CLASSES

Topics

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- Understanding Classes

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- **Understanding Classes**
  - **The Anatomy of a Class**

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- Class Inheritance

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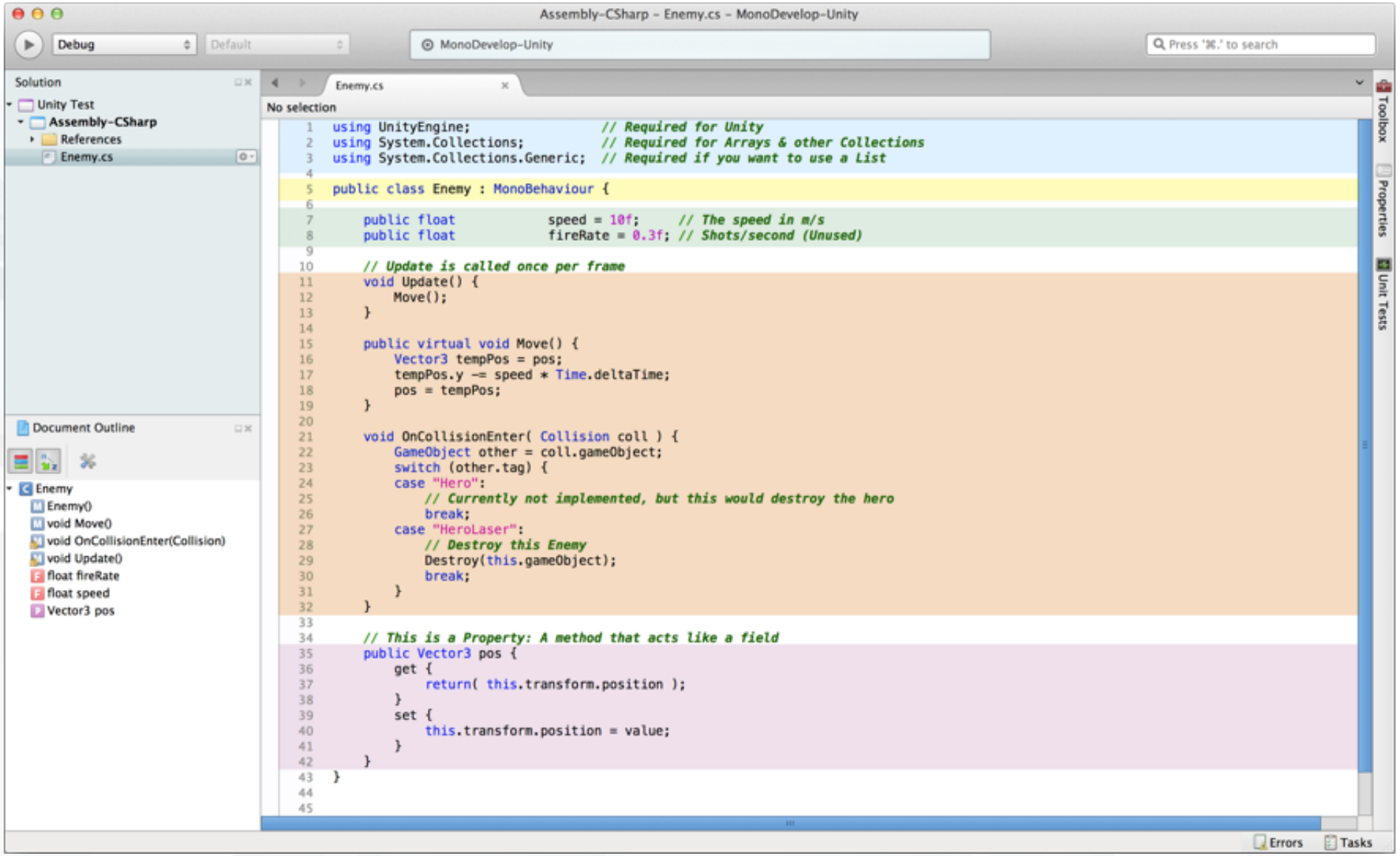
The Anatomy of a Class



