



# IEnumerable Vs IQueryable

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In this article I will demonstrate how to write code via IEnumerable and IQueryable and what the differences are between them.

IEnumerable and IQueryable are used for data manipulation in LINQ from the database and collections.

For getting the data from the database, I have created a table named "Employee" that has some data and looks like:

Results		Messages		
	ID	Name	Salary	Department
1	1	Ramesh	20000	Finance
2	2	Suresh	10000	Finance
3	3	Mahesh	28000	IT
4	4	Madan	15000	Finance
5	5	Ram	39000	Finance
6	6	Suraj	12000	Finance
7	7	Kamal	40000	IT
8	8	Sachin	32000	Finance
9	9	Neeraj	56000	IT
10	10	Jatin	29000	Finance

Then creating the Data Context class (.dbml class) in your project that converts the database table named "Employee" as a class.

Now I will tell you the functionality and some basic differences between IEnumerable and IQueryable using the object of the Data Context class..

## IEnumerable Code

```

23 list = list.Take<Employee>(3);
24
25 foreach (var a in list)

```

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## SQL statement after execution of above query

After the execution of line number 18, the SQL statement will look like the following until the end:

```

IEnumerable<Employee> list = dc.Employees.Where(d => d.Department.Equals("IT"));
list = list.Take<Employee>(3);

```

## IQueryable Code

```

21 DataClassesDataContext dc = new DataClassesDataContext();
22 IQueryable<Employee> list = dc.Employees.Where(d => d.Department.Equals("IT"));
23 list = list.Take<Employee>(3);
24
25 foreach (var a in list)
26 {
27     Response.Write(a.Name+"<br/>");
28 }

```

## SQL statement after execution of the preceding query

After the execution of line number 22, the SQL statement will look like:

```

IQueryable<Employee> list = dc.Employees.Where(d => d.Department.Equals("IT"));
list = list.Take<Employee>(3);

```

But after the execution of line number 23, SQL statement will add the Top for the filtering.

```

list = list.Take<Employee>(3);

```

In both syntaxes I am accessing the data from the Employee table and then taking only 3 rows from that data.

## Differences

### IEnumerable

1. IEnumerable exists in the System.Collections namespace.

Exposes the enumerator, which supports a simple iteration over a collection of a specified type.  
T is Employee

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so on.

3. While querying data from the database, IEnumerable executes "select query" on the server-side, loads data in-memory on the client-side and then filters the data.

```
list = list.Take<Employee>(3);
```

```
list {System.Linq.Enumerable.TakeIterator<Employee>} ⇐
```

4. IEnumerable is beneficial for LINQ to Object and LINQ to XML queries.

## IQueryable

1. IQueryable exists in the System.Linq Namespace.

```
IQueryable<Employee> list = dc.Employees.Where(d => d.Department.Equals("IT"));
```

interface System.Linq.IQueryable<out T>  
Provides functionality to evaluate queries against a specific data source wherein the type of the data is known.  
T is Employee

2. IQueryable is suitable for querying data from out-memory (like remote database, service) collections.
3. While querying data from a database, IQueryable executes a "select query" on server-side with all filters.

```
list = list.Take<Employee>(3);
```

```
list {SELECT TOP (3) [t0].[ID], [t0].[Name], [t0].[Salary], [t0].[Department] FROM [dbo].[Employee] AS [t0] WHERE [t0].[Department] = @p0}
```

4. IQueryable is beneficial for LINQ to SQL queries.

data manipulation in Linq

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