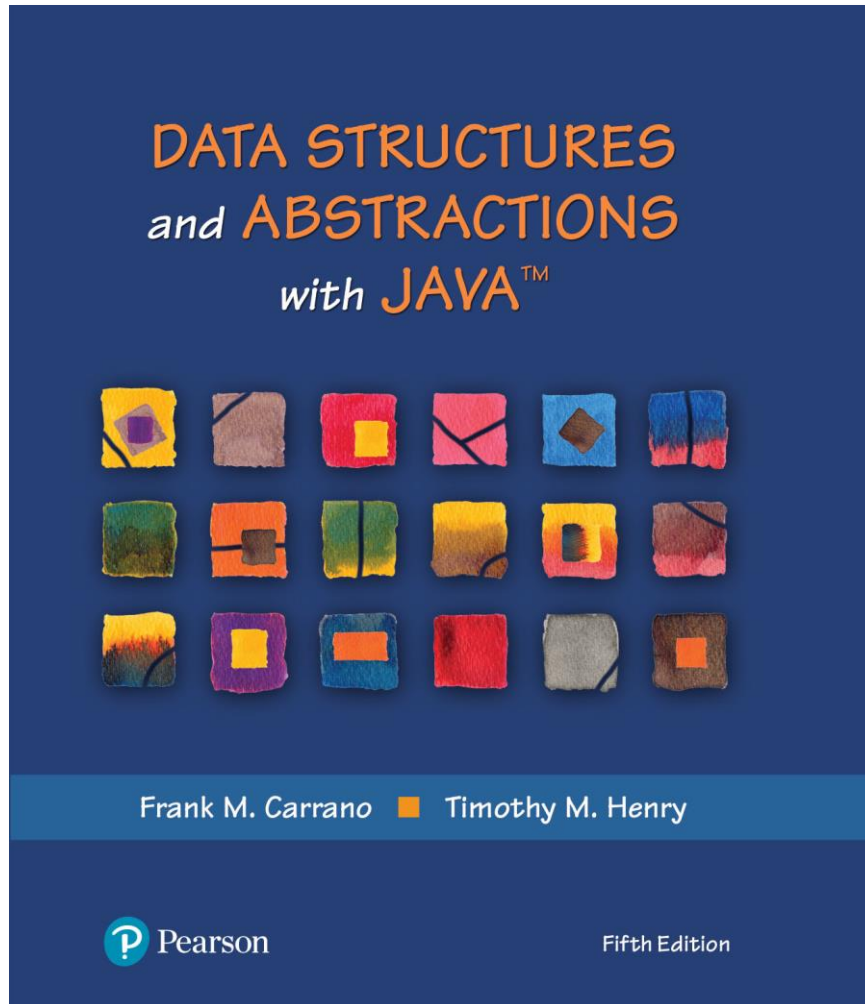


Data Structures and Abstractions with Java™

5th Edition



Java Interlude 1

Generics

Generic Data Types

- Enable you to write a placeholder instead of an actual class type
- The placeholder is
 - A generic data type
 - A type parameter
- You define a generic class
 - Client chooses data type of the objects in collection.

Interface

```
/**  
    An interface for pairs of objects.  
*/  
public interface Pairable<T>  
{  
    public T getFirst();  
    public T getSecond();  
    public void changeOrder();  
} // end Pairable
```

LISTING JI1-1 The interface Pairable

Example Generic Class (Part 1)

```
/** A class of ordered pairs of objects having the same data type. */  
public class OrderedPair<T> implements Pairable<T>  
{  
    private T first, second;  
  
    public OrderedPair(T firstItem, T secondItem)  
        // NOTE: no <T> after constructor name  
    {  
        first = firstItem;  
        second = secondItem;  
    } // end constructor  
  
    /** Returns the first object in this pair. */  
    public T getFirst()  
    {  
        return first;  
    } // end getFirst
```

LISTING JI1-2 The class OrderedPair

Example Generic Class (Part 2)

```
/** Returns the second object in this pair. */
public T getSecond()
{
    return second;
} // end getSecond

/** Returns a string representation of this pair. */
public String toString()
{
    return "(" + first + ", " + second + ")";
} // end toString

/** Interchanges the objects in this pair. */
public void changeOrder()
{
    T temp = first;
    first = second;
    second = temp;
} // changeOrder
} // end OrderedPair
```

LISTING JI1-2 The class OrderedPair

End

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