

# **Fahrenheit 451**

**Agile schadet der  
Dokumentation**

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Abraxas Informatik AG**

# **Fahrenheit 451**

**The temperature at which  
paper catches fire and burns...**

# Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

**Individuals and interactions** over processes and tools

**Working software** over comprehensive documentation

**Customer collaboration** over contract negotiation

**Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

<b>Liberi</b>	<b>Ignis</b>	<b>Domes</b>	<b>Mendosus</b>
30 Dev	5 Dev (4 from Liberi)	7 Dev	up to 15 Dev
350kLOC	25kLOC	200kLOC	270kLOC
Waterfall	Waterfall	Agile	Agile
Successful	Canceled	Successful	Successful, but...
> 1000 documents	40 documents	10 documents	3 documents
Automated tests	Automated tests	Automated tests	No tests at all
Maintenance-team	N/A	Project team	Maintenance-team

**Mendosus**

up to 15 Dev

270kLOC

Agile

Successful, but...

3 documents

No tests at all

Maintenance-  
team

Customer project to product

employees changed

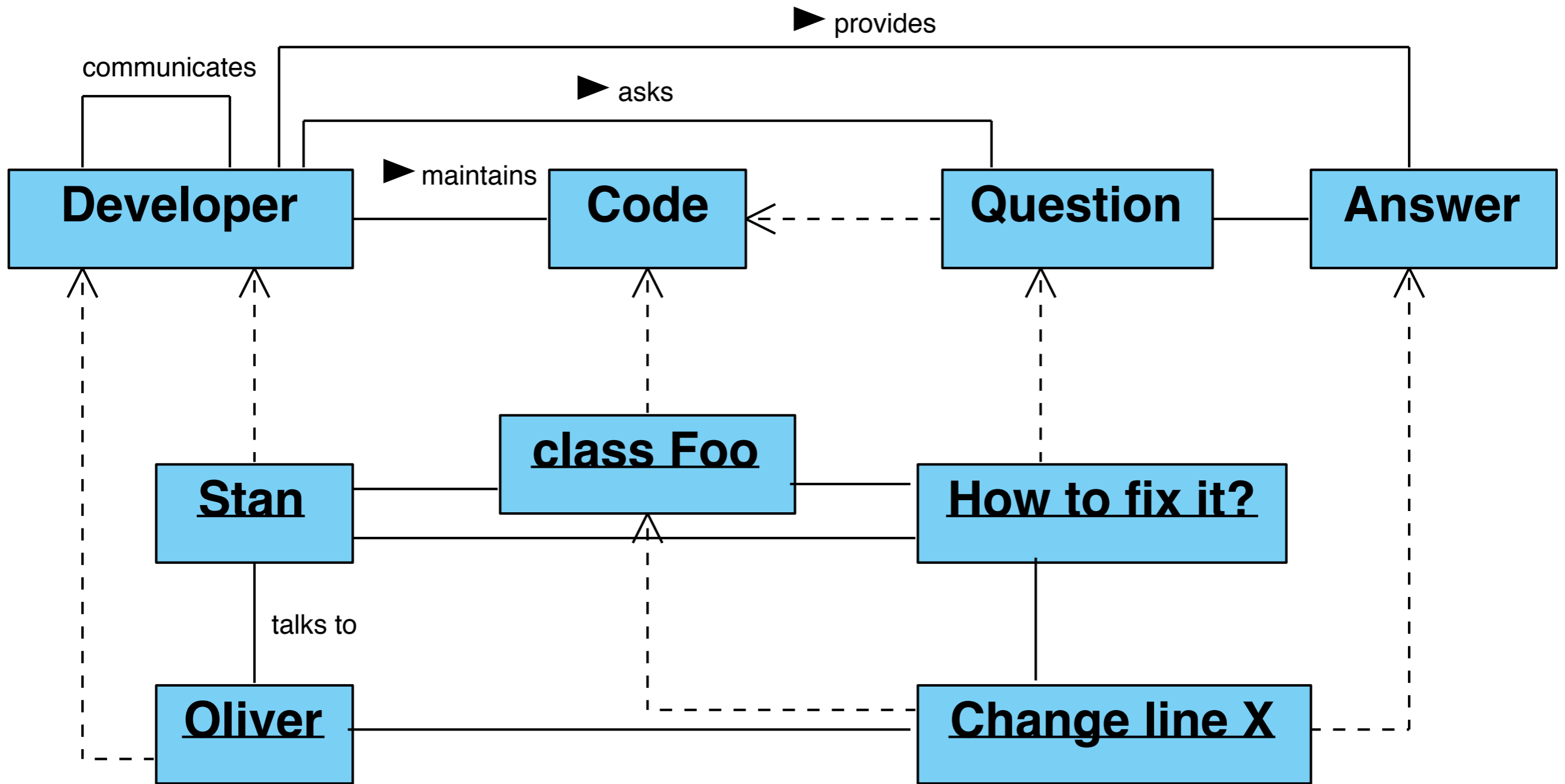
Maintenance costly and error-prone

Documentation consists of

user manual

requirements

one diagram with 40 boxes



Single

Head

Of

Knowledge

**Stan**

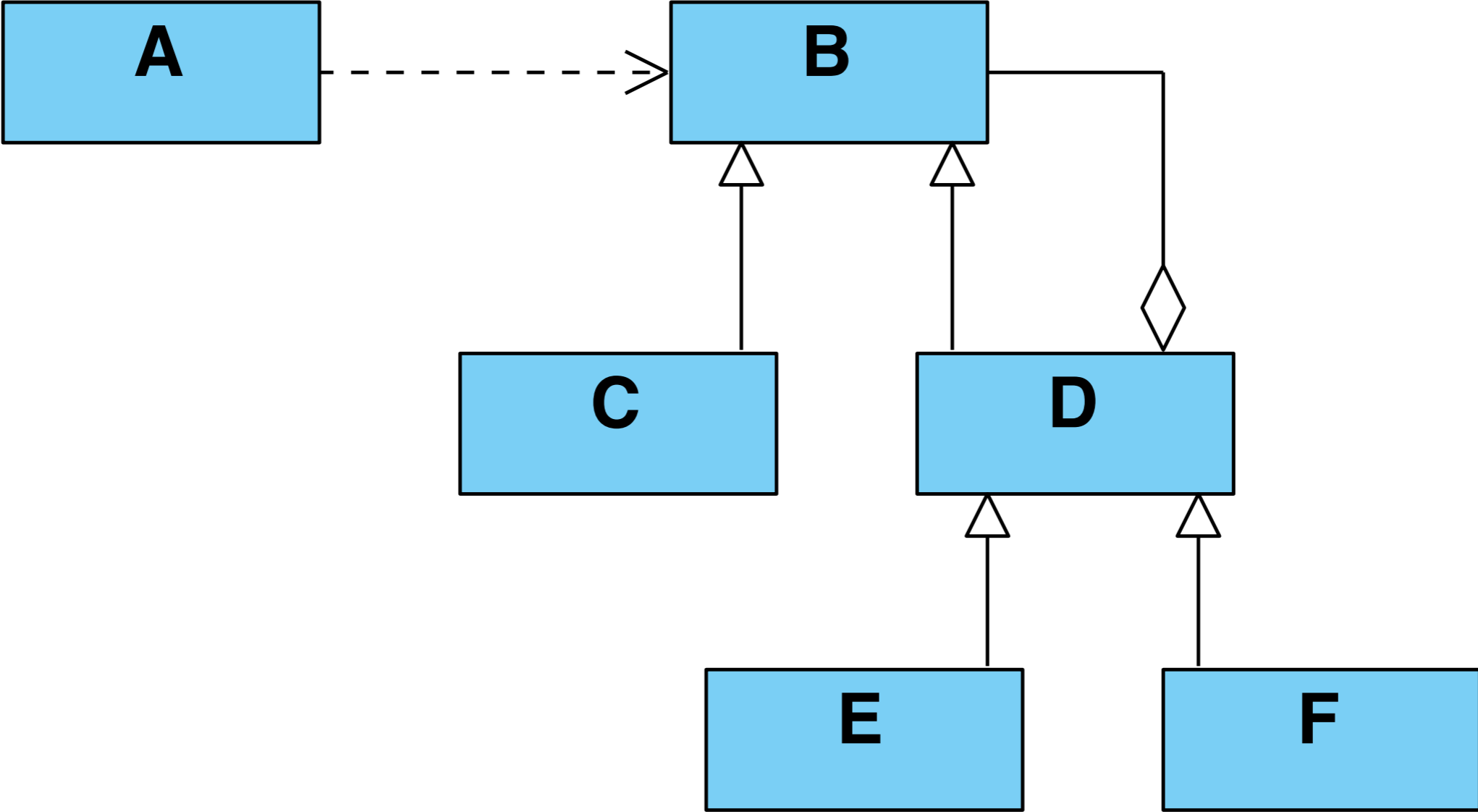
**How to fix it?**

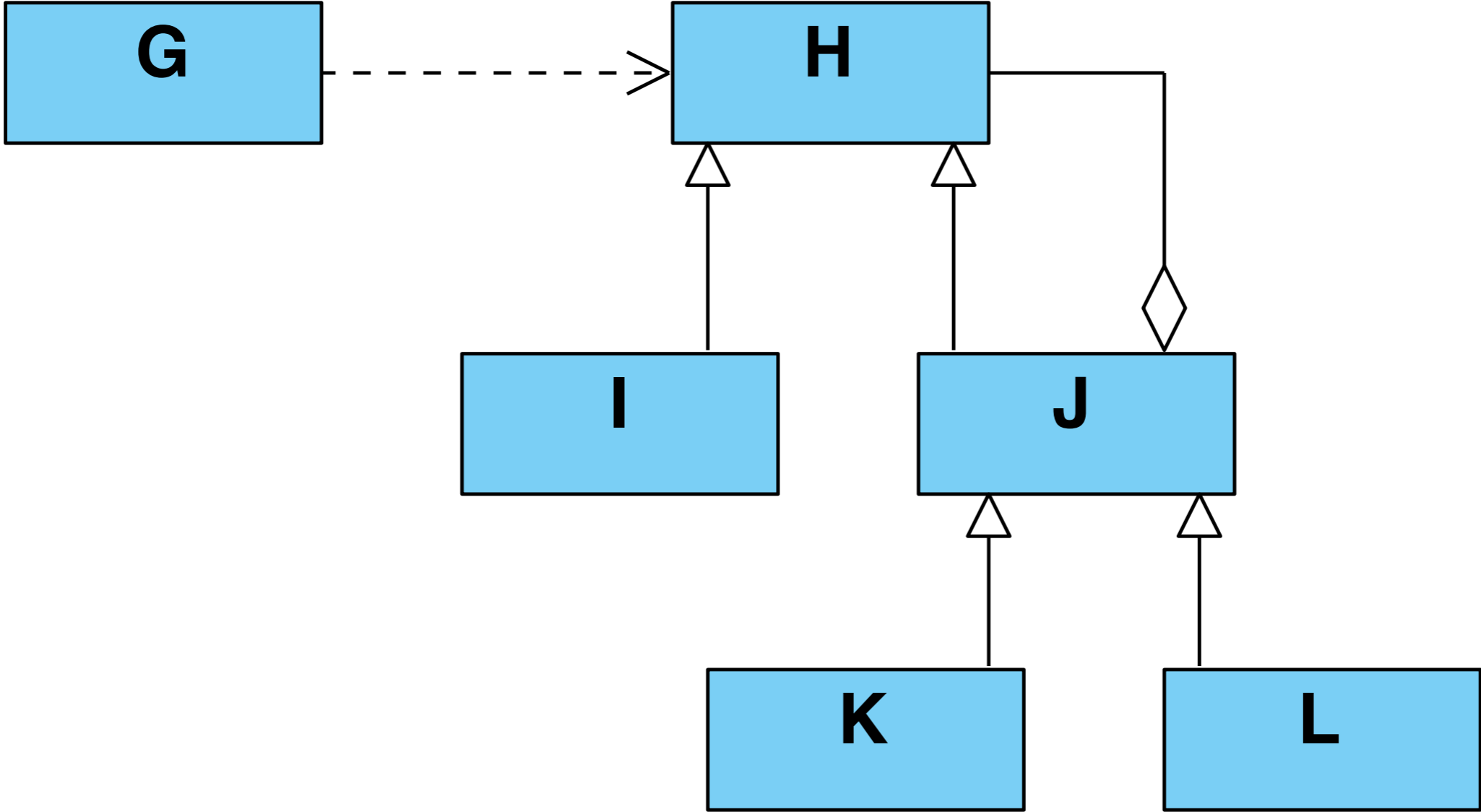


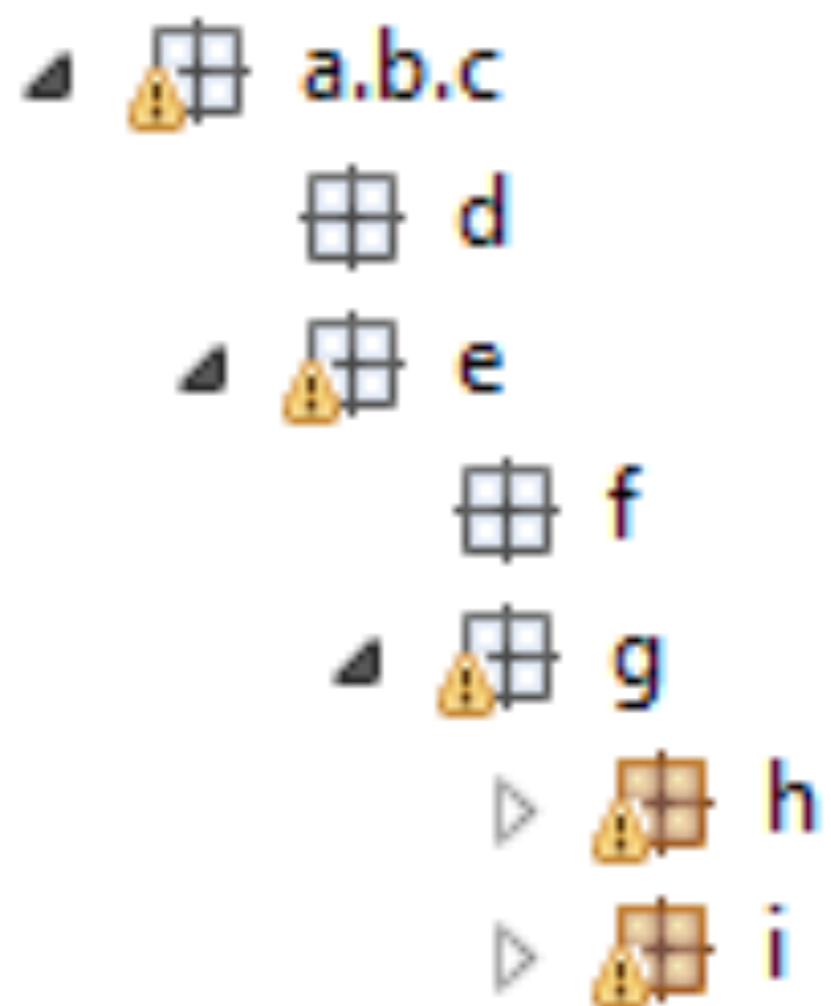
```
public class Helper {  
  
    private static int process(int l1, int l1) {  
        while (l1 != 0 && ( (l1 > l1) ? (l1 = l1 - l1) == l1 : (l1 = l1 - l1) == l1));  
        return l1;  
    }  
  
    public static void main(String[] args) {  
        System.out.println(process(12, 44));  
    }  
}
```

```
public class Helper {  
  
