Module 11
Class Design and Implementation

Lecture
Console Class:
Fields and Properties

Module 11 Learning Objectives

Bloom Level	Number	Name	Description	Course Learning Objectives
2: Understand	1	Fields and Properties	Describe the relationship between fields and properties	Basic OO Concepts
3: Apply	2	Console Application Fields and Properties	Design and implement the fields and properties for a console application class	Basic OO Concepts
3: Apply	3	Console Application Methods	Design and implement the constructors and methods for a console application class	Basic OO Concepts
3: Apply	4	XNA Fields and Properties	Design and implement the fields and properties for an XNA class	Basic OO Concepts,Basic XNA Concepts
3: Apply	5	XNA Methods	Design and implement the constructor and methods for an XNA class	Basic OO Concepts,Basic XNA Concepts

In previous modules, we've been focused on using classes that are provided to us in XNA or in the course materials

In this module, we'll start designing and implementing our own classes instead of just using the classes provided to us

- State, Behavior, and Identity
- State
  - Characteristics of the object

In-Lecture Quiz

We use fields to store the following aspect of our objects:

- A: aspect ratio
- B: state
- C: behavior
- D: identity

In-Lecture Quiz

Properties are an effective way to

- A: provide access to fields
- B: provide access to meadows
- C: get rich in Monopoly
- D: get rich in real life

- State, Behavior, and Identity
- Behavior
  - What we can do to the object
  - What we can tell the object to do to itself

