

Lab 14. LINQ exercises. Part 1

Exercise 1

1. Write a program in C# to find numbers which produce the remainder 0 after divided by 2

Expected Output

0 2 4 6 8...

2. Write a program in C# to find the numbers from a list of numbers using two where conditions in LINQ Query, (by example, numbers within the range of 1 to 11)

Expected Output

1 3 6 9 10

3. Write a program in C# to find the number of an array and the square of each number.

Expected Output:

{ Number = 9, SqrNo = 81 }

{ Number = 8, SqrNo = 64 }

{ Number = 6, SqrNo = 36 }

{ Number = 5, SqrNo = 25 }

4. Write a program in C# to create a list of numbers and display the numbers greater than 80 as output.

Test Data

The members of the list are :

55 200 740 76 230 482 95

Expected Output

The numbers greater than 80 are :

200

740

230

482

95

5. Write a program in C# to display the number and frequency of number from giving array.

Expected Output:

The number and the frequency are :

Number 5 appears 3 times

Number 9 appears 2 times

Number 1 appears 1 times

6. Write a program in C# to display the characters and frequency of character from giving string.

Test Data: Input the string: apple

Expected Output:

The frequency of the characters are :

Character a: 1 times

Character p: 2 times
Character l: 1 times
Character e: 1 times

7. Write a program in C# to accept the members of a list through the keyboard and display the members more than a specific value.

Test Data :

Input the number of members on the List : 5
Member 0 : 10
Member 1 : 48
Member 2 : 52
Member 3 : 94
Member 4 : 63

Input the value above you want to display the members of the List : 59

Expected Output :

The numbers greater than 59 are :
94
63

8. Write a program in C# to display the name of the days of a week.

Expected Output:

Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

9. Write a program in C# to display numbers, multiplication of number with frequency and frequency of a number of giving array.

The numbers in the array are :

5, 1, 9, 2, 3, 7, 4, 5, 6, 8, 7, 6, 3, 4, 5, 2

Expected Output :

Number	Number*Frequency	Frequency
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5	15	3
1	1	1
9	9	1
2	4	2

10. Write a program in C# to accept the members of a list through the keyboard and display the members less than a specific value.

Test Data :

Input the number of members on the List : 5
Member 0 : 10

Member 1 : 48
Member 2 : 52
Member 3 : 94
Member 4 : 63

Input the value above you want to display the members of the List : 59

Expected Output :

The numbers greater than 59 are :
94
63

Exercise 2

1. Write a program in C# to remove items from list using remove function by passing the object.

Test Data :

Here is the list of items :
Char: m
Char: n
Char: o
Char: p
Char: q

Expected Output:

Here is the list after removing the item 'o' from the list :
Char: m
Char: n
Char: p
Char: q

2. Write a program in C# to remove items from List by creating an object internally by filtering.

Test Data :

Here is the list of items :
Char: m
Char: n
Char: o
Char: p
Char: q

Expected Output :

Here is the list after removing the item 'p' from the list :
Char: m
Char: n
Char: o
Char: q

[Click me to see the solution](#)

3. Write a program in C# to remove items from List by passing filters.

Test Data :

Here is the list of items :

Char: m

Char: n

Char: o

Char: p

Char: q

Expected Output :

Here is the list after removing item 'q' from the list :

Char: m

Char: n

Char: o

Char: p

4. Find the number and its square of an array which is more than 20.

Test Data :

Here is the list of items :

Char: m

Char: n

Char: o

Char: p

Char: q

Expected Output:

Here is the list after removing item index 3 from the list :

Char: m

Char: n

Char: o

Char: q

5. Write a program in C# to remove a range of items from a list by passing the start index and number of elements to remove.

Test Data :

Here is the list of items :

Char: m

Char: n

Char: o

Char: p

Char: q

Expected Output:

Here is the list after removing the three items starting from the item index 1 from the list:

Char: m

Char: q

6. Write a program in C# to display the top of n records.

Test Data :

The members of the list are :

5 7 13 24 6 9 8 7

How many records you want to display ? : 3

Expected Output :

The top 3 records from the list are : 24 13 9

Exercise 3

1. Write a program in C# to find the string which starts and ends with a specific character.

Test Data :

The cities are : 'ROME','LONDON','NAIROBI','CALIFORNIA','ZURICH','NEW DELHI','AMSTERDAM','ABU DHABI','PARIS'

Input starting character for the string : A

Input ending character for the string : M

Expected Output :

The city starting with A and ending with M is : AMSTERDAM

2. Write a program in C# to display the list of items in the array according to the length of the string then by name in ascending order.