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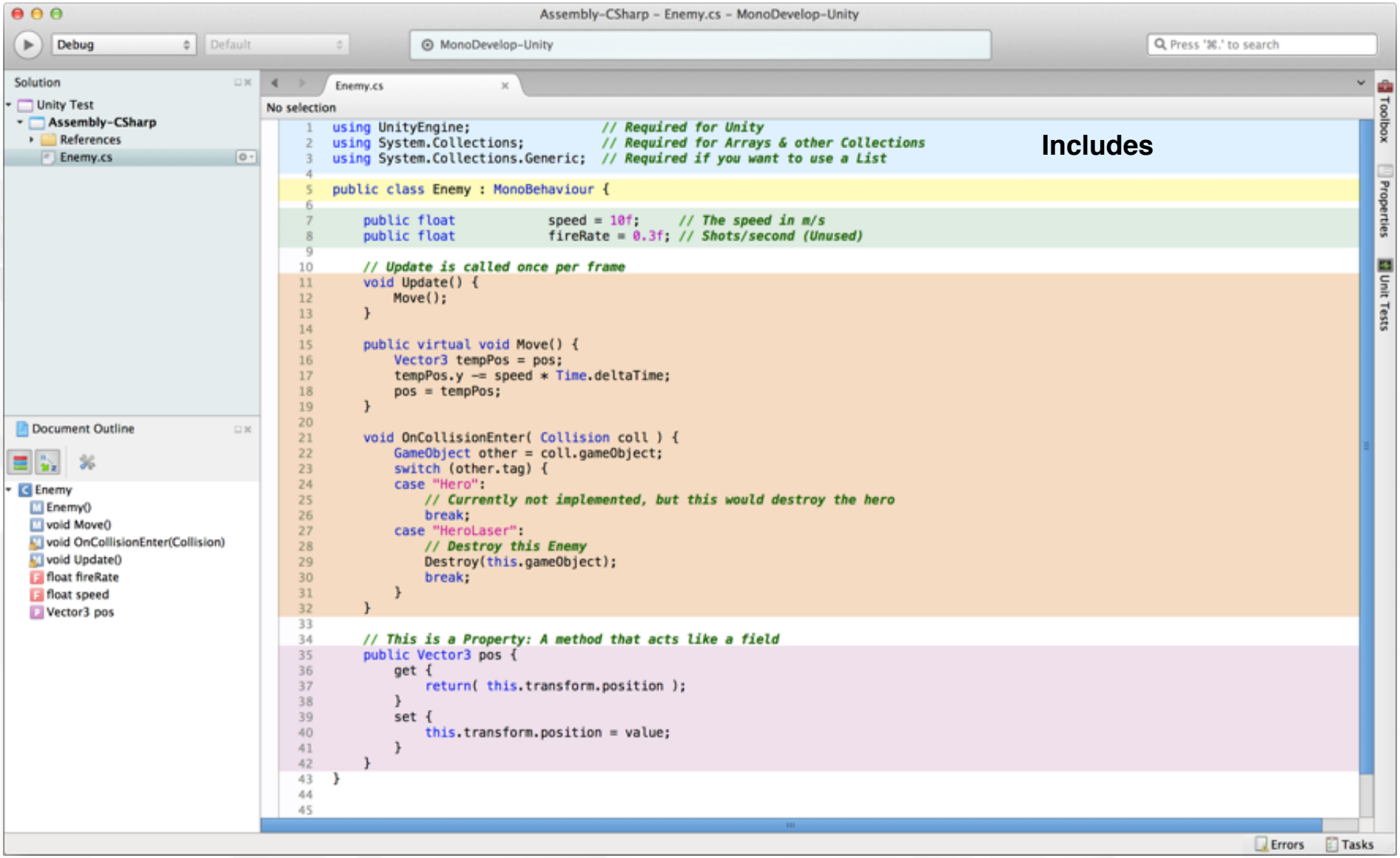