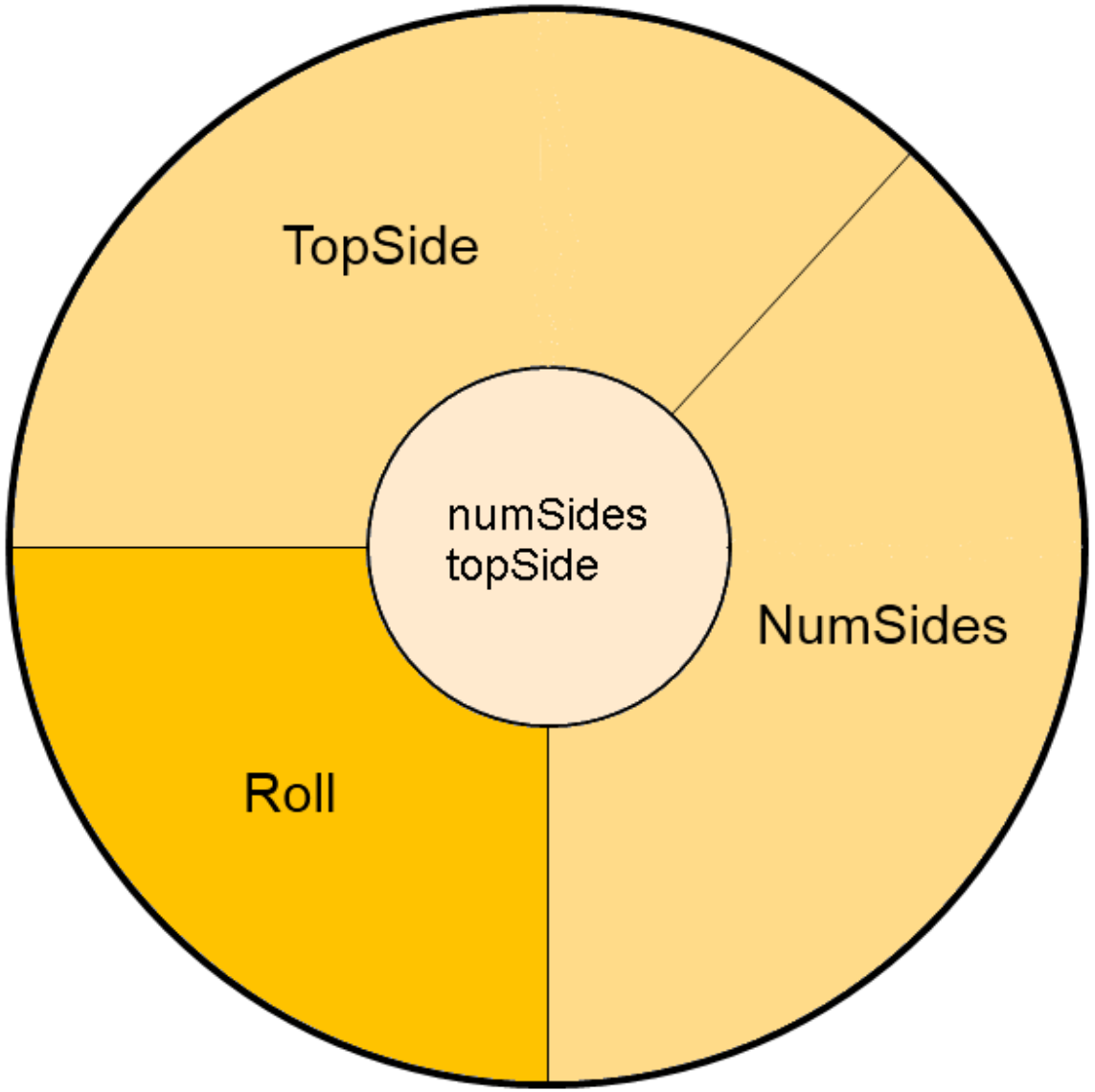
In-Lecture Quiz

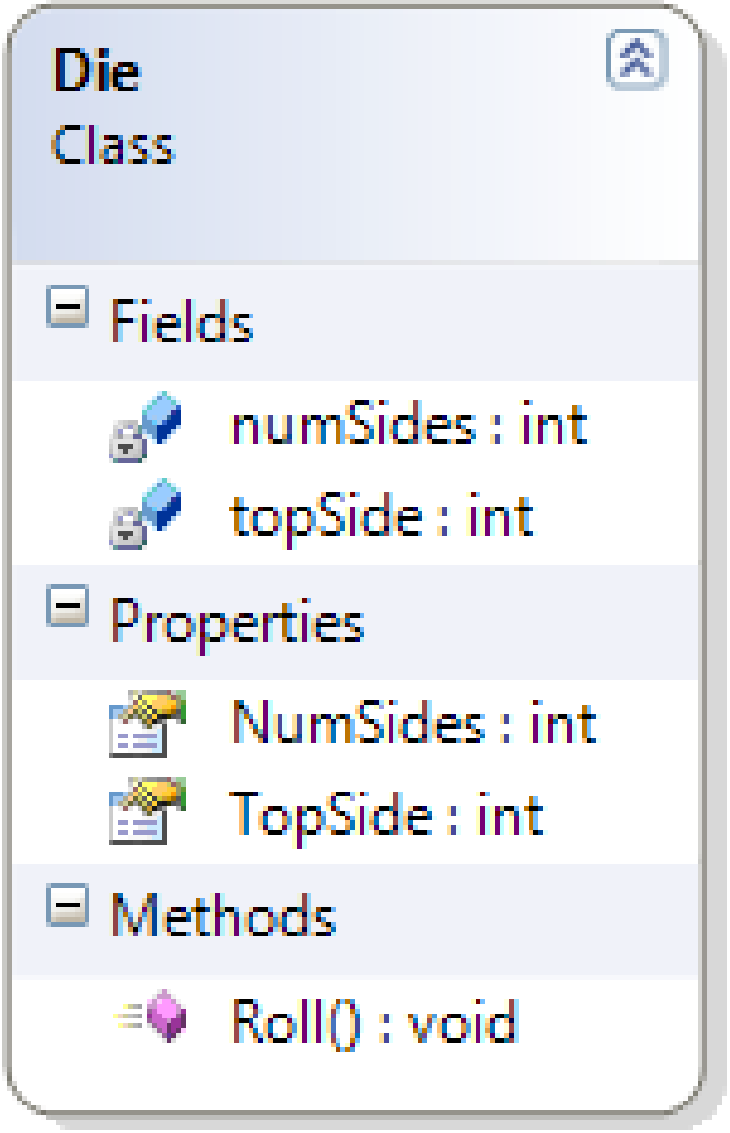
We use methods to implement the following aspect of our objects:

- A: state
- B: behavior
- C: identity
- D: alpha value

- State, Behavior, and Identity
- Identity
  - So we can distinguish one object from another
  - Memory address

- Die Class
  - State: number of sides, side that's on top
    - Stored in fields
    - Accessed through properties
  - Behavior: roll
    - Accessed through methods
  - Identity: when we create a new die object (instantiation)