    private static int process(int pZahl1, int pZahl2) {  
        while (pZahl2 != 0 &&  
            ( (pZahl1 > pZahl2) ? (pZahl1 = pZahl1 - pZahl2) == pZahl1 :  
                (pZahl2 = pZahl2 - pZahl1) == pZahl2));  
        return pZahl1;  
    }  
  
    public static void main(String[] args) {  
        System.out.println(process(12, 44));  
    }  
}
```

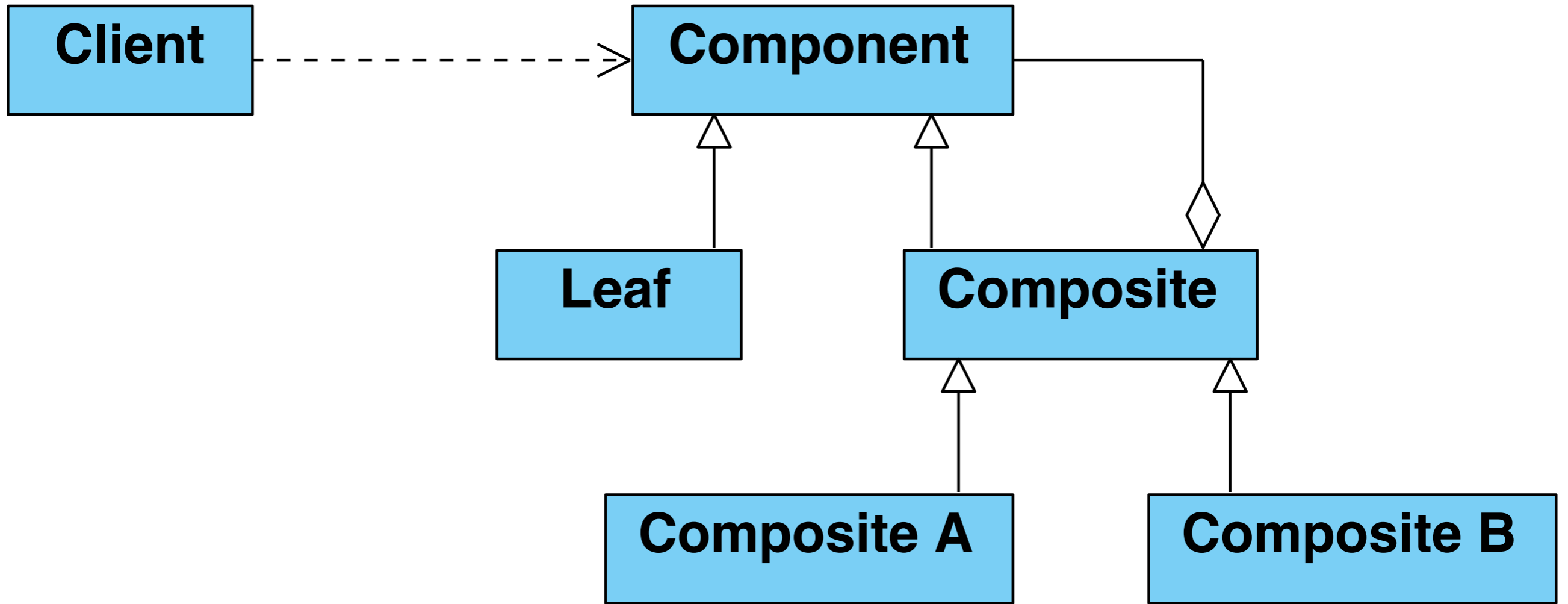
```
public class Helper {  
  
    private static int process(int pZahl1, int pZahl2) {  
        while (pZahl2 != 0) {  
            if (pZahl1 > pZahl2) {  
                pZahl1 = pZahl1 - pZahl2;  
            } else {  
                pZahl2 = pZahl2 - pZahl1;  
            }  
        }  
        return pZahl1;  
    }  
  
    public static void main(String[] args) {  
        System.out.println(process(12, 44));  
    }  
}
```



