
Java from the very Beginning Part III

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6th March 2006

Session: 8355

Objectives



- ❖ Data structures
 - Collection Classes
 - ArrayList example
- ❖ Javadoc
- ❖ More hands on experience

Agenda



- ❖ Part 2 recap
- ❖ Problems with arrays
- ❖ Collections classes
 - Benefits
 - ArrayList
- ❖ Javadoc

Recap



What output would you expect

```
int month=9;
switch(month){
    case 2:
        System.out.println("28 days, or 29 in leap years");
        break;
    case 4:
    case 6:
    case 9:
    case 11:
        System.out.println("30 days");
        break;
    default:
        System.out.println("31 days");
        break;
}
```

Recap



What output would you expect

```
for(int i=0;i<10;i) {  
    system.out.println("i =" + i);  
}
```

Recap



What out put would you expect

```
for(int i=0;i>10;i++) {  
    System.out.println("i =" + i);  
}
```

Recap



What out put would you expect

```
int i = 0;

while (i<10) {
    System.out.println("i = "+ i++);
}
```

Agenda



- ❖ Part 2 recap
- ❖ **Problems with arrays**
- ❖ Collections classes
 - Benefits
 - ArrayList
- ❖ Javadoc

Problems using arrays



- ❖ May not know size up front
 - Unable to grow size
- ❖ Ridged structures
 - May want unordered container
- ❖ Use `java.util.collections`
 - Provide already defined data structures

Agenda



- ❖ Part 2 recap
- ❖ Problems with arrays
- ❖ **Collection classes**
 - Benefits
 - ArrayList
- ❖ Javadoc

Benefits of collection classes



- ❖ Reduces programming effort
- ❖ Increases program speed and quality
- ❖ Fosters software reuse