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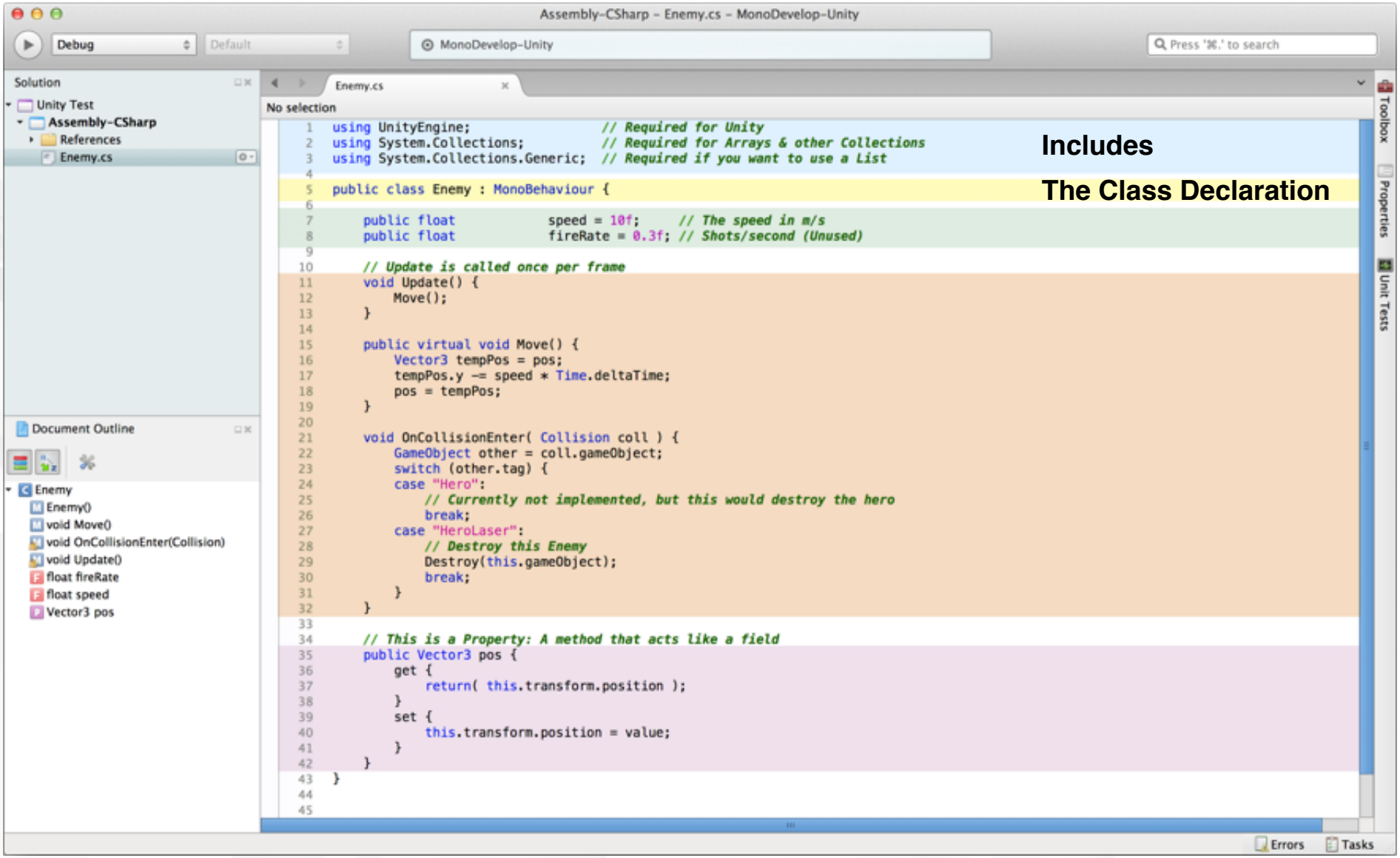