Expected Output :

Here is the arranged list :

ROME

PARIS

LONDON

ZURICH

NAIROBI

ABU DHABI

AMSTERDAM

NEW DELHI

CALIFORNIA

3. Write a program in C# to count file extensions and group it using LINQ.

Test Data :

The files are : aaa.frx, bbb.TXT, xyz.dbf,abc.pdf

aaaa.PDF,xyz.frt, abc.xml, ccc.txt, zzz.txt

Expected Output :

Here is the group of extension of the files :

1 File(s) with .frx Extension

3 File(s) with .txt Extension

1 File(s) with .dbf Extension

2 File(s) with .pdf Extension

1 File(s) with .frt Extension

1 File(s) with .xml Extension

4. Write a program in C# to find the uppercase words in a string.

Test Data :

Input the string : this IS a STRING

Expected Output :

The UPPER CASE words are :

IS

STRING

5. Write a program in C# to convert a string array to a string.

Test Data :

Input number of strings to store in the array :3

Input 3 strings for the array :

Element[0] : cat

Element[1] : dog

Element[2] : rat

Expected Output:

Here is the string below created with elements of the above array :
cat, dog, rat

6. Write a program in C# to find the strings for a specific minimum length.

Test Data :

Input number of strings to store in the array :4

Input 4 strings for the array:

Element[0] : this

Element[1] : is

Element[2] : a

Element[3] : string

Input the minimum length of the item you want to find : 5

Expected Output:

The items of minimum 5 characters are :

Item: string

7. Write a program in C# to calculate size of file using LINQ

Expected Output :

The Average file size is 3.4 MB

Exercise 4

1. Write a program in C# to generate an Inner Join between two data sets.

Expected Output :

Item ID	Item Name	Purchase Quantity
1	Biscuit	458
2	Chocolate	650
3	Butter	800
3	Butter	900
3	Butter	900
4	Brade	700

4 Brade 650

2. Write a program in C# to generate a Left Join between two data sets.

Expected Output :

Here is the list after joining

Item ID	Item Name	Purchase Quantity
1	Biscuit	458
2	Chocolate	650
3	Butter	800
3	Butter	900
3	Butter	900
4	Brade	700
4	Brade	650
5	Honey	0

3. Write a program in C# to generate a Right Outer Join between two data sets.

Expected Output :

Here is the list after joining :

Item ID	Item Name	Purchase Quantity
3	Butter	800
5	Honey	650
3	Butter	900
4	Brade	700
3	Butter	900
4	Brade	650
1	Biscuit	458

4. Write a program in C# to generate a Cartesian Product of two sets.

Expected Output :

The Cartesian Product are :

```
{ letterList = X, numberList = 1 }  
{ letterList = X, numberList = 2 }  
{ letterList = X, numberList = 3 }  
{ letterList = X, numberList = 4 }
```

5. Write a program in C# to generate a Cartesian Product of three sets.

Expected Output :

The Cartesian Product are :

```
{ letter = X, number = 1, colour = Green }  
{ letter = X, number = 1, colour = Orange }  
{ letter = X, number = 2, colour = Green }  
{ letter = X, number = 2, colour = Orange }  
{ letter = X, number = 3, colour = Green }  
{ letter = X, number = 3, colour = Orange }  
{ letter = Y, number = 1, colour = Green }  
{ letter = Y, number = 1, colour = Orange }
```

6. Write a program in C# to arrange the distinct elements in the list in ascending order.

Expected Output :

Biscuit
Brade
Butter
Honey

7. Write a program in C# to split a collection of strings into some groups.

Expected Output :

Here is the group of cities :
ROME; LONDON; NAIROBI
-- here is a group of cities --
CALIFORNIA; ZURICH; NEW DELHI
-- here is a group of cities --
AMSTERDAM; ABU DHABI; PARIS
-- here is a group of cities --
NEW YORK
-- here is a group of cities --

8. Write a program in C# to find the maximum grade point achieved by the students from the list of students.

Expected Output:

Id : 7, Name : David, achieved Grade Point : 750
Id : 10, Name : Jenny, achieved Grade Point : 750

Links

If you can't find solutions of your tasks, follow to the links below. There are placed very interesting things. Good luck! 😊.

<https://www.w3resource.com/csharp-exercises/linq/index.php>