Design Patterns Tutorial

Design Patterns - Proxy Pattern

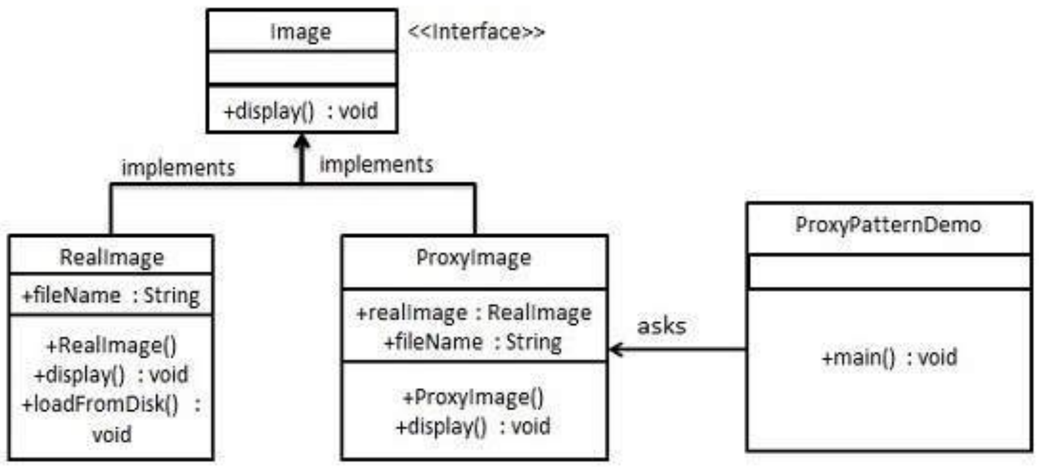
In proxy pattern, a class represents functionality of another class. This type of design pattern comes under structural pattern.

In proxy pattern, we create object having original object to interface its functionality to outer world.

Implementation

We are going to create an *Image* interface and concrete classes implementing the *Image* interface. *ProxyImage* is a a proxy class to reduce memory footprint of *RealImage* object loading.

ProxyPatternDemo, our demo class, will use *ProxyImage* to get an *Image* object to load and display as it needs.



Step 1

Create an interface.

Image.java

```
public interface Image {
   void display();
}
```

Step 2

```
public class RealImage implements Image {

   private String fileName;

   public RealImage(String fileName){
      this.fileName = fileName;
      loadFromDisk(fileName);
   }

   @Override
   public void display() {
      System.out.println("Displaying " + fileName);
   }

   private void loadFromDisk(String fileName){
      System.out.println("Loading " + fileName);
   }
}
```

ProxyImage.java

```
public class ProxyImage implements Image{

   private RealImage realImage;
   private String fileName;

   public ProxyImage(String fileName){
      this.fileName = fileName;
   }

   @Override
   public void display() {
      if(realImage == null){
         realImage = new RealImage(fileName);
      }
      realImage.display();
   }
}
```

Step 3

Use the *ProxyImage* to get object of *RealImage* class when required.

ProxyPatternDemo.java

```
public class ProxyPatternDemo {

   public static void main(String[] args) {
      Image image = new ProxyImage("test_10mb.jpg");

      //image will be loaded from disk
      image.display();
      System.out.println("");
```

Step 4

Verify the output.

```
Loading test_10mb.jpg
Displaying test_10mb.jpg

Displaying test_10mb.jpg
```

Previous Page Next Page

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