRegisterViewModel
2
3    <h3 class="mt-4 mb-4">Create Account</h3>
4
5    <div class="card shadow rounded p-3">
6        <form asp-action="Register" method="post">
7
8            <div asp-validation-summary="ModelOnly" class="text-danger"></div>
9
10           <div class="mt-3">
11               <label asp-for="Name" class="form-label"></label>
12               <input asp-for="Name" class="form-control" />
13               <span asp-validation-for="Name" class="text-danger"></span>
14           </div>
15
16           <div class="mt-3">
17               <label asp-for="Email" class="form-label"></label>
18               <input asp-for="Email" class="form-control" />
19               <span asp-validation-for="Email" class="text-danger"></span>
20           </div>
21
22           <div class="mt-3">
23               <label asp-for="Password" class="form-label"></label>
24               <input type="password" asp-for="Password" class="form-control" />
25               <span asp-validation-for="Password" class="text-danger"></span>
26           </div>
27
28           <div class="mt-3">
29               <label asp-for="PasswordConfirm" class="form-label"></label>
30               <input type="password" asp-for="PasswordConfirm" class="form-control" />
31               <span asp-validation-for="PasswordConfirm" class="text-danger"></span>
32           </div>
33
34           <div class="mt-3">
35               <label asp-for="Role" class="form-label"></label>
36               <!-- Html.GetEnumSelectList<T>() is used to create a select list from the enum type (T) passed as a type parameter -->
37               <select asp-for="Role" asp-items="Html.GetEnumSelectList<Role>()" class="form-control">
38                   <option disabled selected>Select Role</option>
39               </select>
40               <span asp-validation-for="Role" class="text-danger"></span>
41           </div>
42
43           <div class="mt-3">
44               <input type="submit" value="Register" class="btn btn-primary" />
45               <a class="btn btn-secondary" asp-controller="Home" asp-action="Index">Cancel</a>
46           </div>
47
48       </form>
49   </div>
50
51   @section Scripts {
52   @{await Html.RenderPartialAsync("_ValidationScriptsPartial");}
53   }
54
```

User (Login View)

```
1    <ul class="navbar-nav">
2        @if (User.Identity.IsAuthenticated)
3        {
4            <li class="nav-item">
5                <a class="nav-link text-dark"  title="Manage">Hello @User.Identity.Name</a>
6            </li>
7            <li class="nav-item">
8                <form class="form-inline" asp-controller="User" asp-action="Logout">
9                    <button type="submit" class="nav-link btn btn-link text-dark">Logout</button>
10               </form>
11           </li>
12       }
13       else
14       {
15           <li class="nav-item ">
16               <a class="nav-link text-dark" asp-controller="User" asp-action="Login">Login</a>
17           </li>
18           <li class="nav-item ">
19               <a class="nav-link text-dark" asp-controller="User" asp-action="Register">Register</a>
20           </li>
21       }
22   </ul>
```

Vehicle (Create view)

Vehicle (Edit View)

MOTDue

04/23/2023 12:00 AM

CarPhotoUrl

https://th.bing.com/th/id/R.9d116f4b200ab906fc0a232f496f2812?rik=yVowSf2vOH7kDQ&pid=ImgRaw&r=0

Save Cancel

Vehicle (Delete View)

Fleet Management   Home   Vehicle   Privacy

Hello Administrator   Logout

Home / Vehicles / 1 / Delete

Delete Vehicle

Are you sure you want to delete this Vehicle?

Make	Toyota
Model	Camry
Year	2020
Registration No	4444555UY
Fuel Type	Petrol
Transmission	Manual
CC	330
NoofDoors	4
CC	Petrol
MOTDue	4/23/2023

Confirm Cancel

Vehicle (Details View)

Hello Administrator   Logout

Home / Vehicles / 2 / Details

Vehicle Details

Make	Volkswagen
Model	Golf
Year	2009
Registration No	84456721QW
Fuel Type	Diesel
Transmission	Auto
CC	220
No of Doors	4
CC	Diesel
MOT Due Date	4/23/2023

✎ Edit   ≡ Vehicle   🗑 Delete

Date of MOT	Tester Name	Test Status	Test Report	Mileage	Action
4/24/2022	Kyle	Fail	Bad brakes	56000	🖥✎🗑

🗐 Add MOT

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Mot (Create View)

Hello Administrator   Logout

Create MOT

Home / Vehicles / 1 / Create MOT

DateOfMOT

04/24/2022 04:08:24.288 PM

TesterName

TestStatus

TestReport

Mileage

0

Create   Cancel

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MOT (Detail View)

Hello Administrator   Logout

Home / Vehicle / Close

MOT Details

Id	1
Date of MOT	4/24/2022
Tester Name	Donald
Test Status	Pass
Test Report	All good
Mileage	56000

Delete   Cancel

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Date: 24/04/2022