CS296A Web Development 2: ASP.NET **February 22, 2012**
Brian Bird

Topic: Essential C# language features for MVC 3
(Previous topic: The MVC Pattern)

Review

Go over domain models and aggregation. Use the Tip of the Day example.

- Difference between aggregation and composition
- Significance of one-way relationships- calls only go in one direction
- Significance of “living and dying together”- which objects should have a longer lifetime than others?
- Significance of retrieving a root entity from persistent storage- which objects should come with it?

Go over the action sequence for MVC using the Tip of the Day example.

1. The controller gets an HTTP request (GET, or POST)
2. Model objects are created in the controller. Why couldn’t they be created in the view?
    - It isn’t a dependency issue since the view already is dependent on the model.
    - The view expects a model object so that it can bind to it. So, there is a chicken and egg issue (better analogy?) here. Data bound views need a model before they can be created.
3. The controller calls a view and passes in a model.
4. The view is rendered and sent to the browser as an HTTP response (PUT)

Peer Evaluation

Keep it short

Essential language Features

1. Automatically implemented properties. For convenience- eliminates typing a bunch of getters and setters.
2. Object and collection initializers. For convenience again- eliminates setting a bunch of properties
3. Extension methods.
    - How else could we accomplish the same thing if we have access to the source code (add a method to a class)?
        - For ShoppingCart, just add the method to ShoppingCard
        - For IEnumerable, just make a new class that inherits from IEnumerable and that contains the new method. But, we couldn’t call our method on objects of type IEnumerable
    - What are the pros and cons of using extension methods?

    - Pro: Allow you to add methods to classes and interfaces you don't have source code for. Like classes and interfaces in the .NET Framework.
    - Con: Your code may become less portable and harder to understand.

4. Filtering with the `yield` keyword
    - This approach is chainable
    - Eliminates the need for a container object inside the filter method
5. Lambda expressions
    - Shorthand for creating anonymous methods
    - Often used to provide a target for a delegate
6. Automatic Type Inference
    - Use the `var` keyword
    - This is still static typing
7. Anonymous Types
    - Combines type inference with object initializers
    - Type doesn't have a name
    - Still statically typed
    - Still strongly typed
8. LINQ
9. Razor