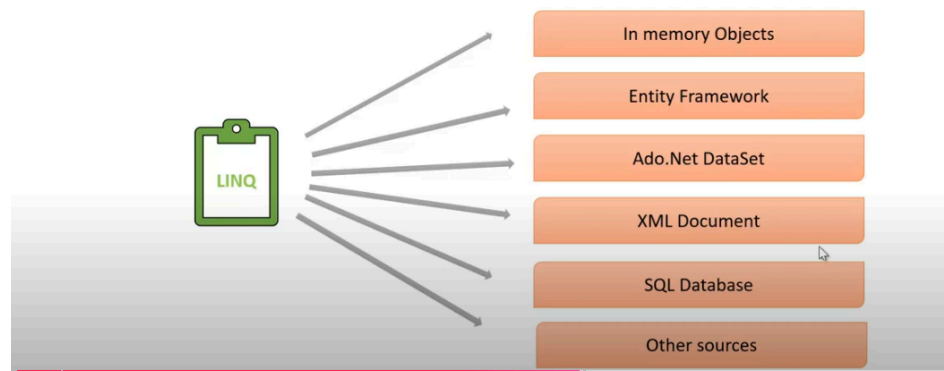# Basic

Langauage Integrated Query

- **part of language**

- developed by microsoft

- in **System.Linq** package

- uniform query state => **one query for all data source**

- compact, expressive, intelliglble syntax for **manipulating data**
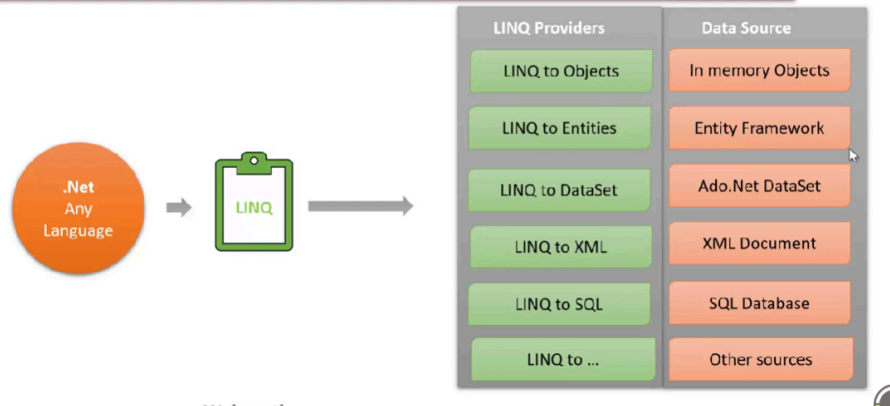
- introduced on .net 3.5 and c# 3.0

Why should we learn LINQ

✓ No need to learn new query language for different data sources.

✓ Less code as compare to traditional approach

✓ Compile time safety

✓ IntelliSense support

✓ Has lots of inbuilt method to support different operations.

Workflow

How LINQ Works | Architecture

Linq Query provider

LINQ Providers

✓ A LINQ provider is software that implements the **IQueryProvider** and **IQueryable** interfaces for a particular data store.

In other words, it allows you to write LINQ queries against that data store.

Things need to write a query

LINQ

To work with a LINQ query we need following things –

1. Data Source
2. Query
3. Execution

Data Source

- sql etc
- xml
- object

Query

Query

"A query is a set of instructions which is applied on a data source to perform an action (CRUD) and tells the shape of output from that query."

Each query is a combination of –

- Initialization
- Condition
- Selection

Initialization

- Work with the data source

Condition

- Sorting Condition Selection condition etc

Selection

- Single selection, group selection etc…

QuerySelection

Query Syntax

This is one of the easy way to write complex query in easy and readable format.

The syntax for this type of query is like SQL query

```
from object in dataSource
where condition
select object
```

Method Syntax

✓ Method syntax are most popular now a days.

✓ Method syntax uses lambda expressions to define any condition.

✓ Method syntax are easy to read/write for simple query.

✓ But for complex query these are little hard to write as compare to query syntax.

✓ In this approach query is written by using multiple methods and combining them with a dot(.);

Method Syntax

DataSource.ConditionMethod().SelectionMethod()

Mixed Syntax

✓ This is the combination of Query syntax and method syntax.

```
(from object in dataSource
where condition
select object).Method()
```