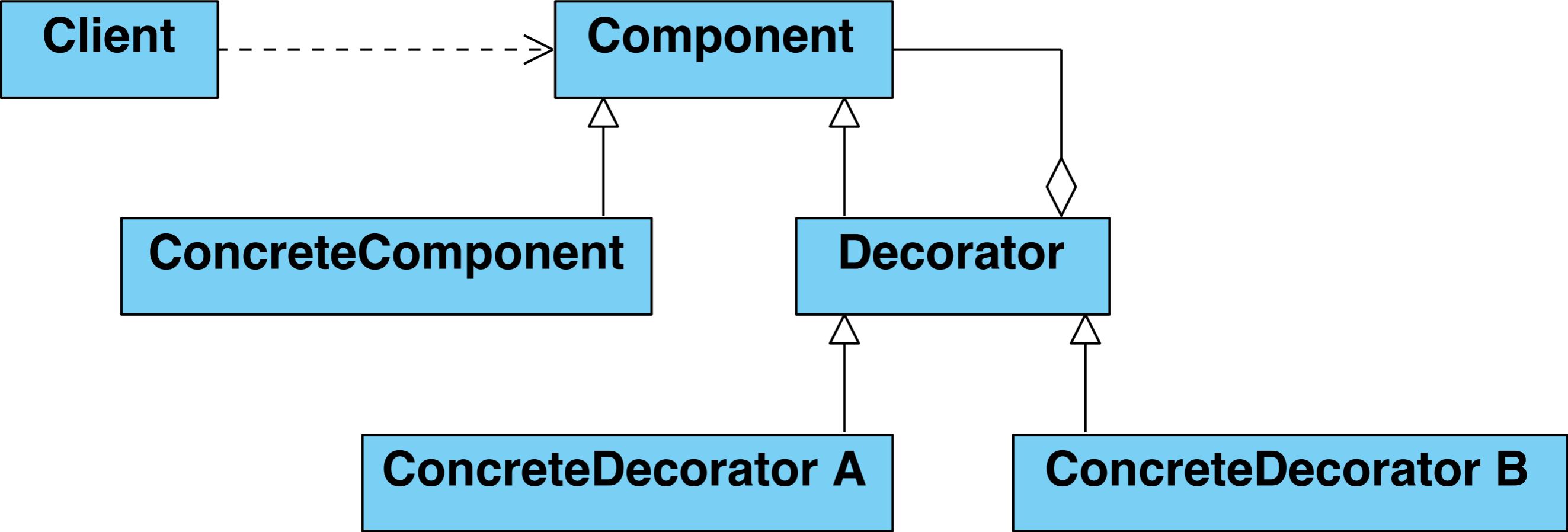
















```
public class Helper {  
  
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        while (pZahl2 != 0) {  
            if (pZahl1 > pZahl2) {  
                pZahl1 = pZahl1 - pZahl2;  
            } else {  
                pZahl2 = pZahl2 - pZahl1;  
            }  
        }  
        return pZahl1;  
    }  
  
    public static void main(String[] args) {  
        System.out.println(process(12, 44));  
    }  
}
```