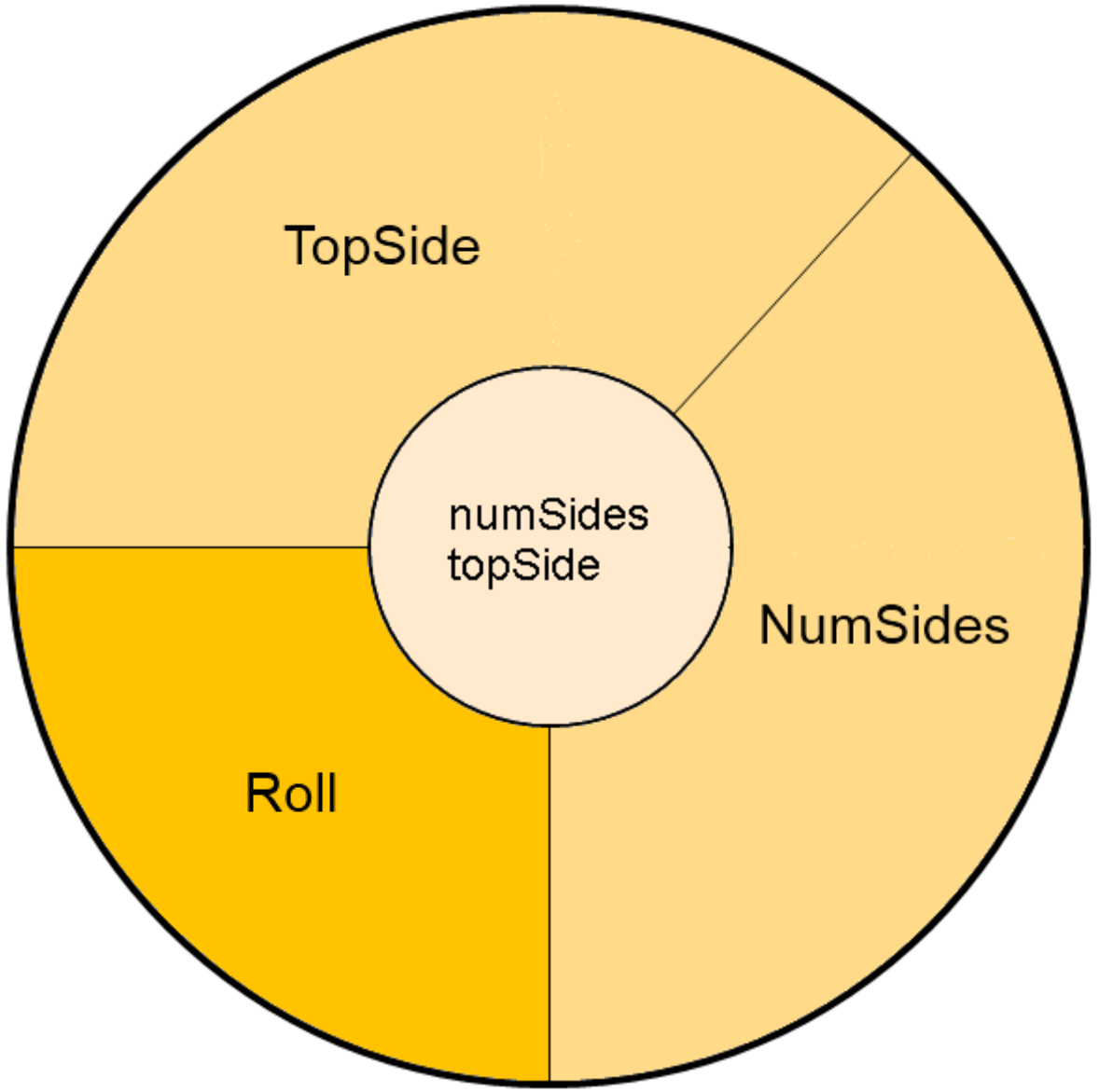

TopSide
numSides
topSide
NumSides
Roll


Die
Class
Fields
numSides : int
topSide : int
Properties
NumSides : int
TopSide : int
Methods
Roll() : void

In-Lecture Quiz

We control access to our fields using

- A: locks
- B: keys
- C: access modifiers
- D: this is the longest answer


TopSide
numSides
topSide
NumSides
Roll

- Recap
  - We’ve designed the Die class and added the fields and properties we need to store and provide access to the state
- Next Time
  - We’ll add constructors so we can actually create Die objects