Customizing Your UI

Inner Classes

- Consider a DataStructure outer class with methods to:
  - 1) add an integer
  - 2) print values of even indices
- Consider an inner class InnerEvenIterator with methods to:
  - 1) test for last element
  - 2) retrieve the current element and move to the next element

http://java.sun.com/docs/books/tutorial/java/javaOO/innerclasses.html

Examine DataStrucure.java

- Import 09.Code\InnerClasses

Java enum

- We are familiar with C/C++ enums
- At first glance Java enums seem the same

```java
public class Enums
{
  public enum Day {MON, TUE, WED, THUR, FRI, SAT, SUN}

  /**
   * @param args
   */
  public static void main (String[] args)
  {
    Day day = Day.MON;
    System.out.println (day); //MON is printed
  }
}
```

Java enum continued

- Java enums are MUCH more powerful (confusing) than other languages
- The enum defines a class (therefore each enum value is an object!!!!)
- The enum class body can include other fields and methods
- The compiler automagically creates an array containing ALL enum values in the order declared for easy iteration through the enum list

Examine Planet.java

- Import 09.Code\Planets

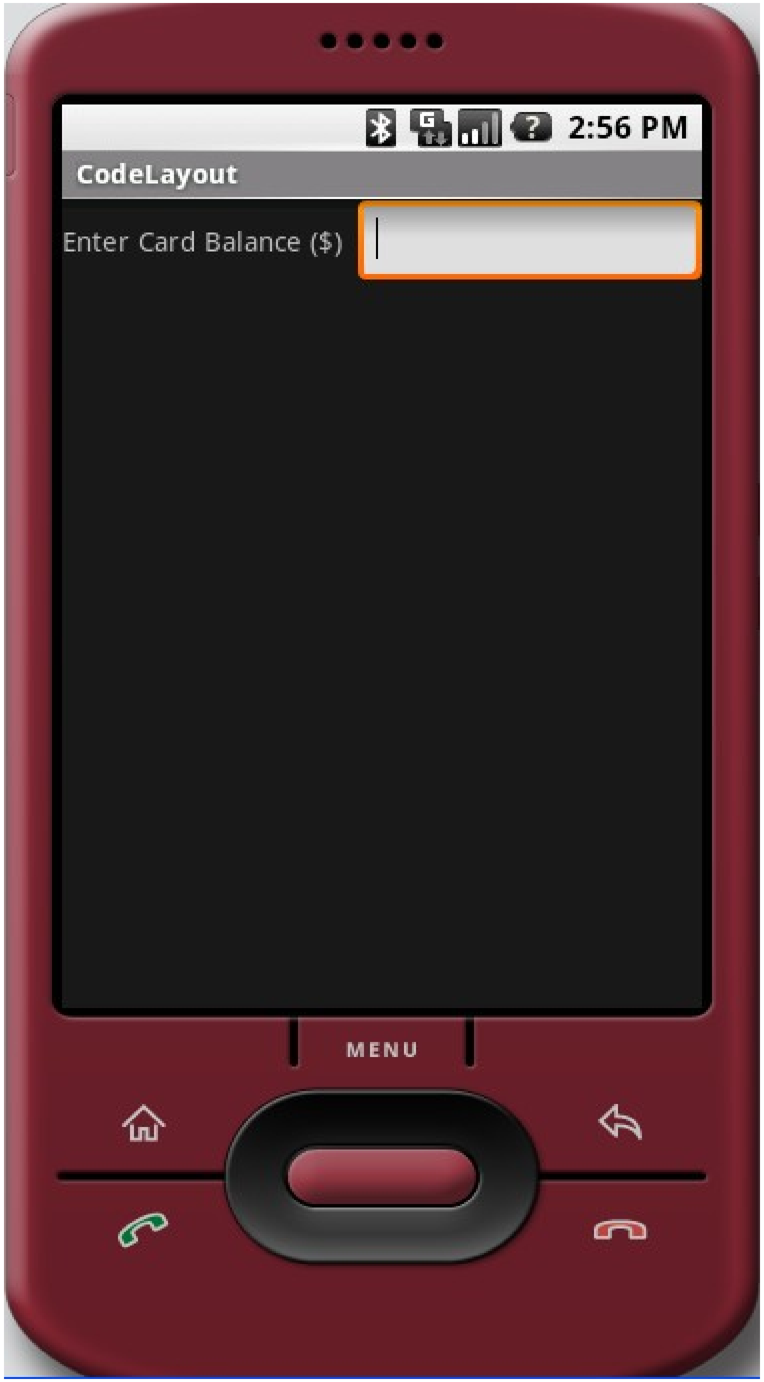
- Run the program using your weight

- Debug the program setting a break point at the first line of the constructor AND the first line of main

- Step through the program

Leveraging Inner Classes

- Import 09.Code\LayoutUtils
- Each row is to disect the class LayoutUtils
- Using LayoutUtils, create the following Android UI



Enter Card Balance ($)

Creating Custom Widgets

- Custom Widgets can easily be created by:

  1. Extending an existing View or View subclass

  2. Overriding superclass methods of interest (e.g. onDraw, onKeyDown, …)

Let’s Modify onDraw

- Import 09.Code\CustomView

- Modify the onDraw method to
  1. Turn the canvas blue before outputting
  2. Change all text in the View to uppercase