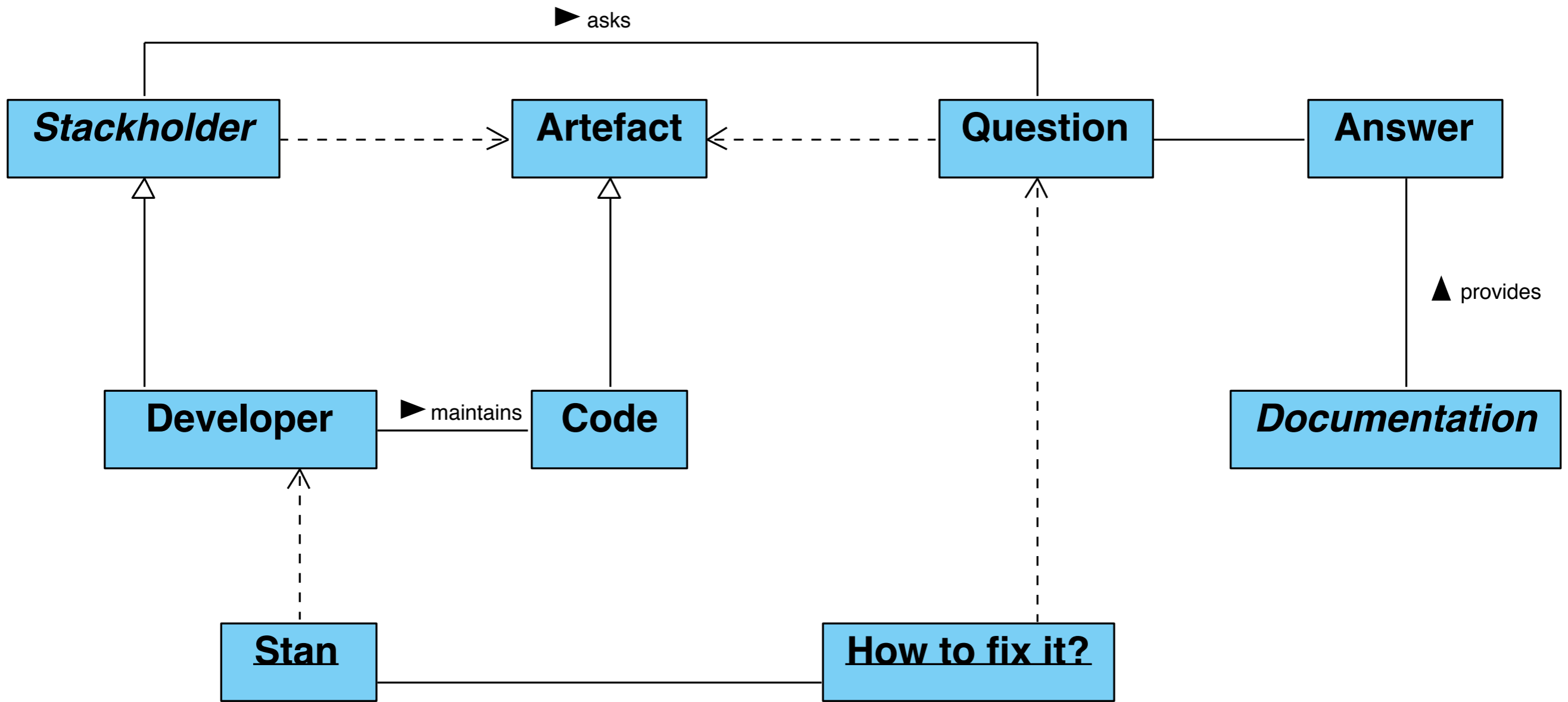
- ▲   ch.abraxas.tax
  -  client
  - ▲   server
    -  invoice
    - ▲   partner
      - ▷   legalEntity
      - ▷   person

