FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
UNIVERSITI TUN HUSSEIN ONN MALAYSIA

SEMESTER 1 2024/2025

DOTNET PROGRAMMING

BIC33103

SECTION 04

LAB 6

CREATING A CHART USING ASP.NET CORE MVC.

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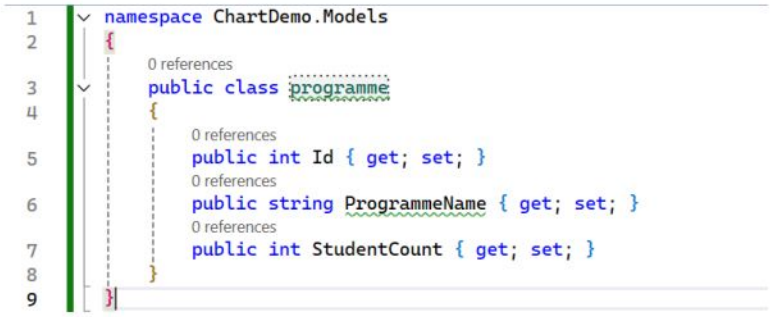
1. **EXERCISE**

   Create a similar table and use ASP.NET Core MVC to show the number of students in each programme using a pie chart

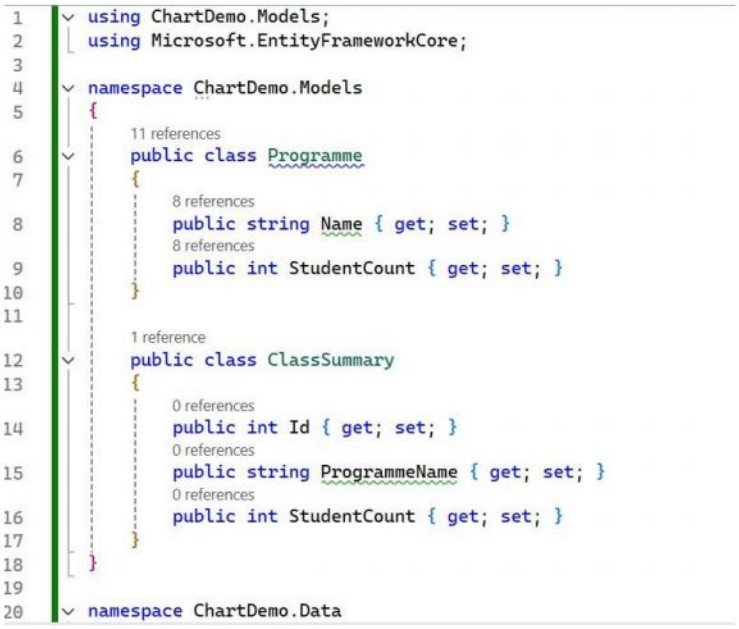
   Code that has been change were:

   - ClassSummary.cs



```
namespace ChartDemo.Models
{
    public class programme
    {
        public int Id { get; set; }
        public string ProgrammeName { get; set; }
        public int StudentCount { get; set; }
    }
}
```

   - ApplicationDbContext.cs



```
using ChartDemo.Models;
using Microsoft.EntityFrameworkCore;

namespace ChartDemo.Models
{
    public class Programme
    {
        public string Name { get; set; }
        public int StudentCount { get; set; }
    }

    public class ClassSummary
    {
        public int Id { get; set; }
        public string ProgrammeName { get; set; }
        public int StudentCount { get; set; }
    }
}

namespace ChartDemo.Data
```

```
namespace ChartDemo.Data
{
    public class ApplicationDbContext : DbContext
    {
        public ApplicationDbContext(DbContextOptions<ApplicationDbContext> options)
            : base(options)
        {
        }

        // DbSet for ClassSummary entity
        public DbSet<ClassSummary> ClassSummaries { get; set; }

        // DbSet for Programme entity
        public DbSet<Programme> Programmes { get; set; }
    }
}
```

