CS 335 — Software Development

The Façade Pattern and the Chain of Responsibility Pattern

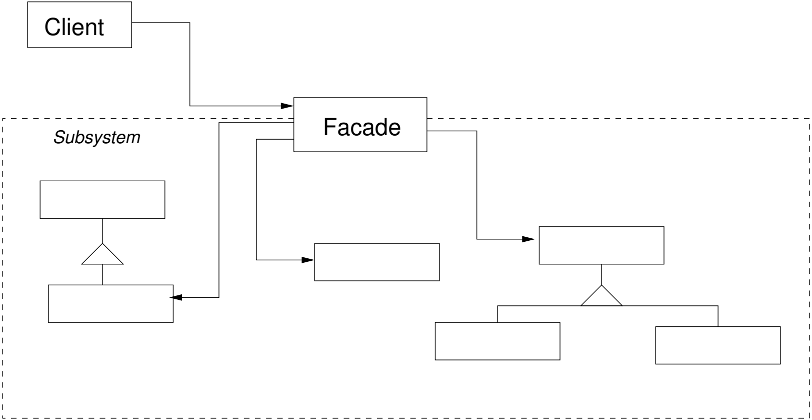
April 9, 2012

Façade intent

> *Provide a unified interface to a set of interfaces in a subsystem. Façade defines a higher-level interface that makes the subsystem easier to use.*

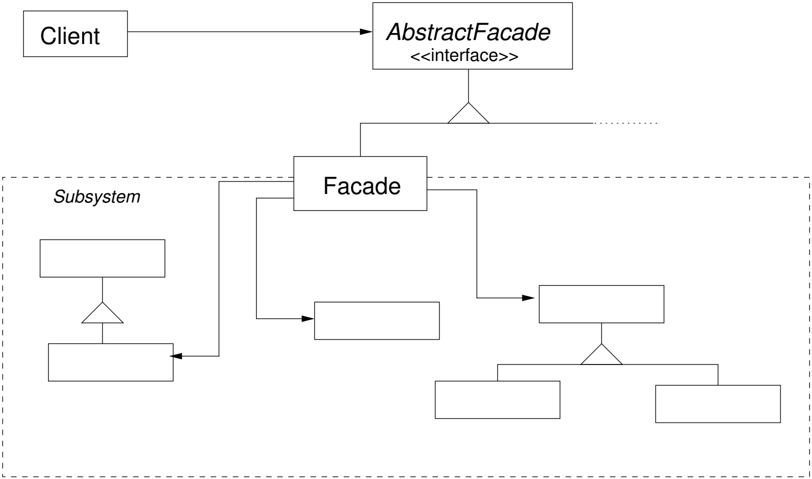
Gamma et al, pg 185.

Façade structure

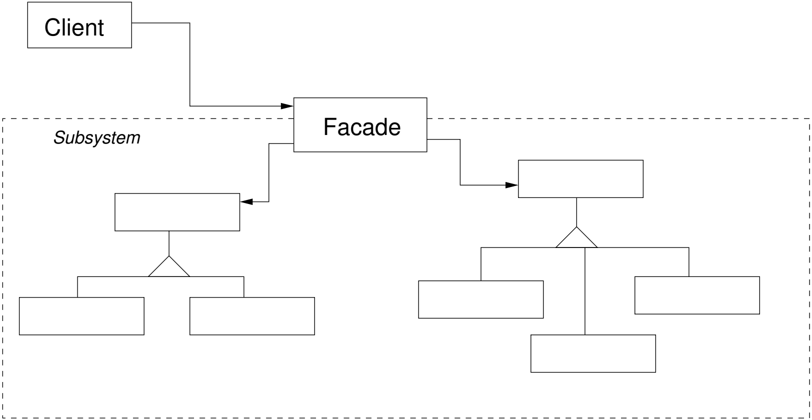


Based on Gamma et al, pg 187.

