



# LEARN TO LOVE LAMBIDAS

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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();
```

# 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

*Common to use single letter parameter names*

- **Expression Lambda**

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

- **Statement Lambda**

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

# SYNTACTIC VARIATIONS

- **Optional Parameter Types (Parameter Type Inference)**  
`(s, e) => { ListBox.ItemsSource = e.Result; }`
- **Optional Parentheses for a Single Parameter**  
`e => { ListBox.ItemsSource = e.Result; }`
- **Optional Braces for a Single Statement**  
`e => ListBox.ItemsSource = e.Result;`
- **Empty Parentheses for No Parameter**  
`() => { Console.WriteLine("John"); }`

# LOOK AT THE CODE

```
namespace PeopleViewer
{
    public partial class MainWindow : Window
    {
        public MainWindow()
        {
            InitializeComponent();
        }

        private void RefreshButton_Click(object sender, RoutedEventArgs e)
        {
            Person selectedPerson = PersonListBox.SelectedItem as Person;

            var repository = new PeopleRepository();
            repository.GetPeopleCompleted += (repoSender, repoArgs) =>
            {
                PersonListBox.ItemsSource = AddSort(AddFilters(repoA
                if (selectedPerson != null)
                    PersonListBox.SelectedItem =
                        PersonListBox.Items.OfType<Person>().SingleO
                        p => p.LastName == selectedPerson.LastNa
                        p.FirstName == selectedPerson.First
```

# RESOURCES

- MSDN – Lambda Expressions
  - <http://msdn.microsoft.com/en-us/library/bb397687.aspx>
  - An overview of Lambda Expressions from the C# Language Reference
- MSDN – IEnumerable<T>
  - <http://msdn.microsoft.com/en-us/library/9eekhta0.aspx>
  - Lists the LINQ Extension Methods including SingleOrDefault, Where, OrderBy, ThenBy, etc.
- JeremyBytes
  - <http://www.jeremybytes.com/Demos.aspx>
  - Contains downloadable code and full walkthrough
  - Email: [jeremy@jeremybytes.com](mailto:jeremy@jeremybytes.com)