Supplement: Extended Discussion on Immutable Objects
For Introduction to Java Programming
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Assume class A is immutable. You define a mutable subclass B that extends class A. An instance b of class B is mutable. Since an instance of class B is also an instance of class A. Now an instance b of class A is mutable. This contradicts to the spirits of immutability of class A. It should not be allowed. To prevent this from happening, you should define A as a final class using the final modifier, which will be introduced in Chapter 11.

So to define an immutable class, you need to do the following:

• Make all data fields private;
• Provide no mutator methods for data fields;
• Provide no accessor method that returns a reference to a data field that is mutable.
• Define the class as a final class.