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HARSHAVARDHAN KAPU (DOTNET TRAINEE):

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1. Create a console application and add class named Employee with following field.

**Employee Class**

EmployeeID (Integer)

FirstName (String)

LastName (String)

Title (String)

DOB (Date)

DOJ (Date)

City (String)

2. Create a Generic List Collection empList and populate it with the following records.

EmployeeID	FirstName	LastName	Title	DOB	DOJ	City
1001	Malcolm	Daruwalla	Manager	16/11/1984	8/6/2011	Mumbai
1002	Asdin	Dhalla	AsstManager	20/08/1984	7/7/2012	Mumbai
1003	Madhavi	Oza	Consultant	14/11/1987	12/4/2015	Pune
1004	Saba	Shaikh	SE	3/6/1990	2/2/2016	Pune
1005	Nazia	Shaikh	SE	8/3/1991	2/2/2016	Mumbai
1006	Amit	Pathak	Consultant	7/11/1989	8/8/2014	Chennai
1007	Vijay	Natrajan	Consultant	2/12/1989	1/6/2015	Mumbai
1008	Rahul	Dubey	Associate	11/11/1993	6/11/2014	Chennai
1009	Suresh	Mistry	Associate	12/8/1992	3/12/2014	Chennai
1010	Sumit	Shah	Manager	12/4/1991	2/1/2016	Pune

3. Now once the collection created write down and execute the LINQ queries for collection as follows

- Display detail of all the employee
- Display details of all the employee whose location is not Mumbai
- Display details of all the employee whose title is AsstManager
- Display details of all the employee whose Last Name start with S
- Display a list of all the employee who have joined before 1/1/2015
- Display a list of all the employee whose date of birth is after 1/1/1990
- Display a list of all the employee whose designation is Consultant and Associate
- Display total number of employees
- Display total number of employees belonging to "Chennai"
- Display highest employee id from the list
- Display total number of employee who have joined after 1/1/2015
- Display total number of employee whose designation is not "Associate"
- Display total number of employee based on City
- Display total number of employee based on city and title
- Display total number of employee who is youngest in the list

