C# Exercises : LINQ

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

```
The numbers which produce the remainder 0 after divided by 2 are :
0 2 4 6 8
```

2. Write a program in C# Sharp to find the positive numbers from a list of numbers using two where conditions in LINQ Query.

```
The numbers within the range of 1 to 11 are :
1 3 6 9 10
```

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

```
{ Number = 9, SqrNo = 81 }
{ Number = 8, SqrNo = 64 }
{ Number = 6, SqrNo = 36 }
{ Number = 5, SqrNo = 25 }
```

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

```
The number and the Frequency are :
Number 5 appears 3 times
Number 9 appears 2 times
Number 1 appears 1 times
. . . .
```

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

```
Test Data:
Input the string: apple
The frequency of the characters are :
Character a: 1 times
Character p: 2 times
Character l: 1 times
Character e: 1 times
```

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

```
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
```

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

```
Test Data :
The numbers in the array are :
5, 1, 9, 2, 3, 7, 4, 5, 6, 8, 7, 6, 3, 4, 5, 2
```

```
Number Number*Frequency Frequency
-----------------------------------------------
5 15 3
1 1 1
9 9 1
2 4 2
. . . . . .
```

8. Write a program in C# Sharp 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
The city starting with A and ending with M is : AMSTERDAM
```

9. Write a program in C# Sharp 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
The numbers greater than 80 are :
200 740 230 482 95
```

10. Write a program in C# Sharp 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
The numbers greater than 59 are :
94 63
```

11. Write a program in C# Sharp to display the top n-th records.

```
Test Data :
The members of the list are :
5 7 13 24 6 9 8 7
How many top records you want to display ? : 3
The top 3 records from the list are :
24 13 9
```

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

```
Test Data :
Input the string : this IS a STRING
The UPPER CASE words are :
IS
STRING
```

13. Write a program in C# Sharp 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
Here is the string below created with elements of the above array :
cat, dog, rat
```

14. Write a program in C# Sharp to find the n-th Maximum grade point achieved by the students from the list of students.

```
Test Data :
Which maximum grade point (1st, 2nd, 3rd, ...) you want to find : 3
Id : 7, Name : David, Achieved Grade Point : 750
Id : 10, Name : Jenny, Achieved Grade Point : 750
```

15. Write a program in C# Program 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
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
```

16. Write a program in C# Sharp to Calculate Size of File using LINQ.

```
The Average file size is 3.4 MB
```

17. Write a program in C# Sharp 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
Here is the list after removing the item 'o' from the list :
```

```
Char: m
Char: n
Char: p
Char: q
```

18. Write a program in C# Sharp 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
Here is the list after removing the item 'p' from the list :
Char: m
Char: n
Char: o
Char: q
```

19. Write a program in C# Sharp 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
Here is the list after removing item 'q' from the list :
Char: m
Char: n
Char: o
Char: p
```

20. Write a program in C# Sharp to Remove Items from List by passing the item index.

```
Test Data :
Here is the list of items :
Char: m
Char: n
Char: o
Char: p
Char: q
Here is the list after removing item index 3 from the list :
Char: m
Char: n
Char: o
Char: q
```

21. Write a program in C# Sharp 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
Here is the list after removing the 3 items starting from the item index 1 from the list :
Char: m
Char: q
```

22. Write a program in C# Sharp 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
The items of minimum 5 characters are :
Item: string
```

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

```
The Cartesian Product are :
{ letterList = X, numberList = 1 }
{ letterList = X, numberList = 2 }
{ letterList = X, numberList = 3 }
{ letterList = X, numberList = 4 }
. . .
```

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

```
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 }
. . .
```

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

```
Items list :
Item ID         Item Name
---------------------------------
1               Biscuit
2               Chocolate
3               Butter
4               Brade
5               Honey

Purchases list :
Purchase No         Item ID       Purchase Quantity
-------------------------------------------------
100                  3                  800
101                  2                  650
102                  3                  900
103                  4                  700
104                  3                  900
105                  4                  650
106                  1                  458

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
```

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

```
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
```

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

```
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
```

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

```
Here is the arranged list :
ROME
PARIS
LONDON
ZURICH
NAIROBI
ABU DHABI
AMSTERDAM
NEW DELHI
CALIFORNIA
```

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

Strings collection: "ROME","LONDON","NAIROBI","CALIFORNIA","ZURICH","NEW DELHI","AMSTERDAM", "ABU DHABI", "PARIS","NEW YORK"

```
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 --
```

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

```
Biscuit
Brade
Butter
Honey
```