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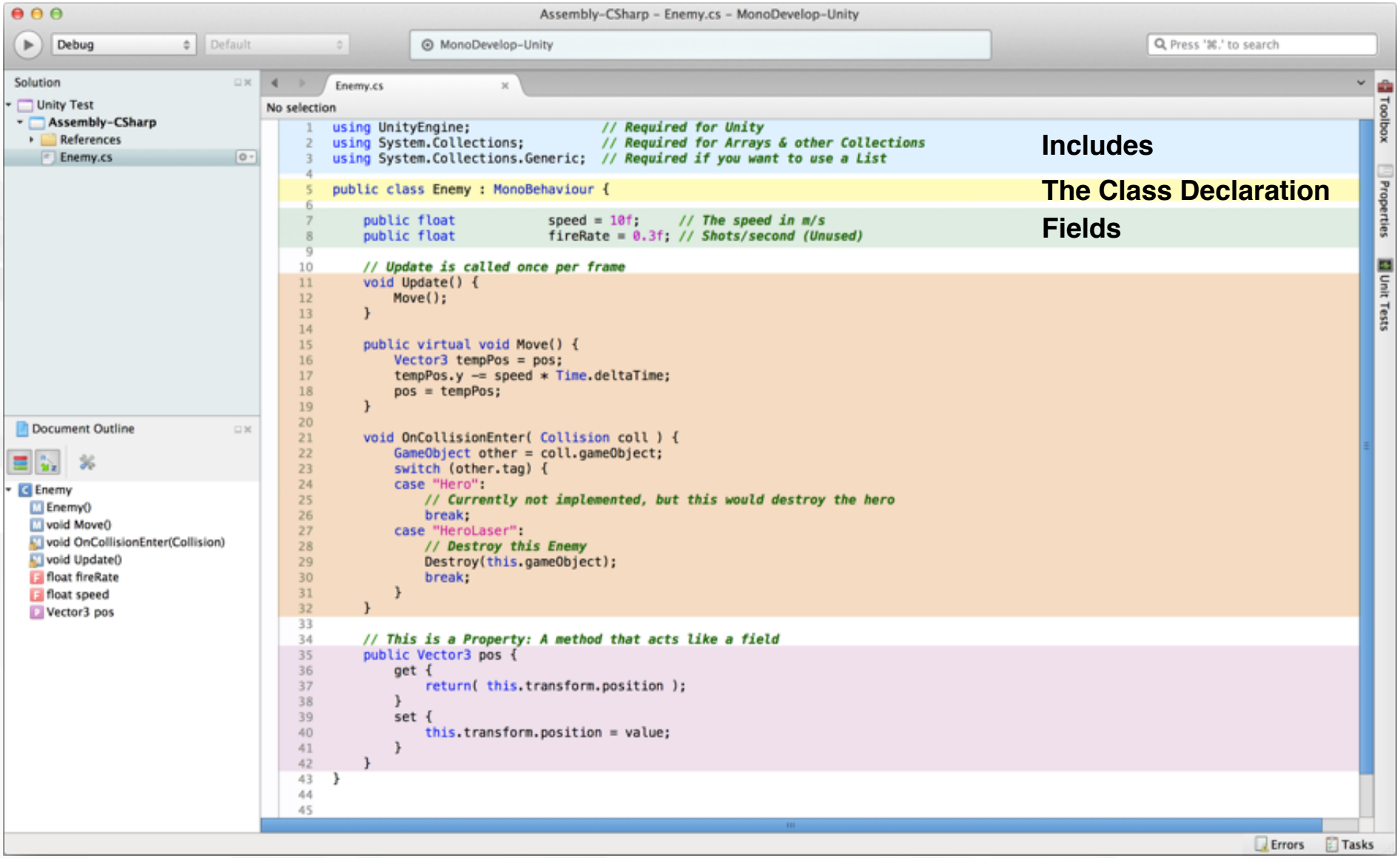