## Code:

```
using System;

using System.Collections.Generic;
using System.Linq;

class Employee
{
    public int EmployeeID { get; set; }
    public string FirstName { get; set; }
    public string LastName { get; set; }
    public string Title { get; set; }
    public DateTime DOB { get; set; }
    public DateTime DOJ { get; set; }
    public string City { get; set; }
}

class Program
{
    public static void Main(string[] args)
    {
        List<Employee> empList = new List<Employee>
        {
            new Employee { EmployeeID = 1001, FirstName = "Malcolm", LastName = "Daruwalla", Title = "Manager", DOB = DateTime.ParseExact("16/11/1984", "dd/MM/yyyy", null), DOJ = DateTime.ParseExact("08/06/2011", "dd/MM/yyyy", null), City = "Mumbai" },
            new Employee { EmployeeID = 1002, FirstName = "Asdin", LastName = "Dhalla", Title = "AsstManager", DOB = DateTime.ParseExact("20/08/1984", "dd/MM/yyyy", null), DOJ = DateTime.ParseExact("07/07/2012", "dd/MM/yyyy", null), City = "Mumbai" },
            new Employee { EmployeeID = 1003, FirstName = "Madhavi", LastName = "Oza", Title = "Consultant", DOB = DateTime.ParseExact("14/11/1987", "dd/MM/yyyy", null), DOJ = DateTime.ParseExact("12/04/2015", "dd/MM/yyyy", null), City = "Pune" },
            new Employee { EmployeeID = 1004, FirstName = "Saba", LastName = "Shaikh", Title = "SE", DOB = DateTime.ParseExact("03/06/1990", "dd/MM/yyyy", null), DOJ = DateTime.ParseExact("02/02/2016", "dd/MM/yyyy", null), City = "Pune" },
            new Employee { EmployeeID = 1005, FirstName = "Nazia", LastName = "Shaikh", Title = "SE", DOB = DateTime.ParseExact("08/03/1991", "dd/MM/yyyy", null), DOJ = DateTime.ParseExact("02/02/2016", "dd/MM/yyyy", null), City = "Mumbai" },
            new Employee { EmployeeID = 1006, FirstName = "Amit", LastName = "Pathak", Title = "Consultant", DOB = DateTime.ParseExact("07/11/1989", "dd/MM/yyyy", null), DOJ = DateTime.ParseExact("08/08/2014", "dd/MM/yyyy", null), City = "Chennai" },
        }
    }
}
```

```

        new Employee { EmployeeID = 1007, FirstName = "Vijay", LastName =
"Natrajan", Title = "Consultant", DOB = DateTime.ParseExact("02/12/1989",
"dd/MM/yyyy", null), DOJ = DateTime.ParseExact("01/06/2015", "dd/MM/yyyy",
null), City = "Mumbai" },
        new Employee { EmployeeID = 1008, FirstName = "Rahul", LastName =
"Dubey", Title = "Associate", DOB = DateTime.ParseExact("11/11/1993",
"dd/MM/yyyy", null), DOJ = DateTime.ParseExact("06/11/2014", "dd/MM/yyyy",
null), City = "Chennai" },
        new Employee { EmployeeID = 1009, FirstName = "Suresh", LastName =
"Mistry", Title = "Associate", DOB = DateTime.ParseExact("12/08/1992",
"dd/MM/yyyy", null), DOJ = DateTime.ParseExact("03/02/2014", "dd/MM/yyyy",
null), City = "Chennai" },
        new Employee { EmployeeID = 1010, FirstName = "Sumit", LastName =
"Shah", Title = "Manager", DOB = DateTime.ParseExact("12/04/1991",
"dd/MM/yyyy", null), DOJ = DateTime.ParseExact("02/01/2016", "dd/MM/yyyy",
null), City = "Pune" }
    };

//a
    Console.WriteLine("All Employees:");
    DisplayEmployees(empList);

//b
    Console.WriteLine("\nEmployees not in Mumbai:");
    DisplayEmployees(empList.Where(e => e.City != "Mumbai"));

//c
    Console.WriteLine("\nEmployees with title 'AsstManager':");
    DisplayEmployees(empList.Where(e => e.Title == "AsstManager"));

//d
    Console.WriteLine("\nEmployees whose last name starts with 'S':");
    DisplayEmployees(empList.Where(e => e.LastName.StartsWith("S")));

//e
    Console.WriteLine("\nEmployees who joined before 1/1/2015:");
    DisplayEmployees(empList.Where(e => e.DOJ < new DateTime(2015, 1,
1)));

//f
    Console.WriteLine("\nEmployees born after 1/1/1990:");
    DisplayEmployees(empList.Where(e => e.DOB > new DateTime(1990, 1,
1)));

//g
    Console.WriteLine("\nEmployees with designation 'Consultant' or
'Associate':");
    DisplayEmployees(empList.Where(e => e.Title == "Consultant" || e.Title
== "Associate"));

//h
    Console.WriteLine($"Total number of employees: {empList.Count}");

//i

```

```

        Console.WriteLine($"Total employees in Chennai: {empList.Count(e =>
e.City == "Chennai")}");

//j

        Console.WriteLine($"Highest Employee ID: {empList.Max(e =>
e.EmployeeID)}");

//k

        Console.WriteLine($"Total employees who joined after 1/1/2015:
{empList.Count(e => e.DOJ > new DateTime(2015, 1, 1))}");
//l

        Console.WriteLine($"Total employees whose designation is not
\"Associate\": {empList.Count(e => e.Title != \"Associate")}");
//m

        Console.WriteLine("Total employees based on city:");
        var cities = empList.Select(e => e.City).Distinct();
        foreach (var city in cities)
            Console.WriteLine($"{city}: {empList.Count(e => e.City ==
city)}");
//n

        Console.WriteLine("Total employees based on city and title:");
        var cityTitleGroups = empList.Select(e => new { e.City, e.Title
}).Distinct();
        foreach (var group in cityTitleGroups)
            Console.WriteLine($"{group.City} - {group.Title}: {empList.Count(e
=> e.City == group.City && e.Title == group.Title)}");
//o

        var youngestEmployee = empList.OrderByDescending(e => e.DOB).First();
        Console.WriteLine($"Youngest Employee: {youngestEmployee.FirstName}
{youngestEmployee.LastName}, DOB: {youngestEmployee.DOB:dd/MM/yyyy}");

        Console.ReadLine();
    }

    static void DisplayEmployees(IEnumerable<Employee> employees)
    {
        foreach (var e in employees)
        {
            Console.WriteLine($"{e.EmployeeID}, {e.FirstName} {e.LastName},
{e.Title}, DOB: {e.DOB:dd/MM/yyyy}, DOJ: {e.DOJ:dd/MM/yyyy}, City: {e.City}");
        }
    }
}