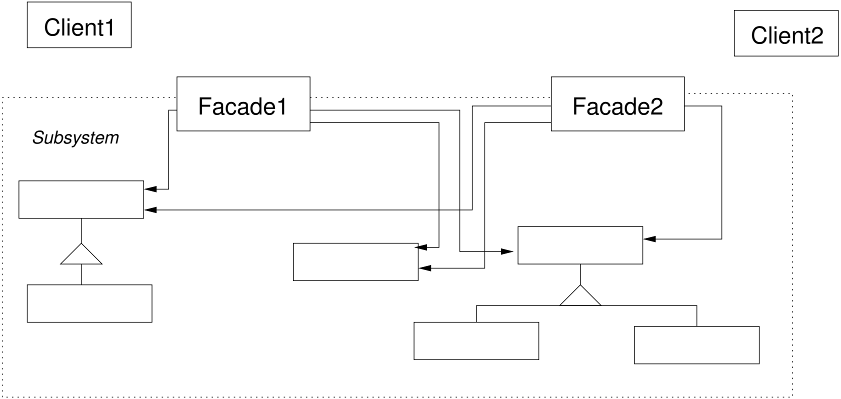
Façade structure



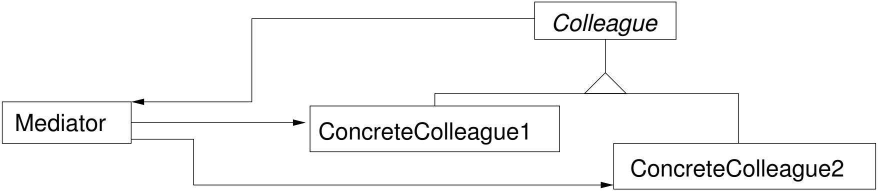
Façade structure



Façade structure



Comparison: Mediator



Based on Gamma et al pg 276.

Exception handling

```
try {
  Scanner file = new Scanner(new FileInputStream("operations.dat"));
  while (file.hasNext())
     Class.forName(file.nextLine());
} catch (IOException ioe) {
  System.out.println("Couldn’t find file operations.dat");
  System.exit(-1);
} catch (ClassNotFoundException cnfe) {
  System.out.println("Couldn’t load operation " + cnfe.getMessage());
  System.exit(-1);
}
```

Pattern matching

```
datatype treeGenus = Oak | Elm | Maple | Spruce | Fir |
                     Pine | Willow;

datatype treeDivision = Deciduous | Broadleaf;

fun division(Pine) = Coniferous
  | division(Spruce) = Coniferous
  | division(Fir) = Coniferous
  | division(x) = Broadleaf;
```

Recursive linked-list methods

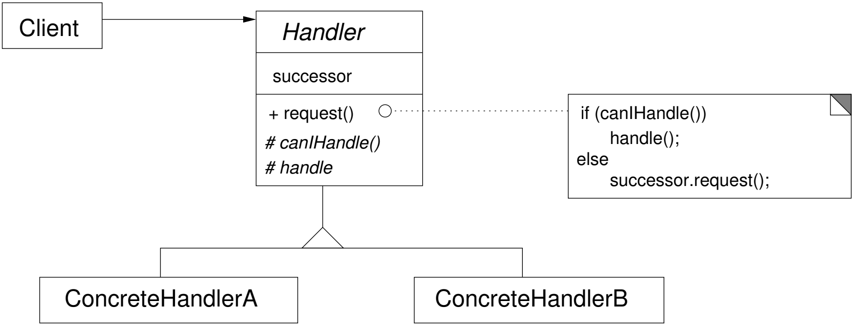
```
public class Node {

   private int datum;
   private Node next;

   public boolean contains(int item) {
      if (item == datum) return true;
      else if (next != null) return next.contains(item);
      else return false;
   }
}
```

Chain of Responsibility intent

> *Avoid coupling the sender of a request to its reciever by giving more than one object the chance to handle the request. Chain the receiving objects and pass the request along the chain until an object handles it.*

Gamma et al, pg 223

Chain of Responsibility structure



```
if (canIHandle())
    handle();
else
    successor.request();
```

Based on Gamma et al, pg 224.