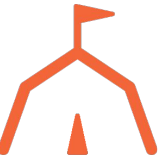


# LINQ



# What Is LINQ?

LINQ stands for Language Integrated Query. This Microsoft query language offer an easy way to access data in in-memory objects, databases, XML documents and many more. Linq is useable on most any C# collection.



# Syntax Of LINQ

There are two main ways to write a LINQ query:

- Query Syntax or Query Expression Syntax
- Method Syntax or Method extension syntax



# Syntax Of LINQ

Query syntax or query expression syntax

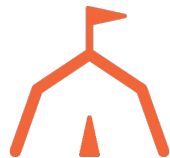
```
from {range variable} in {collection}  
{filter, joining, grouping, aggregate operators etc.} {lambda expression}  
{select or groupBy operator} {formulate the result}
```



# Lambda Expressions

Let us first talk about lambda expressions

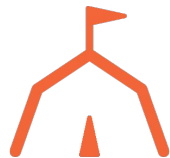
- A lambda expression is an anonymous function.
- When you use lambda expressions, you can write functions that can be passed as arguments.



# Lambda Expressions

Let us first talk about lambda expressions

- Syntax: (input-parameters) => expression
- The parentheses are optional only if the lambda has one input parameter
- Example:  $(x, y) \Rightarrow x == y$  : checks if x and y have the same value.



# Lambda Expressions

Example: Counting how many odd numbers you have in an array

```
int[] numbers = { 5, 4, 1, 3, 9, 8, 6, 7, 2, 0 };  
int oddNumbers = numbers.Count(n => n % 2 == 1);
```



# Syntax Of LINQ

Query syntax or query expression syntax  
example

```
var teenAgerStudent = from s in studentList  
                       where s.Age > 12 && s.Age < 20  
                       select s;
```





# Syntax of LINQ

Method Syntax

Method syntax (also known as fluent syntax)

uses extension methods

Example: Where, ToList



# Syntax Of LINQ

## Method Syntax Example

```
var teenagerStudents =  
studentList.Where(s => s.Age > 12 && s.Age < 20)  
             .ToList();
```



# More LINQ Examples

Follow your instructor to do more examples!



# Recap

- What is LINQ?
- Ways to write LINQ.

