

Learn to Love Lambdas

And LINQ, Too!

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COMMON USES

- LINQ (Language Integrated Query)

```
if (NameFilterCheckBox.IsChecked.Value)  
    people = people.Where(p => p.FirstName == NameTextBox.Text);
```

- Func<T> and Action<T>

```
Func<Person, string> personFormatter = p => p.LastName.ToUpper();
```

- Callbacks and Event Handlers

```
var proxy = new PersonServiceClient();  
proxy.GetPeopleCompleted +=  
    (s, a) => PersonListBox.ItemsSource = a.Result;  
proxy.GetPeopleAsync();
```

MORE RECENT USE

- ASP.NET Core Minimal APIs

```
app.MapGet("/people/{id}", async (IPeopleProvider provider, int id) =>
{
    await Task.Delay(1000);
    return provider.GetPeople().FirstOrDefault(p => p.Id == id);
})
```

ANATOMY

3 Parts Parameter(s)
 => “goes to” operator
 Expression or Statements

Expression Lambda

```
(Person person) => person.FirstName == "John"
```

Statement Lambda

```
(object sender, EventArgs args) =>  
{  
    ListBox.ItemsSource = args.Result;  
    Console.WriteLine("Hello");  
}
```

ANATOMY

3 Parts Parameter(s)
=> “goes to” operator
Expression or Statements

Expression Lambda

```
(Person p) => p.FirstName == "John"
```

Statement Lambda

```
(object s, EventArgs a) =>  
{  
    ListBox.ItemsSource = a.Result;  
    Console.WriteLine("Hello");  
}
```

**Single Character
Parameter Names**

SYNTACTIC VARIATIONS

- Optional Parameter Types (Parameter Type Inference)
 $(s, e) \Rightarrow \{ \text{ListBox.ItemsSource} = e.\text{Result}; \}$
- Optional Parentheses for a Single Parameter
 $e \Rightarrow \{ \text{ListBox.ItemsSource} = e.\text{Result}; \}$
- Optional Braces for a Single Statement
 $e \Rightarrow \text{ListBox.ItemsSource} = e.\text{Result};$
- Empty Parentheses for No Parameter
 $() \Rightarrow \{ \text{Console.Write("John"); } \}$

LINQ - QUERY SYNTAX VS FLUENT SYNTAX

Query Syntax

```
from p in people
where p.FirstName == NameTextBox.Text
orderby p.LastName
select p;
```

Fluent Syntax

```
people.Where(p => p.FirstName == NameTextBox.Text)
    .OrderBy(p => p.LastName);
```

LINQ METHODS

```
public static IEnumerable<TSource> Where<TSource>(
    this IEnumerable<TSource> source,
    Func<TSource, bool> predicate
)
```

Put Your Lambda Expression Here



RESOURCES

Code Samples & Resources

[https://github.com/jeremybytes/
sdd-2022](https://github.com/jeremybytes/sdd-2022)



THANK YOU!

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