**Build**

**Deployment**



**Configuration**



Questions Retirement

Access

Stackholders

# Documentation

Maintenance

Which

When

Structure

Adaption

Value oriented

Practical

Customer oriented

Simple

Agile

Iterativ

Incremental

Excellency

Same level of abstraction

Low coupling

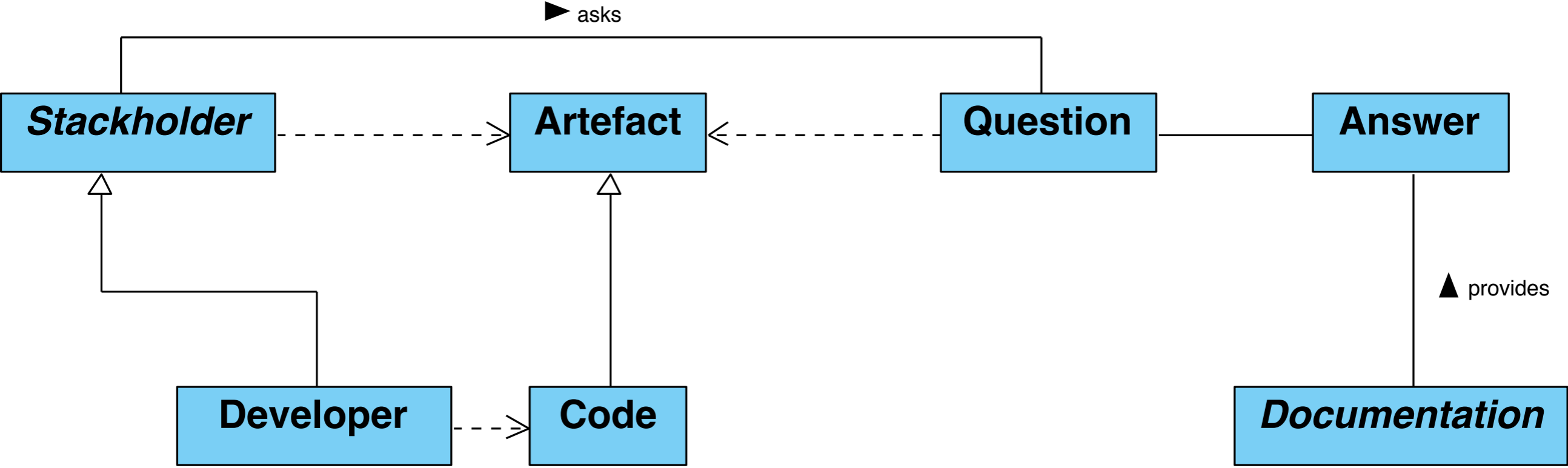
Interface segregation principle

# Design principles

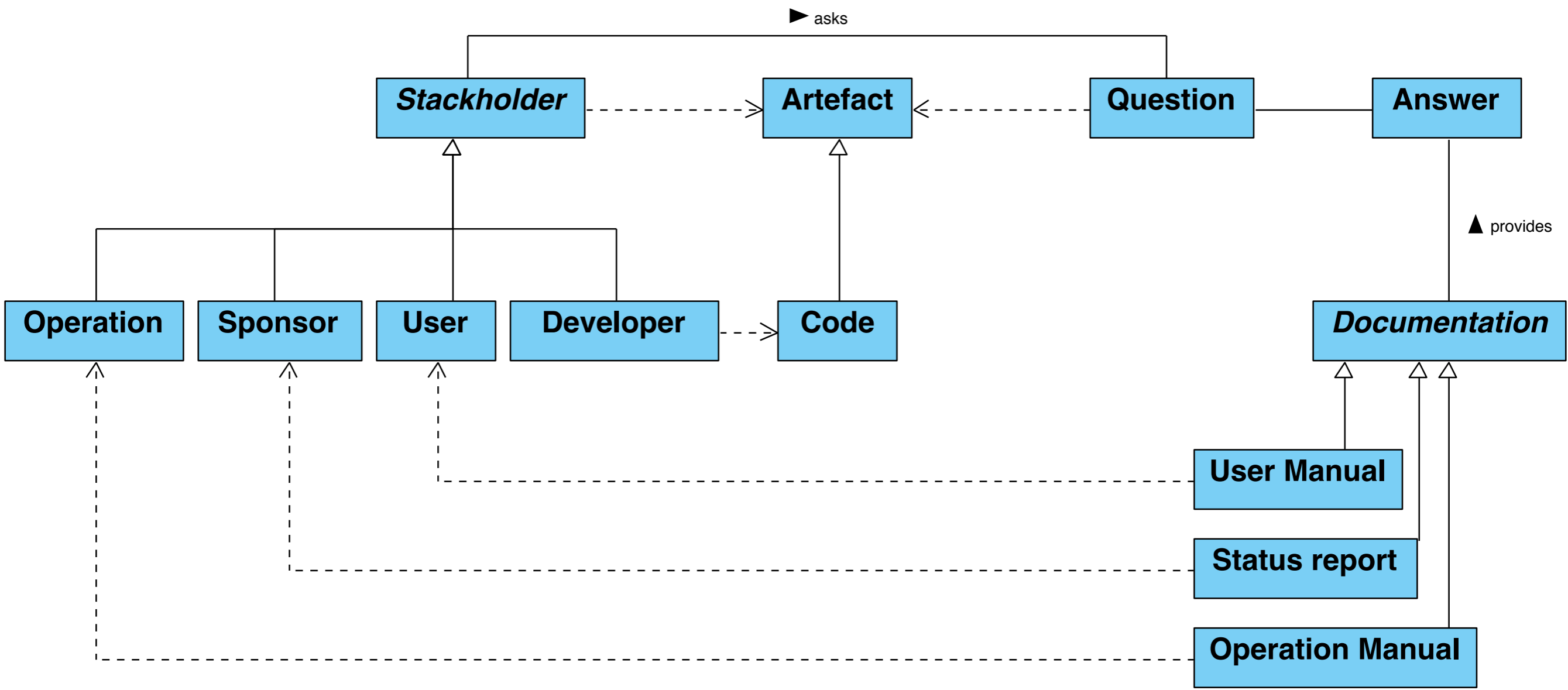
Open-closed principle

Separation of concerns

High cohesion







**Same level of abstraction**

Low coupling