```

## Output screen:

The screenshot shows the Visual Studio Code interface with a C# project named 'CAPGEMINI PREP'. The Explorer pane on the left shows the file structure, including 'Program.cs' and 'SQLAssignment1.csproj'. The Output pane on the right shows the build output, which includes several errors and warnings. The errors are related to invalid expression terms and expected closing braces. The warnings are related to non-nullable properties that must contain a non-null value when exiting the constructor. The build failed, and the user is prompted to fix the build errors and run again.

```
16 class Program
{
    // ...
}

// ...

// ...
}
```

Build Output:

```
E:\CAPGEMINI PREP\SQLAssignment1\Program.cs(61,10): error CS1525: Invalid expression term 'else'
E:\CAPGEMINI PREP\SQLAssignment1\Program.cs(99,2): error CS1513: } expected

The build failed. Fix the build errors and run again.
PS E:\CAPGEMINI PREP> dotnet run --project "E:\CAPGEMINI PREP\SQLAssignment1\SQLAssignment1.csproj"
E:\CAPGEMINI PREP\SQLAssignment1\Program.cs(8,19): warning CS8618: Non-nullable property 'FirstName' must contain a non-null value when exiting constructor. Consider adding the 'required' modifier or declaring the property as nullable.
E:\CAPGEMINI PREP\SQLAssignment1\Program.cs(9,19): warning CS8618: Non-nullable property 'LastName' must contain a non-null value when exiting constructor. Consider adding the 'required' modifier or declaring the property as nullable.
E:\CAPGEMINI PREP\SQLAssignment1\Program.cs(10,19): warning CS8618: Non-nullable property 'Title' must contain a non-null value when exiting constructor. Consider adding the 'required' modifier or declaring the property as nullable.
E:\CAPGEMINI PREP\SQLAssignment1\Program.cs(13,19): warning CS8618: Non-nullable property 'City' must contain a non-null value when exiting constructor. Consider adding the 'required' modifier or declaring the property as nullable.

All Employees:
1001, Malcolm Daruwalla, Manager, DOB: 16-11-1984, DOJ: 08-06-2011, City: Mumbai
1002, Asdin Dhalla, AsstManager, DOB: 20-08-1984, DOJ: 07-07-2012, City: Mumbai
1003, Madhavi Oza, Consultant, DOB: 14-11-1987, DOJ: 12-04-2015, City: Pune
1004, Saba Shaikh, SE, DOB: 03-06-1990, DOJ: 02-02-2016, City: Pune
1005, Nazia Shaikh, SE, DOB: 08-03-1991, DOJ: 02-02-2016, City: Mumbai
1006, Amit Pathak, Consultant, DOB: 07-11-1989, DOJ: 08-08-2014, City: Chennai
1007, Vijay Natrajan, Consultant, DOB: 02-12-1989, DOJ: 01-06-2015, City: Mumbai
1008, Rahul Dubey, Associate, DOB: 11-11-1993, DOJ: 06-11-2014, City: Chennai
1009, Suresh Mistry, Associate, DOB: 12-08-1992, DOJ: 03-02-2014, City: Chennai
1010, Sumit Shah, Manager, DOB: 12-04-1991, DOJ: 02-01-2016, City: Pune

Employees not in Mumbai:
1003, Madhavi Oza, Consultant, DOB: 14-11-1987, DOJ: 12-04-2015, City: Pune
1004, Saba Shaikh, SE, DOB: 03-06-1990, DOJ: 02-02-2016, City: Pune
1006, Amit Pathak, Consultant, DOB: 07-11-1989, DOJ: 08-08-2014, City: Chennai
1008, Rahul Dubey, Associate, DOB: 11-11-1993, DOJ: 06-11-2014, City: Chennai
1009, Suresh Mistry, Associate, DOB: 12-08-1992, DOJ: 03-02-2014, City: Chennai
1010, Sumit Shah, Manager, DOB: 12-04-1991, DOJ: 02-01-2016, City: Pune

Employees with title 'AsstManager':
1002, Asdin Dhalla, AsstManager, DOB: 20-08-1984, DOJ: 07-07-2012, City: Mumbai
```