- ShowChart.cshtml

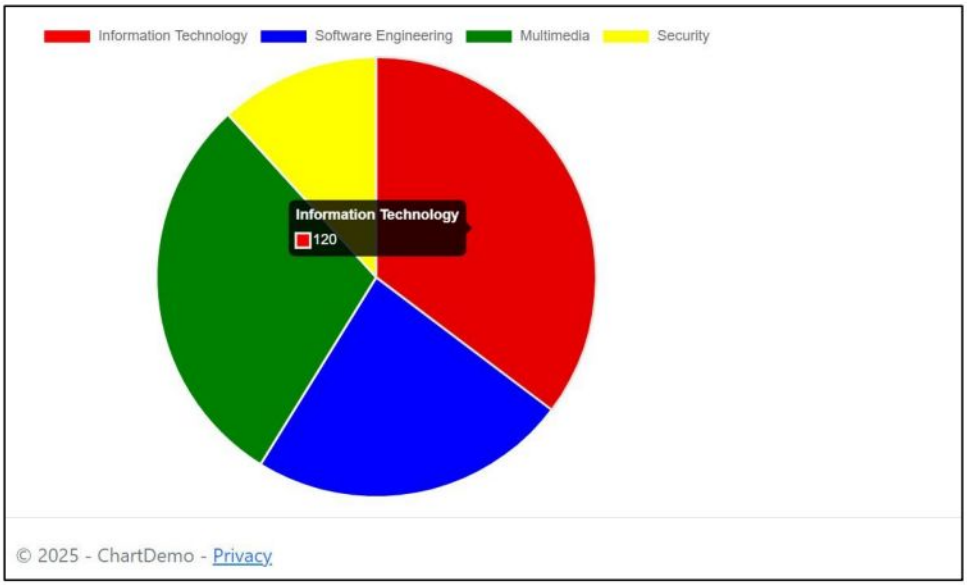
```cshtml
@{
    ViewData["Title"] = "Class Summary";
}
<h2>@ViewData["Title"]</h2>

<!-- Table displaying programme data -->
<table class="table">
    <thead>
        <tr>
            <th>Programme</th>
            <th>Student Count</th>
        </tr>
    </thead>
    <tbody>
        @foreach (var programme in Model)
        {
            <tr>
                <td>@programme.Name</td>
                <td>@programme.StudentCount</td>
            </tr>
        }
    </tbody>
</table>

<!-- Canvas element where the pie chart will be rendered -->
<div>

<!-- jQuery library for handling DOM manipulation and AJAX requests -->
<script src="~/lib/jquery/dist/jquery.min.js"></script>
<!-- Chart.js library for rendering the charts -->
<script src="https://cdn.jsdelivr.net/npm/chart.js"></script>

<script type="text/javascript">
    $(function () {
        // AJAX request to fetch the data for the pie chart
        $.ajax({
            type: "GET", // HTTP method
            url: "/ClassSummary/GetProgrammeData", // URL of the server-side method
            dataType: "json", // Expected data type of the response
            success: OnSuccessResult, // Function to handle successful response
            error: OnError // Function to handle errors
        });

        // Function to handle successful AJAX response
        function OnSuccessResult(data) {
            // Extract labels (programme names) and data (student counts) from the response
            var _chartLabels = data.map(function (item) { return item.name; });
            var _chartData = data.map(function (item) { return item.studentCount; });

            // Log the received labels and data to the console for debugging
            console.log("Chart Labels:", _chartLabels);
            console.log("Chart Data:", _chartData);

            // Ensure the canvas element exists
            var ctx = document.getElementById("myPieChart");
            if (!ctx) {
                console.error("Chart element not found.");
                alert("Chart element not found.");
                return;
            }

            // Create a new Chart.js pie chart
            new Chart(ctx, {
                type: "pie", // Pie chart type
                data: {
                    labels: _chartLabels, // Set chart labels (programme names)
                    datasets: [{
                        data: _chartData, // Set data points (student counts)
                        backgroundColor: ["red", "blue", "green", "yellow"], // Set pie chart segment colors
                    }]
                },
                options: {
                    plugins: {
                        legend: {
                            display: true,
                            position: "top"
                        }
                    }
                }
            });
        }

        // Function to handle AJAX errors
        function OnError(err) {
            // Log the error to the console for debugging
            console.error("Error: ", err);
        }
    });
</script>
```

- ClassSummaryController.cs

```
using Microsoft.AspNetCore.Mvc;
using ChartDemo.Models; // This should be the correct namespace for your models

0 references
public class ClassSummaryController : Controller
{
    0 references
    public IActionResult ShowChart()
    {
        // Example data (this could come from a database in a real app)
        var programmes = new List<Programme>
        {
            new Programme { Name = "Information Technology", StudentCount = 120 },
            new Programme { Name = "Software Engineering", StudentCount = 80 },
            new Programme { Name = "Multimedia", StudentCount = 100 },
            new Programme { Name = "Security", StudentCount = 40 }
        };

        return View(programmes);
    }

    // You can also return data for the pie chart as JSON for AJAX
    0 references
    public JsonResult GetProgrammeData()
    {
        var programmes = new List<Programme>
        {
            new Programme { Name = "Information Technology", StudentCount = 120 },
            new Programme { Name = "Software Engineering", StudentCount = 80 },
            new Programme { Name = "Multimedia", StudentCount = 100 },
            new Programme { Name = "Security", StudentCount = 40 }
        };

        return Json(programmes);
    }
}
```

2. OUTPUT:

Data for Class Summary



Pie Chart for Class Summary