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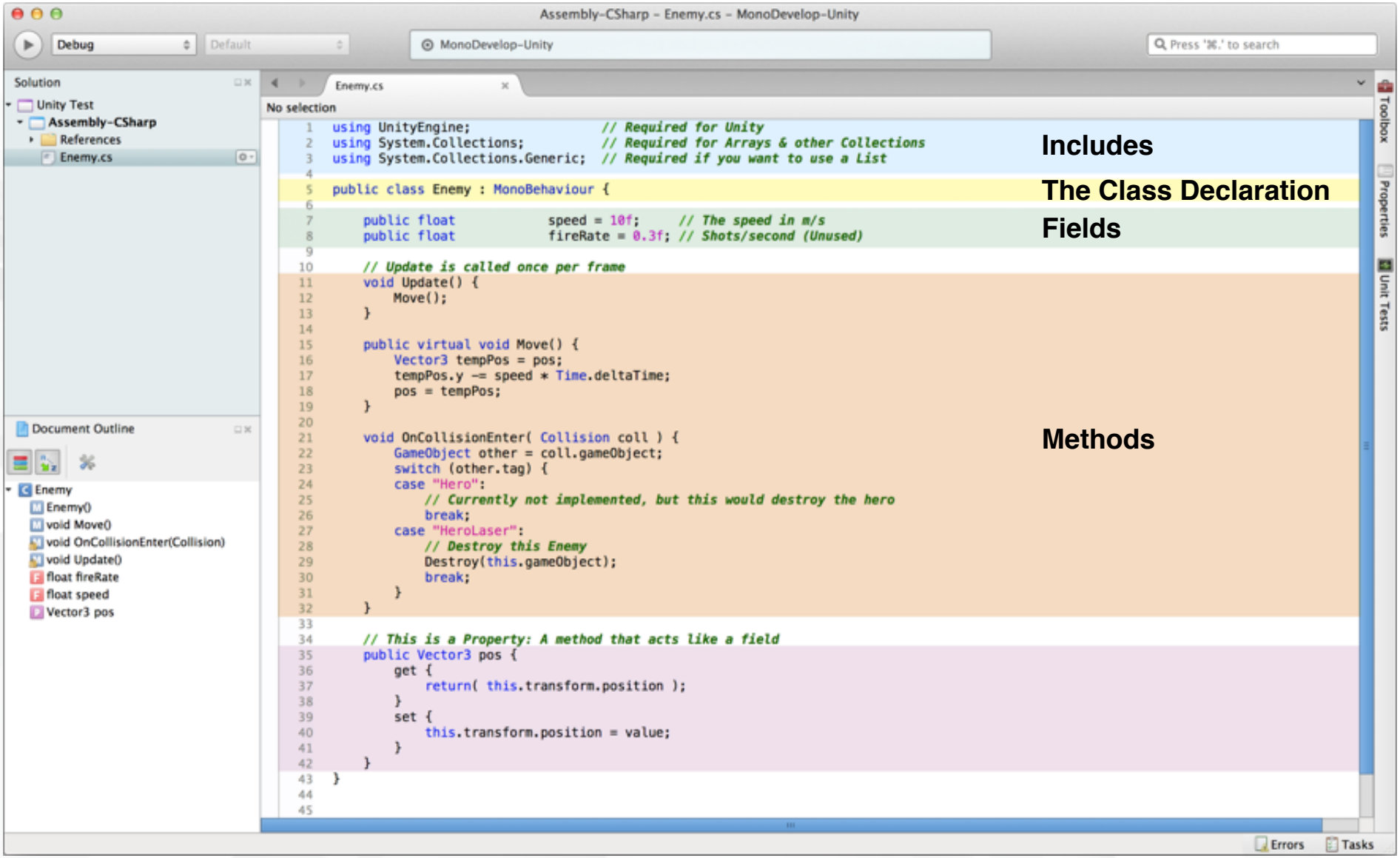


