Design Patterns - Iterator Pattern

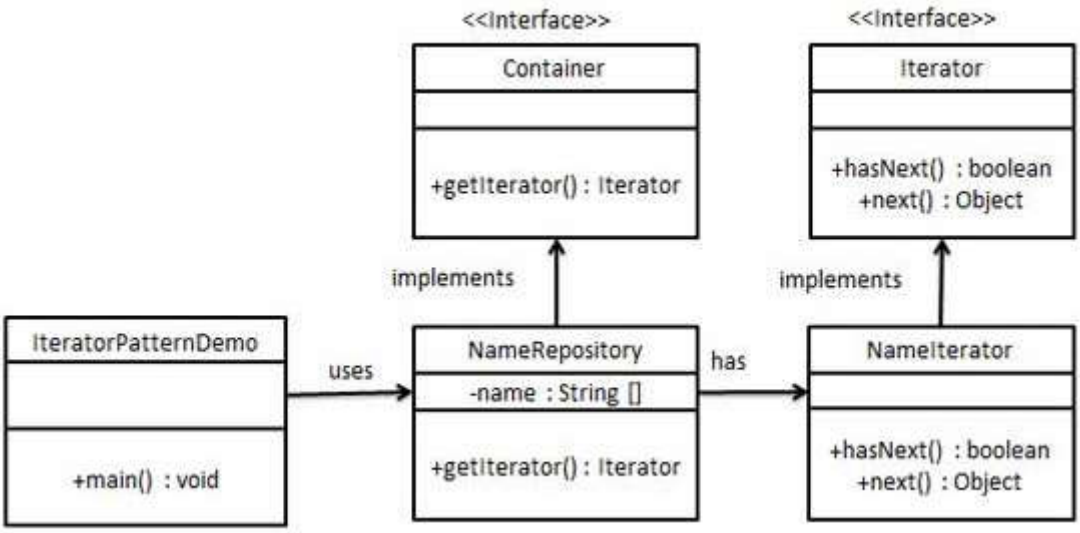
Iterator pattern is very commonly used design pattern in Java and .Net programming environment. This pattern is used to get a way to access the elements of a collection object in sequential manner without any need to know its underlying representation.

Iterator pattern falls under behavioral pattern category.

Implementation

We're going to create a *Iterator* interface which narrates navigation method and a *Container* interface which retruns the iterator . Concrete classes implementing the *Container* interface will be responsible to implement *Iterator* interface and use it

IteratorPatternDemo, our demo class will use *NamesRepository*, a concrete class implementation to print a *Names* stored as a collection in *NamesRepository*.



Step 1

Create interfaces.

Iterator.java

```
public interface Iterator {
   public boolean hasNext();
   public Object next();
}
```

Container.java

```
public interface Container {
```

```
   public Iterator getIterator();
}
```

Step 2

Create concrete class implementing the *Container* interface. This class has inner class *NameIterator* implementing the *Iterator* interface.

NameRepository.java

```
public class NameRepository implements Container {
   public String names[] = {"Robert" , "John" ,"Julie" , "Lora"};

   @Override
   public Iterator getIterator() {
      return new NameIterator();
   }

   private class NameIterator implements Iterator {

      int index;

      @Override
      public boolean hasNext() {

         if(index < names.length){
            return true;
         }
         return false;
      }

      @Override
      public Object next() {

         if(this.hasNext()){
            return names[index++];
         }
         return null;
      }
   }
}
```

Step 3

Use the *NameRepository* to get iterator and print names.

IteratorPatternDemo.java

```
public class IteratorPatternDemo {
```

```
   public static void main(String[] args) {
      NameRepository namesRepository = new NameRepository();

      for(Iterator iter = namesRepository.getIterator(); iter.hasNext();){
         String name = (String)iter.next();
         System.out.println("Name : " + name);
      }
   }
}
```

Step 4

Verify the output.

```
Name : Robert
Name : John
Name : Julie
Name : Lora
```