LINQ

```
using System;
using System.Linq;

class LingWithSimpleTypeArray
{
    public static void Main()
    {
        int[] values = { 2, 9, 5, 0, 3, 7, 1, 4, 8, 5 };
        Console.WriteLine("orignal array: ");
        foreach (var x1 in values)
            Console.WriteLine("{0}", x1);
        var filterd =
           from value in values
           where value>4
           select value;
        Console.WriteLine("\n Array values greater than 4: ");
        foreach (var x1 in filterd)
            Console.WriteLine("{0}", x1);
        var sorted =
            from value in values
            orderby value
            select value;
        Console.WriteLine("\n original array, sorted: ");
            foreach (var x1 in sorted)
                Console.WriteLine("{0}",x1);
            var sortFilter =
                from value in filterd
                orderby value descending
                select value;
            Console.WriteLine("\n value grater than 4, descending order: ");
            foreach (var x1 in sortFilter)
                Console.WriteLine("{0}", x1);

            var sortAndFilter =
                from value in values
                where value > 4
                orderby value descending
                select value;
            Console.WriteLine("\n value greater then 4, desceinding order :
");
            foreach (var x1 in sortAndFilter)
                Console.WriteLine("{0}", x1);
            Console.ReadKey();
    }
}
```

Querying an array of employee objects using LINQ

```
using System;
using System.Linq;
class LingWithArrayOfObjects
{
    public struct Employee
    {
        public decimal monthlySallaryValue;
        public string FirstName;
        public string LastName;
        public Employee(string first, string last, decimal salary)
        {
            FirstName = first;
            LastName = last;
            monthlySallaryValue = salary;
        }
    }
    public static void Main()
    {
        Employee[] employee = {
                                    new Employee ("jason", "Red", 5000M),
                                    new Employee ("ashly", "green", 4700M),
                                    new Employee ("mathew", "indeloge", 6200M),
                                    new Employee ("james", "black", 3200M),
                                    new Employee ("wendy", "brown", 5000M),
                                };
        Console.WriteLine("origanal array: ");
        foreach (var element in employee)
            Console.WriteLine(element);
        var between4k6k =
            from e in employee
            where e.monthlySallaryValue >= 4000M && e.monthlySallaryValue <=
6000M
            select e;
        Console.WriteLine(string.Format("\n employee earing in the range
{0:C}-{1:C} per month: ", 4000, 6000));
        foreach (var element in between4k6k);
        Console.WriteLine(element);
        var namesorted =
            from e in employee
            orderby e.LastName, e.FirstName
            select e;
        Console.WriteLine("\n First employee when sorted by name: ");
        if (namesorted.Any())
            Console.WriteLine(namesorted.First());
        else
            Console.WriteLine("not found");
        var lastName =
            from e in employee
```

```
            select e.LastName;
        Console.WriteLine("\n unique employee last name: ");
        foreach (var element in lastName.Distinct())
            Console.WriteLine(element);
        var name =
            from e in employee
            select new { e.FirstName, Last= e.LastName};
        Console.WriteLine("\n Names only: ");
        foreach (var element in name)
            Console.WriteLine(element);
        Console.WriteLine();
            Console.ReadKey();
    }
}
```

Querying a generic collection using LINQ

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

public class LinqWithListColliction
{
    public static void Main()
    {
        List<string> items = new List<string>();
        items.Add("a Qua");
        items.Add("Rust");
        items.Add("yElLow");
        items.Add("rEd");
        var startWithR =
            from item in items
            let uppercaseString = item.ToUpper()
            where uppercaseString.StartsWith("R")
            orderby uppercaseString
            select uppercaseString;
        foreach (var item in startWithR)
            Console.WriteLine("{0}", item);
        Console.WriteLine();
        items.Add("rUby");
        items.Add("SaFRon");
        foreach (var item in startWithR)
            Console.WriteLine("{0}", item);
        Console.ReadKey();
    }
}
```

Example 1: Write a program in C# Sharp to shows how the three parts of a query operation execute.

```
using System;
using System.Linq;

class LinqExercise1
{
    static void Main()
    {
        //  The first part is Data source.
        int[] n1 = new int[10] { 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 };

        Console.Write("\nBasic structure of LINQ : ");
        Console.Write("\n---------------------------");

        // The second part is Query creation.
        // nQuery is an IEnumerable<int>
        var nQuery =
            from VrNum in n1
            where (VrNum % 2) == 0
            select VrNum;

        // The third part is Query execution.

        Console.Write("\nThe numbers which produce the remainder 0 after
divided by 2 are : \n");
        foreach (int VrNum in nQuery)
        {
            Console.Write("{0} ", VrNum);
        }
        Console.Write("\n\n");
        Console.ReadKey();
    }
}
```

Example 2: Write a program in C# Sharp to find the number of an array and the square of each number.

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

class LinqExercise3
{
    static void Main(string[] args)
    {
```

```
        // code from DevCurry.com
        var arr1 = new[] { 3, 9, 2, 8, 6, 5 };

        Console.Write("\nLINQ : Find the number and its square of an array
which is more than 20 : ");
        Console.Write("\n-----------------------------------------------------
--------------------\n");

        var sqNo = from int Number in arr1
                   let SqrNo = Number * Number
                   where SqrNo > 20
                   select new { Number, SqrNo };

        foreach (var a in sqNo)
            Console.WriteLine(a);

        Console.ReadLine();
    }
}
```

Example 3: Write a program in C# Sharp to display the number and frequency of number from giving array.

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

class LinqExercise4
{
    static void Main(string[] args)
    {
        int[] arr1 = new int[] { 5, 9, 1, 2, 3, 7, 5, 6, 7, 3, 7, 6, 8, 5, 4,
9, 6, 2 };
        Console.Write("\nLINQ : Display the number and frequency of number
from given array : \n");
        Console.Write("-------------------------------------------------------
---------------\n");
        Console.Write("The numbers in the array  are : \n");
        Console.Write(" 5, 9, 1, 2, 3, 7, 5, 6, 7, 3, 7, 6, 8, 5, 4, 9, 6,
2\n");

        var n = from x in arr1
                group x by x into y
                select y;
        Console.WriteLine("\nThe number and the Frequency are : \n");
        foreach (var arrNo in n)
        {
```

```
            Console.WriteLine("Number " + arrNo.Key + " appears " +
arrNo.Count() + " times");
        }
        Console.WriteLine("\n");
        Console.ReadKey();
    }
}
```