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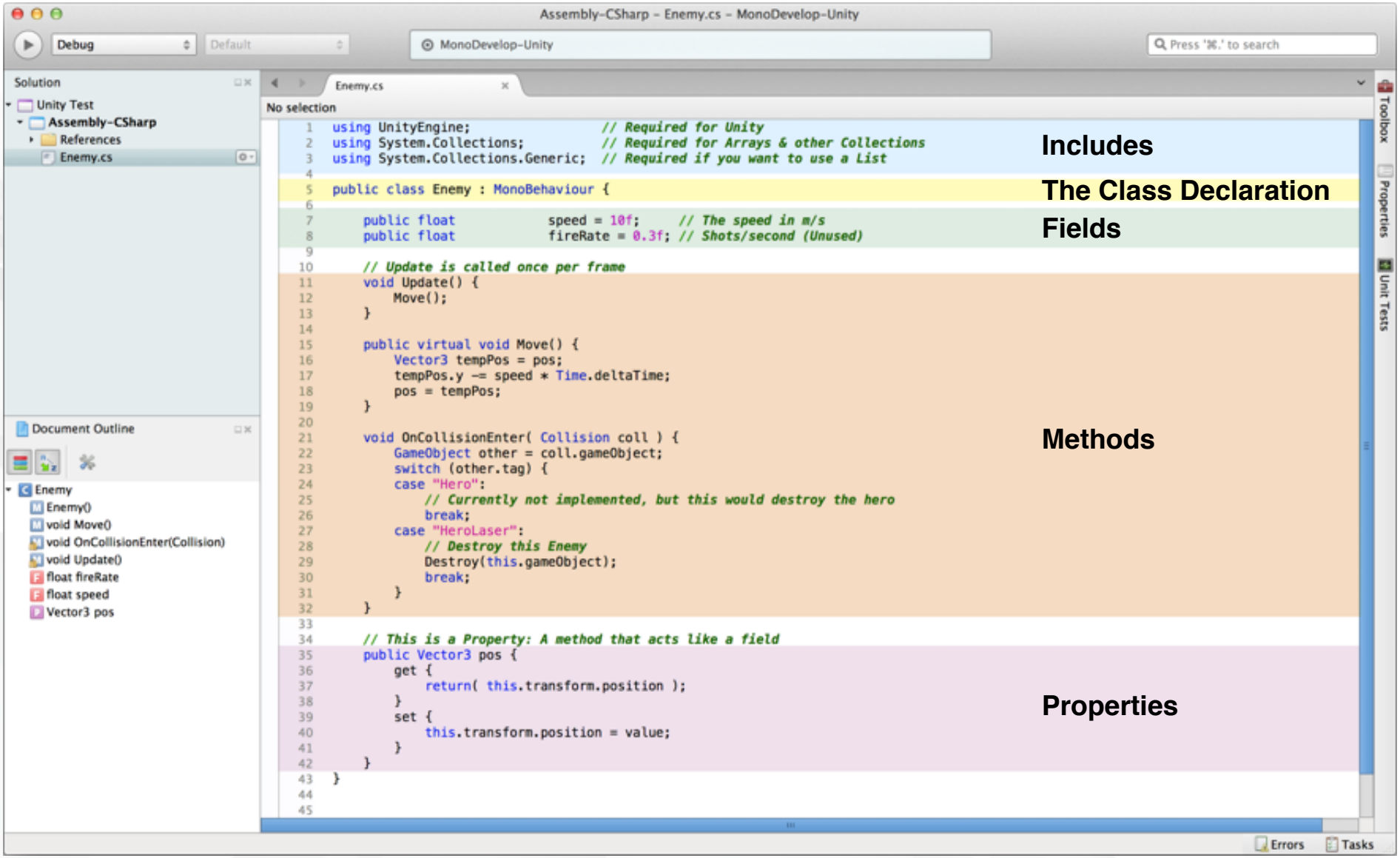


