C# and Microsoft .NET

Delegates and Lambda Expressions

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Last time…

- Generics
  - Methods
  - Classes and Interfaces
- Extension Methods
- Any questions and/or feedback?

Delegates

"A **delegate** is a type that represents references to methods with a particular parameter list and return type. When you instantiate a delegate, you can associate its instance with any method with a compatible signature and return type. You can invoke (or call) the method through the delegate instance."

Microsoft Documentation

Declaring Delegates

- Syntax

```
access_modifier delegate return_type Delegate_Name(int a);
```

- Type vs Member level declaration
- Generic delegates
- .NET Delegates
  - Func<>
  - Action<>

Lambda Expressions

*"A **lambda** expression is an anonymous function that you can use to create **delegates** (…). By using lambda expressions, you can write local functions that can be passed as arguments or returned as the value of function calls"*

Microsoft Documentation

Using Lambda Expressions

- Syntax

```
Func<int, int, int> sum = (a, b) => a * b;

sum(7,7);
```

- .NET Methods that work with Lambdas
  - Where<>()
  - FindAll<>()
  - First<>() or FirstOrDefault<>()
  - Select<>()
  - etc.


Questions?