

# CS56—Midterm Exam 2—Question 1

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HAND THIS IN WITH YOUR EXAM.

YOU MAY USE THIS FOR SCRATCH WORK, BUT ALL ANSWERS SHOULD BE ON YOUR EXAM PAPER.

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## Code for class Foo, Bar, and Fum

```
/* 1 */ public class Foo {
/* 2 */
/* 3 */     public int mysteryNumber;
/* 4 */
/* 5 */     void doThing() {
/* 6 */         System.out.println("x");
/* 7 */     }
/* 8 */
/* 9 */     public static void main(String [] args) {
/* 10 */         Foo foo = new Foo();
/* 11 */         Bar bar = new Bar();
/* 12 */         Fum fum = new Fum();
/* 13 */         System.out.println("Hello");
/* 14 */         /* this is line 14 */
/* 15 */     }
/* 16 */ }
/* 17 */
/* 18 */ class Bar extends Foo {
/* 19 */
/* 20 */     public boolean mysteryBoolean;
/* 21 */
/* 22 */     void doThing() {
/* 23 */         System.out.println("y");
/* 24 */     }
/* 25 */ }
/* 26 */
/* 27 */ class Fum extends Foo {
/* 28 */     public String mysteryString;
/* 29 */
/* 30 */     void doOtherThing() {
/* 31 */         System.out.println("z");
/* 32 */     }
/* 32 */ }
```

Javadoc for `java.util.ArrayList` is on the other side

## java.util.ArrayList<E>

boolean	<a href="#">add(E e)</a> Appends the specified element to the end of this list.
void	<a href="#">add(int index, E element)</a> Inserts the specified element at the specified position in this list.
boolean	<a href="#">addAll(Collection&lt;? extends E&gt; c)</a> Appends all of the elements in the specified collection to the end of this list, in the order that they are returned by the specified collection's Iterator.
boolean	<a href="#">addAll(int index, Collection&lt;? extends E&gt; c)</a> Inserts all of the elements in the specified collection into this list, starting at the specified position.
void	<a href="#">clear()</a> Removes all of the elements from this list.
<a href="#">Object</a>	<a href="#">clone()</a> Returns a shallow copy of this <code>ArrayList</code> instance.
boolean	<a href="#">contains(Object o)</a> Returns <code>true</code> if this list contains the specified element.
void	<a href="#">ensureCapacity(int minCapacity)</a> Increases the capacity of this <code>ArrayList</code> instance, if necessary, to ensure that it can hold at least the number of elements specified by the minimum capacity argument.
<a href="#">E</a>	<a href="#">get(int index)</a> Returns the element at the specified position in this list.
int	<a href="#">indexOf(Object o)</a> Returns the index of the first occurrence of the specified element in this list, or -1 if this list does not contain the element.
boolean	<a href="#">isEmpty()</a> Returns <code>true</code> if this list contains no elements.
<a href="#">Iterator&lt;E&gt;</a>	<a href="#">iterator()</a> Returns an iterator over the elements in this list in proper sequence.
int	<a href="#">lastIndexOf(Object o)</a> Returns the index of the last occurrence of the specified element in this list, or -1 if this list does not contain the element.
<a href="#">ListIterator&lt;E&gt;</a>	<a href="#">listIterator()</a> Returns a list iterator over the elements in this list (in proper sequence).
<a href="#">ListIterator&lt;E&gt;</a>	<a href="#">listIterator(int index)</a> Returns a list iterator over the elements in this list (in proper sequence), starting at the specified position in the list.
<a href="#">E</a>	<a href="#">remove(int index)</a> Removes the element at the specified position in this list.
boolean	<a href="#">remove(Object o)</a> Removes the first occurrence of the specified element from this list, if it is present.
boolean	<a href="#">removeAll(Collection&lt;?&gt; c)</a> Removes from this list all of its elements that are contained in the specified collection.
protected void	<a href="#">removeRange(int fromIndex, int toIndex)</a> Removes from this list all of the elements whose index is between <code>fromIndex</code> , inclusive, and <code>toIndex</code> , exclusive.
boolean	<a href="#">retainAll(Collection&lt;?&gt; c)</a> Retains only the elements in this list that are contained in the specified collection.
<a href="#">E</a>	<a href="#">set(int index, E element)</a> Replaces the element at the specified position in this list with the specified element.
int	<a href="#">size()</a> Returns the number of elements in this list.
<a href="#">List&lt;E&gt;</a>	<a href="#">subList(int fromIndex, int toIndex)</a> Returns a view of the portion of this list between the specified <code>fromIndex</code> , inclusive, and <code>toIndex</code> , exclusive.
<a href="#">Object[]</a>	<a href="#">toArray()</a> Returns an array containing all of the elements in this list in proper sequence (from first to last element).
<T> T[]	<a href="#">toArray(T[] a)</a> Returns an array containing all of the elements in this list in proper sequence (from first to last element); the runtime type of the returned array is that of the specified array.