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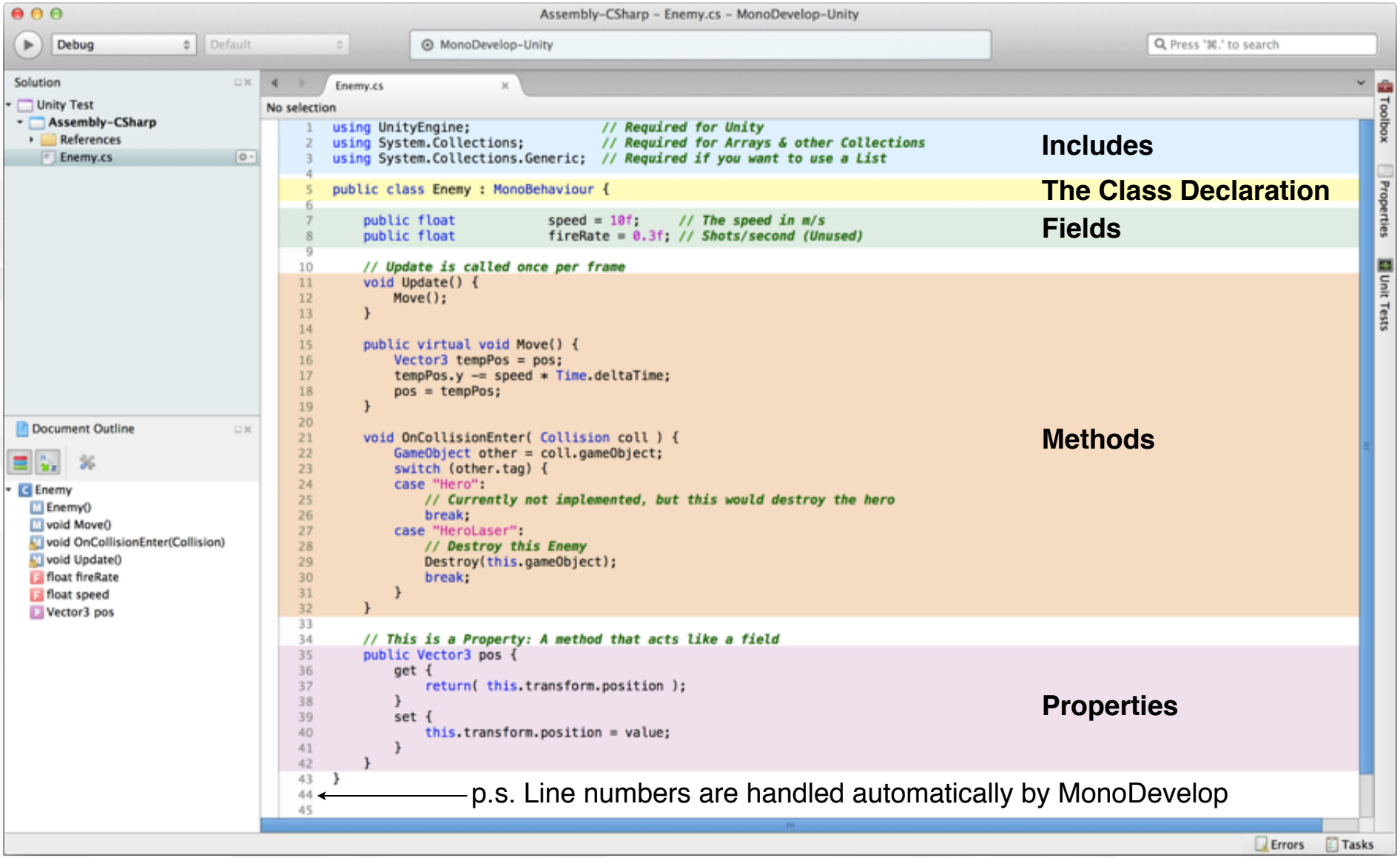


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p.s. Line numbers are handled automatically by MonoDevelop

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    - Declares two public fields for all instances of the Enemy class

The Anatomy of a Class

- **Fields**
  - **Fields are variables that are part of the class**
  - **Fields marked public are able to be seen by other classes and by other instances of this class**
  - **Fields marked private are only able to be seen by this one instance of a class**
    - Private fields are secrets
    - They are also a safer way to program than always using public fields
    - Public fields are used throughout the book so that the field values appear and are editable in the Unity Inspector

```
7     public float   speed = 10f;      // The speed in m/s
8     public float   fireRate = 0.3f;  // Shots per second (Unused)
```

- Declares two public fields for all instances of the Enemy class
- Each instance has its own value for **`speed`** and **`fireRate`**

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  - Note that Move is a *virtual* function

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  - Note that Move is a *virtual* function
    - Virtual functions can be overridden by functions of the same name in a subclass (we'll cover this shortly)

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  - This property simplifies setting the transform.position of this Enemy

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  - Many C# scripts can be attached to a single GameObject

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    - Example inherited fields:
      - gameObject, transform, renderer, etc.
    - Example inherited methods:
      - GetComponent<>(), Invoke(), StartCoroutine(), etc.
    - Inheriting from MonoBehaviour is what makes Enemy able to act like a GameObject component

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- Move() can be overridden because it is a *virtual function*
  - This means that EnemyZig can have its own version of Move()!

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 6       Vector3 tempPos = pos;
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 8       pos = tempPos;     // Uses the pos property of the superclass
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  - **On line 9, base.Move() calls the Move() function on EnemyZig's base class, Enemy**
    - This causes EnemyZig instances to continue to move downward as well

Chapter 25 – Summary

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- Next Chapter: Object-Oriented Thinking
  - The next chapter talks more about the OOP mentality
  - Also has a section where you make procedural art!