The screenshot shows the Visual Studio Code interface with the same C# project. The Output pane on the right shows the output of the program, which includes a list of employees with their details (ID, Name, Designation, DOB, DOJ, City). The output is filtered to show employees with the title 'AsstManager', employees whose last name starts with 'S', employees who joined before 1/1/2015, employees born after 1/1/1990, employees with designation 'Consultant' or 'Associate', and the total number of employees in Chennai. The output also includes the highest employee ID and the total employees who joined after 1/1/2015.

```
Employees with title 'AsstManager':
1002, Asdin Dhalla, AsstManager, DOB: 20-08-1984, DOJ: 07-07-2012, City: Mumbai

Employees whose last name starts with 'S':
1004, Saba Shaikh, SE, DOB: 03-06-1990, DOJ: 02-02-2016, City: Pune
1005, Nazia Shaikh, SE, DOB: 08-03-1991, DOJ: 02-02-2016, City: Mumbai
1010, Sumit Shah, Manager, DOB: 12-04-1991, DOJ: 02-01-2016, City: Pune

Employees who joined before 1/1/2015:
1001, Malcolm Daruwalla, Manager, DOB: 16-11-1984, DOJ: 08-06-2011, City: Mumbai
1002, Asdin Dhalla, AsstManager, DOB: 20-08-1984, DOJ: 07-07-2012, City: Mumbai
1006, Amit Pathak, Consultant, DOB: 07-11-1989, DOJ: 08-08-2014, City: Chennai
1008, Rahul Dubey, Associate, DOB: 11-11-1993, DOJ: 06-11-2014, City: Chennai
1009, Suresh Mistry, Associate, DOB: 12-08-1992, DOJ: 03-02-2014, City: Chennai

Employees born after 1/1/1990:
1004, Saba Shaikh, SE, DOB: 03-06-1990, DOJ: 02-02-2016, City: Pune
1005, Nazia Shaikh, SE, DOB: 08-03-1991, DOJ: 02-02-2016, City: Mumbai
1008, Rahul Dubey, Associate, DOB: 11-11-1993, DOJ: 06-11-2014, City: Chennai
1009, Suresh Mistry, Associate, DOB: 12-08-1992, DOJ: 03-02-2014, City: Chennai
1010, Sumit Shah, Manager, DOB: 12-04-1991, DOJ: 02-01-2016, City: Pune

Employees with designation 'Consultant' or 'Associate':
1003, Madhavi Oza, Consultant, DOB: 14-11-1987, DOJ: 12-04-2015, City: Pune
1006, Amit Pathak, Consultant, DOB: 07-11-1989, DOJ: 08-08-2014, City: Chennai
1007, Vijay Natrajan, Consultant, DOB: 02-12-1989, DOJ: 01-06-2015, City: Mumbai
1008, Rahul Dubey, Associate, DOB: 11-11-1993, DOJ: 06-11-2014, City: Chennai
1009, Suresh Mistry, Associate, DOB: 12-08-1992, DOJ: 03-02-2014, City: Chennai

Total number of employees: 10

Total employees in Chennai: 3

Highest Employee ID: 1010

Total employees who joined after 1/1/2015: 5

Total employees whose designation is not "Associate": 8
```

fileEditSelectionView...<-->Untitled (Workspace)🔍🔧📄📄📄-📄📄✕

EXPLORER...Program.cs ✕▶▶📄...

▼ UNTITLED (WORKSPACE)  
▼ CAPGEMINI PREP  
  > LambdaExp  
  > LambdaExpProblem  
  > LambdaExpressions  
  > LinkedList  
  > List  
  > Litwarelib  
  > OverloadOverRidden  
  > PetShopFishInvento...  
  > Polymorphism  
  > PractiseCollections  
  > product  
  > ProductApp  
  > Programs  
  > Queue  
  > SortedDictionary  
  ▼ SQLAssignment1  
    > bin  
    > obj  
Program.cs

CAPGEMINI PREP > SQLAssignment1 > Program.cs > Program > Main  
16 class Program  
PROBLEMSOUTPUTDEBUG CONSOLETERMINALPORTSNUGETPOLYGLOT NOTEBOOKCode+📄🗑️...^✕

Total employees whose designation is not "Associate": 8  
  
Total employees based on city:  
Mumbai: 4  
Pune: 3  
Chennai: 3  
  
Total employees based on city and title:  
Mumbai - Manager: 1  
Mumbai - AsstManager: 1  
Pune - Consultant: 1  
Pune - SE: 1  
Mumbai - SE: 1  
Chennai - Consultant: 1  
Mumbai - Consultant: 1  
Chennai - Associate: 2  
Pune - Manager: 1  
  
Youngest Employee: Rahul Dubey, DOB: 11-11-1993  
1  
PS E:\CAPGEMINI PREP>