Java Iterator

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An Iterator is an object that can be used to loop through collections, like ArrayList and HashSet. It is called an "iterator" because "iterating" is the technical term for looping.

To use an Iterator, you must import it from the java.util package.

Getting an Iterator: -

The iterator() method can be used to get an Iterator for any collection:

Example

```
// Import the ArrayList class and the Iterator class
      import java.util.ArrayList;
      import java.util.Iterator;

      public class Main {
        public static void main(String[] args) {

          // Make a collection
          ArrayList<String> cars = new ArrayList<String>();
          cars.add("Volvo");
          cars.add("BMW");
          cars.add("Ford");
          cars.add("Mazda");

          // Get the iterator
          Iterator<String> it = cars.iterator();

          // Print the first item
          System.out.println(it.next());
        }
      }
```

Looping Through a Collection

To loop through a collection, use the hasNext() and next() methods of the Iterator:

Example

```
while(it.hasNext()) {
  System.out.println(it.next());
}
```

```
import java.util.ArrayList;
import java.util.Iterator;

public class Main {
  public static void main(String[] args) {

    // Make a collection
    ArrayList<String> cars = new ArrayList<String>();
    cars.add("Volvo");
    cars.add("BMW");
    cars.add("Ford");
    cars.add("Mazda");

    // Get the iterator
    Iterator<String> it = cars.iterator();

    // Loop through a collection
    while(it.hasNext()) {
      System.out.println(it.next());
    }
  }
}
```

Removing Items from a Collection

Iterators are designed to easily change the collections that they loop through. The remove() method can remove items from a collection while looping.

Example

Use an iterator to remove numbers less than 10 from a collection:

```
import java.util.ArrayList;
import java.util.Iterator;

public class Main {
  public static void main(String[] args) {
    ArrayList<Integer> numbers = new ArrayList<Integer>();
    numbers.add(12);
    numbers.add(8);
    numbers.add(2);
    numbers.add(23);
    Iterator<Integer> it = numbers.iterator();
    while(it.hasNext()) {
      Integer i = it.next();
      if(i < 10) {
        it.remove();
      }
    }
    System.out.println(numbers);
  }
}
```