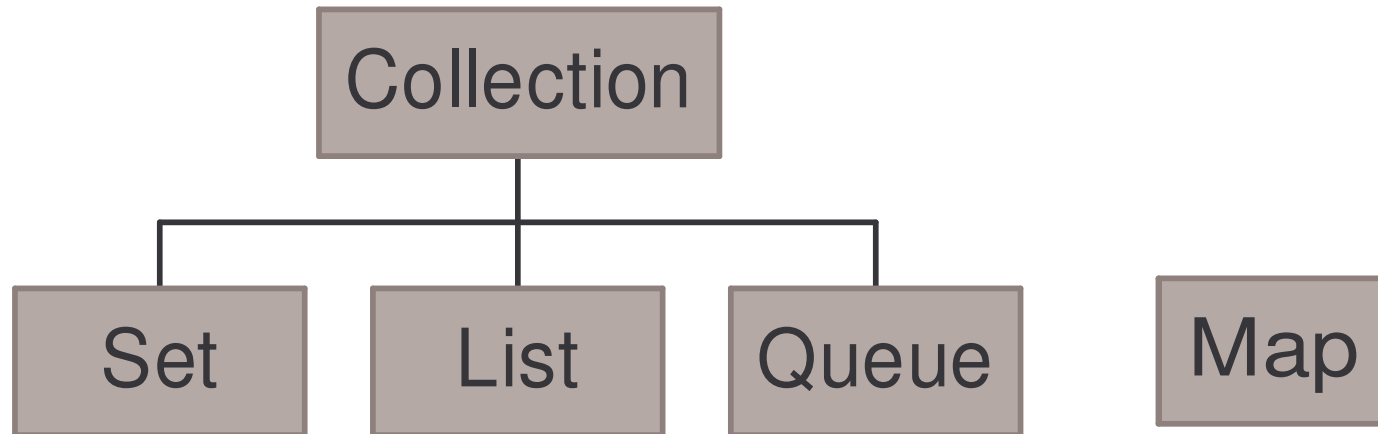
Collection Classes



❖ What is available

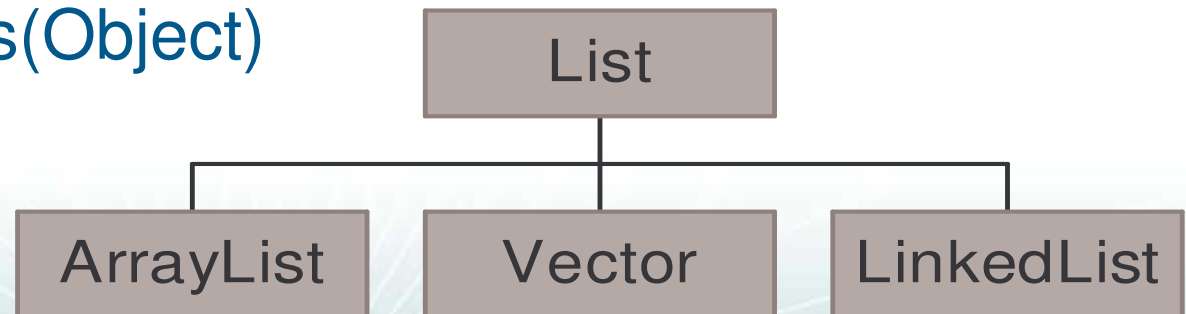
- Set
 - cannot contain duplicate elements
- List
 - ordered collection or sequence
 - can contain duplicate elements.
- Queue
 - hold multiple elements prior to processing
 - additional insertion, extraction, and inspection operations
- Map
 - maps keys to values
 - cannot contain duplicate keys

Collection Classes



ArrayList

- ❖ `import java.util.*;`
- ❖ `List myList = new ArrayList();`
 - Why use List rather than ArrayList
- ❖ `myList.add(Object)`
- ❖ `myList.get(int)`
- ❖ `myList.contains(Object)`



ArrayList



- ❖ Complete list of methods

<http://java.sun.com/j2se/1.4.2/docs/api/java/util/ArrayList.html>

ArrayList



```
import java.util.*;

public class ArrayListExample1 {

    public static void main(String[] args) {

        List theChildren = new ArrayList();

        theChildren.add("Jon");
        theChildren.add("Jane");

        int numberOfChildren = theChildren.size();

        System.out.println(theChildren.get(0));
    }
}
```


Exercise



- ❖ Modify the CommandLine program to store the arguments in a ArrayList
- ❖ Query this array list to see if it contains a specific value

Agenda



- ❖ Part 2 recap
- ❖ Problems with arrays
- ❖ Collections classes
 - Benefits
 - ArrayList
- ❖ **Javadoc**

Javadoc



- ❖ Tool for generating documentation
 - doc comments in source code
 - HTML format
- ❖ Java API documentation.
- ❖ <http://java.sun.com/j2se/javadoc/>

What is in the code



❖ */** documentation */*

- Ignores
 - */* text */*
 - *// text*

❖ Tag

- @author
- @exception
- @param
- @return
- @throws

Javadoc example



```
import java.util.*;
/**
 * @author rich.cole@uk.ibm.com
 */
public class ArrayListExample2 {
    /**
     * @param args
     * <p>Add members of
the class to a List
     */
    public static void main(String[] args) {
        List theChildren = new ArrayList();
        theChildren.add("Jon");
        theChildren.add("Jane");
    }
}
```

Javadoc example

A screenshot of a Mozilla Firefox browser window showing the Javadoc for the class ArrayListExample2. The browser title is "ArrayListExample2 - Mozilla Firefox: IBM Edition". The page content includes:

- Class ArrayListExample2**
- java.lang.Object
 - ArrayListExample2
- public class ArrayListExample2 extends java.lang.Object
- Author: rich.cole@uk.ibm.com
- Constructor Summary**
 - ArrayListExample2()
- Method Summary**
 - static void main(java.lang.String[] args)
- Methods inherited from class java.lang.Object
 - equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait
- Constructor Detail**
 - ArrayListExample2
 - public ArrayListExample2()
- Method Detail**
 - main
 - public static void main(java.lang.String[] args)
 - Parameters:
 - args -
 - Add members of the class to a List

How we generate this in eclipse



❖ What to do

■ File

- in menu bar

■ Export

■ Javadoc

■ Select files

■ Finish

❖ Generated in doc directory.

❖ Open index.html

Exercise



- ❖ Add Javadoc comments to ComandLine program
- ❖ Generate Javadoc with eclipse
- ❖ View Javadoc

Summary



- ❖ Introduced Data structures, and java.util classes
 - Example of ArrayList
- ❖ Looked at Javadoc
 - What it is
 - How to generate it