

Computer Science 12 AP

ArrayList Basics

1. To use an ArrayList, what must you import at the top of your file?
2. In your own words, what is an ArrayList used for?
3. What are a few differences between a standard array and an ArrayList?
4. ArrayLists store *Objects*. What does this mean?
5. How would you create an ArrayList of Strings called *StringList* ?
6. What are you allowed to add into *StringList* ?
7. What line would add a *String* named *word* to the end of *StringList*?
8. What line would add a *String* named *word2* to the beginning of *StringList*?
9. What line/s would replace (not add!) the first string in *StringList* with the word "first!" ?
10. Which ArrayList class method can tell you the number of objects stored in an ArrayList?
11. An ArrayList called *students* contains Students only. Every Student has a *name()* method that returns the name of the Student.
How would you print out the name of the first Student in *students*?
How would you print out the name of the last Student in *students*?
How would you print out the name of every Student in *students*?

Continue reading to see the ArrayList class JavaDocs for the AP Examable class methods...

Constructor Summary

[ArrayList](#)()

Constructs an empty list with an initial capacity of ten.

[ArrayList](#)([Collection](#)<? extends [E](#)> c)

Constructs a list containing the elements of the specified collection, in the order they are returned by the collection's iterator.

[ArrayList](#)(int initialCapacity)

Constructs an empty list with the specified initial capacity.

Method Summary

boolean [add](#)([E](#) o)

Appends the specified element to the end of this list.

void [add](#)(int index, [E](#) element)

Inserts the specified element at the specified position in this list.

void [clear](#)()

Removes all of the elements from this list.

boolean [contains](#)([Object](#) elem)

Returns `true` if this list contains the specified element.

[E](#) [get](#)(int index)

Returns the element at the specified position in this list.

int [indexOf](#)([Object](#) elem)

Searches for the first occurrence of the given argument, testing for equality using the `equals` method.

boolean [isEmpty](#)()

Tests if this list has no elements.

int [lastIndexOf](#)([Object](#) elem)

Returns the index of the last occurrence of the specified object in this list.

[E](#) [remove](#)(int index)

Removes the element at the specified position in this list.

boolean [remove](#)([Object](#) o)

Removes a single instance of the specified element from this list, if it is present (optional operation).

protected void [removeRange](#)(int fromIndex, int toIndex)

Removes from this List all of the elements whose index is between fromIndex, inclusive and toIndex, exclusive.

[E](#) [set](#)(int index, [E](#) element)

Replaces the element at the specified position in this list with the specified element.

int [size](#)()

Returns the number of elements in this list.

Solutions:

ArrayList Basics

1. To use an ArrayList, what must you import at the top of your file?
`import java.util.ArrayList;`
2. In your own words, what is an ArrayList used for?
acts as a list to store objects with simple methods provided to manage the list.
3. What are a few differences between a standard array and an ArrayList?
arrays can store any type (primitives, objects, etc...)
ArrayList can only store objects (reference type variables). ArrayList comes with many methods to help you out, array only comes with `.length` to find the length.
4. ArrayLists store *Objects*. What does this mean?
Strings are objects, Student is an object, BankAccount is an object. Anything you can create with the word 'new' like `Graphics g = new Graphics()` is an object. Primitive types like `int`, `double`, `boolean` are not objects.
5. How would you create an ArrayList of Strings called *StringList* ?
`ArrayList<String> stringList = new ArrayList<String>()`
6. What are you allowed to add into *StringList* ?
Strings only since that was the type stated when creating.
7. What line would add a *String* named *word* to the end of *StringList*?
`stringList.add(word)`
8. What line would add a *String* named *word2* to the beginning of *StringList*?
`stringList.add(0,word)`
9. What line/s would replace (not add!) the first string in *StringList* with the word "first!" ?
`stringList.set(0,"first!")`
10. Which ArrayList class method can tell you the number of objects stored in an ArrayList?
`int size = stringList.size()`
11. An ArrayList called *students* contains Students only. Every Student has a *name()* method that returns the name of the Student.
How would you print out the name of the first Student in *students*?
How would you print out the name of the last Student in *students*?
How would you print out the name of every Student in *students*?
`System.out.println(students.get(0).name())`

`int lastIndex = students.size()-1`
`System.out.println(students.get(lastIndex).name());` OR
`Student temp = students.get(lastIndex)`
`System.out.println(temp.name())`

`for(int k=0; k<students.size(); k++)`
`Student temp=students.get(k);`
`System.out.println(temp.name());`
`}`