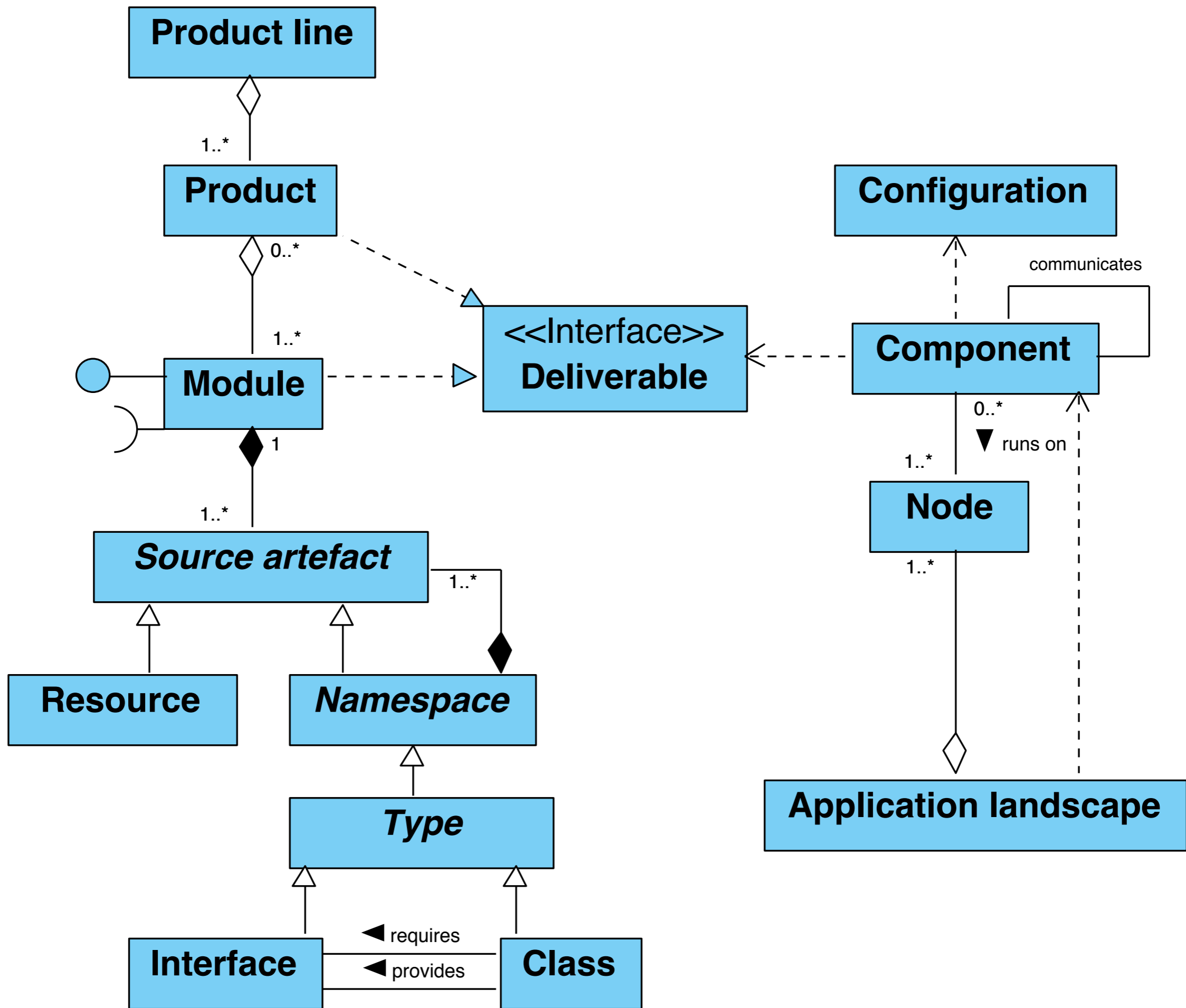
Interface segregation principle

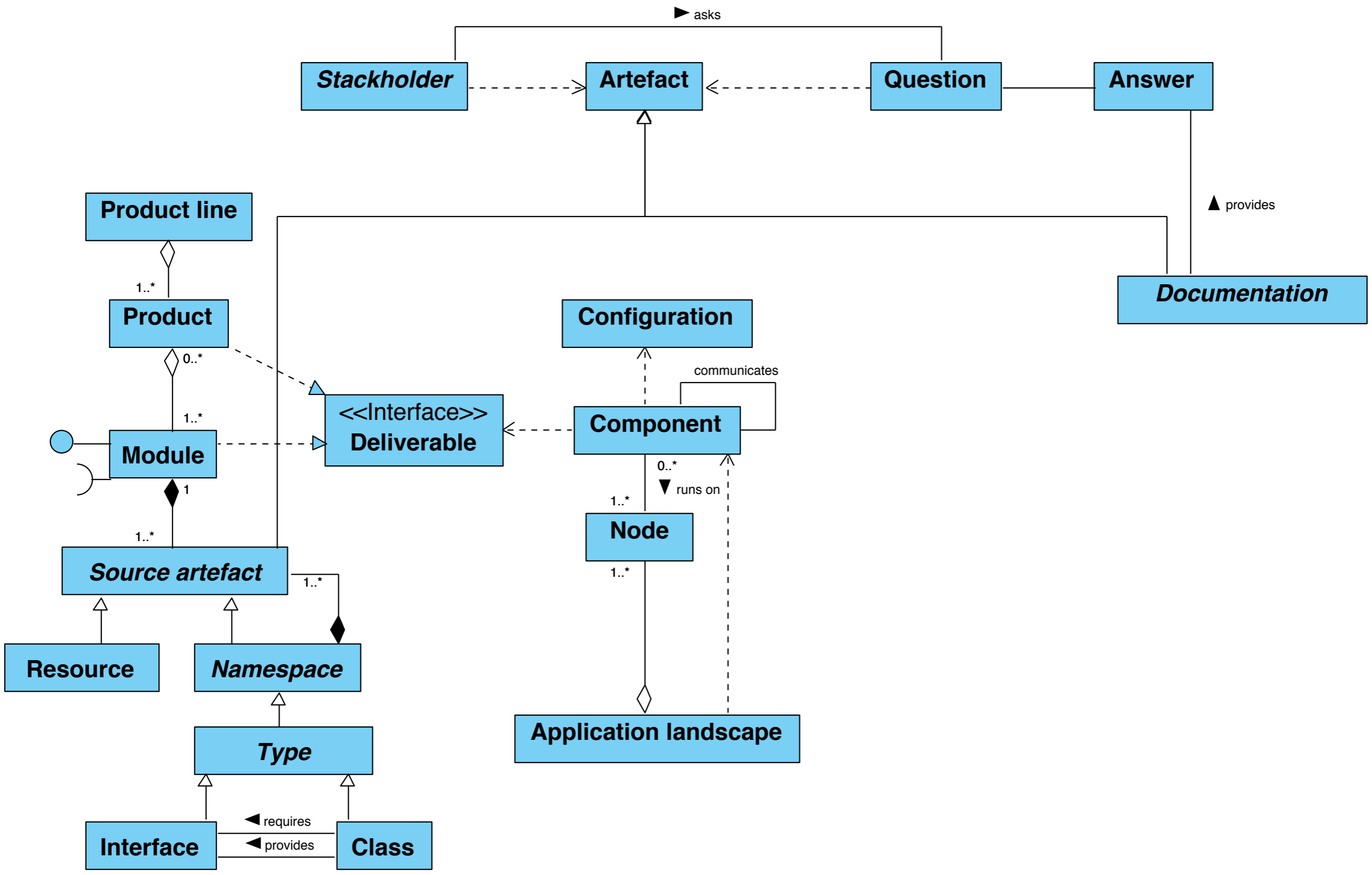
**Design principles**

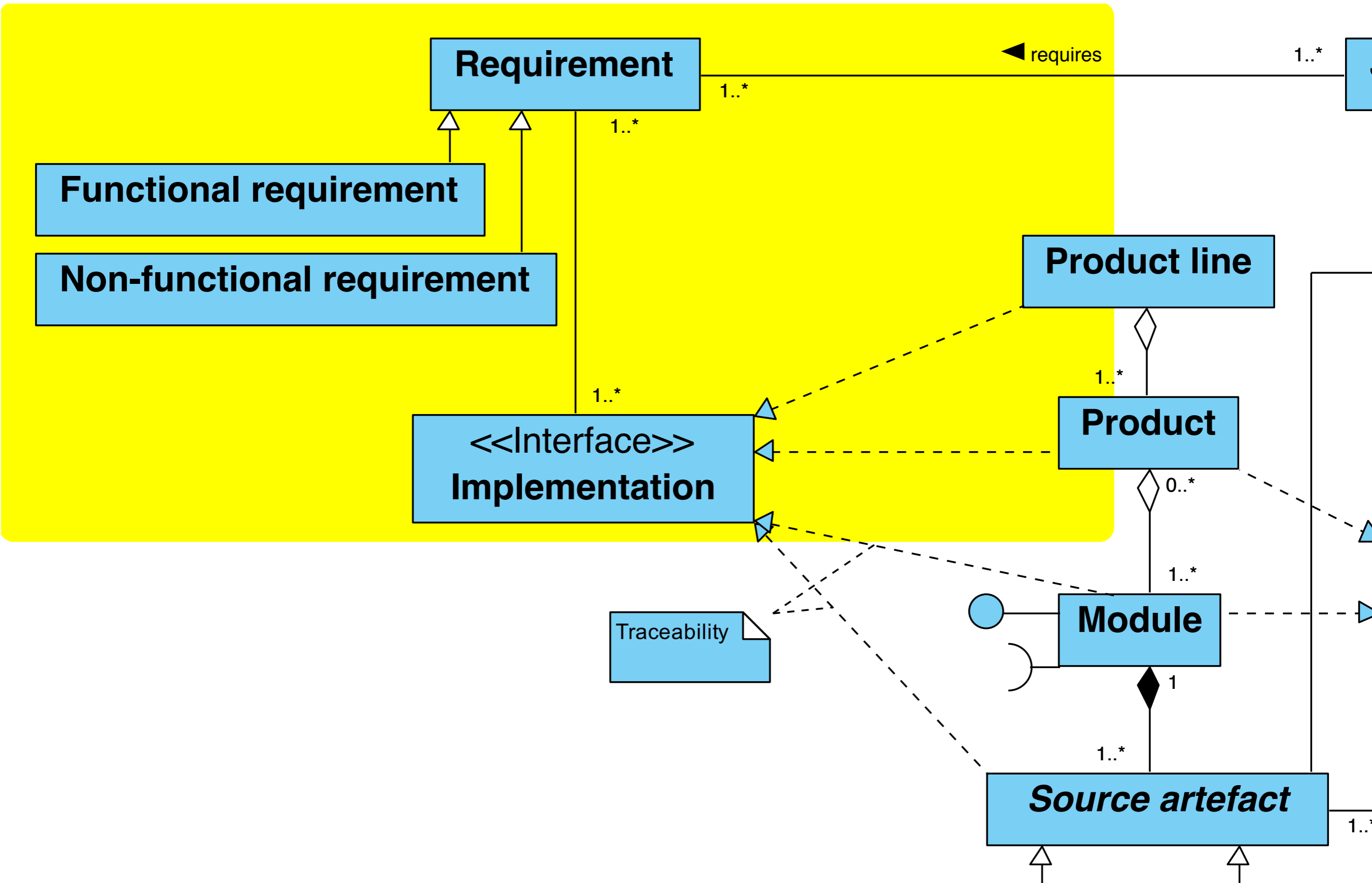
Open-closed principle

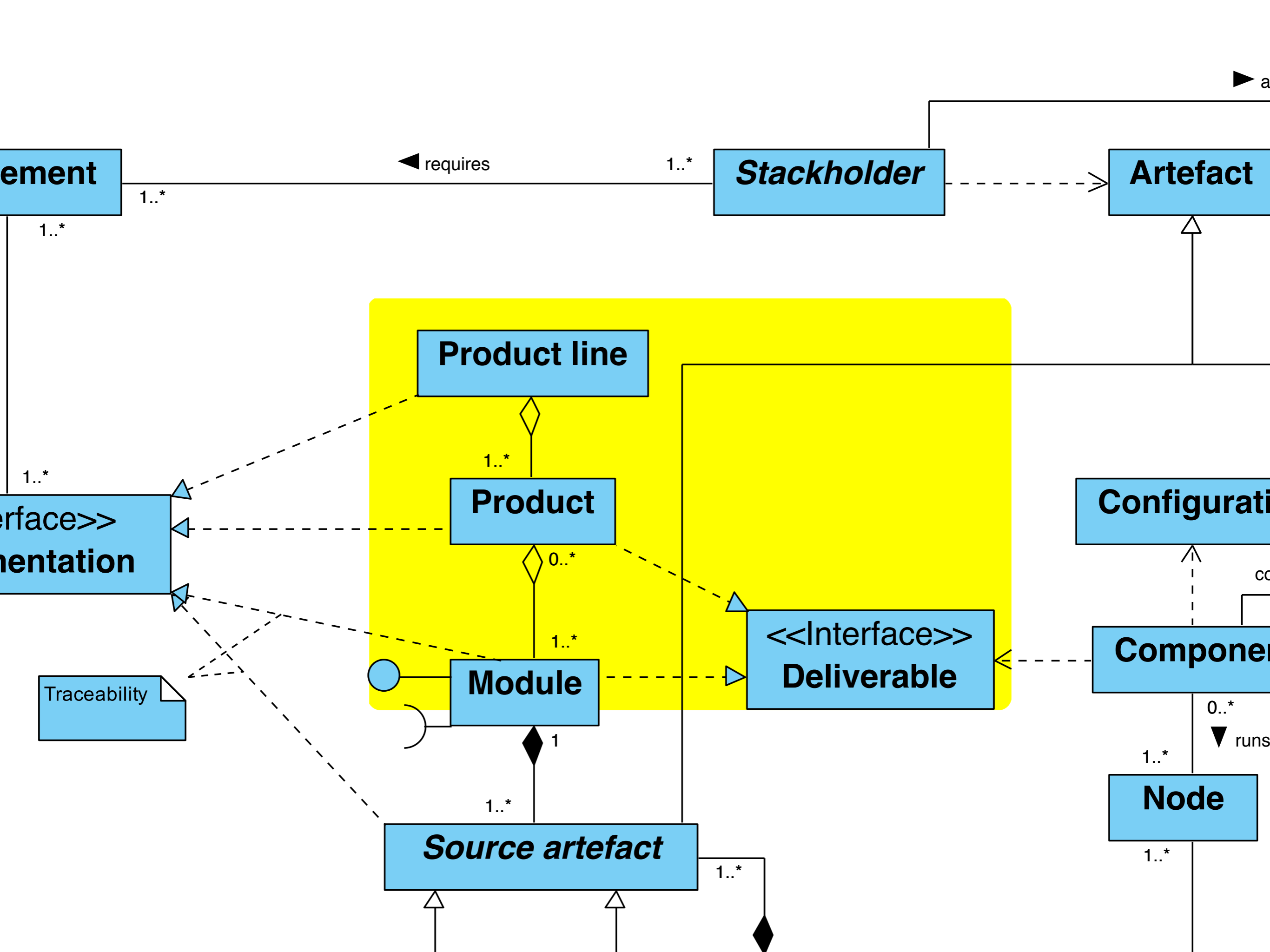
Separation of concerns

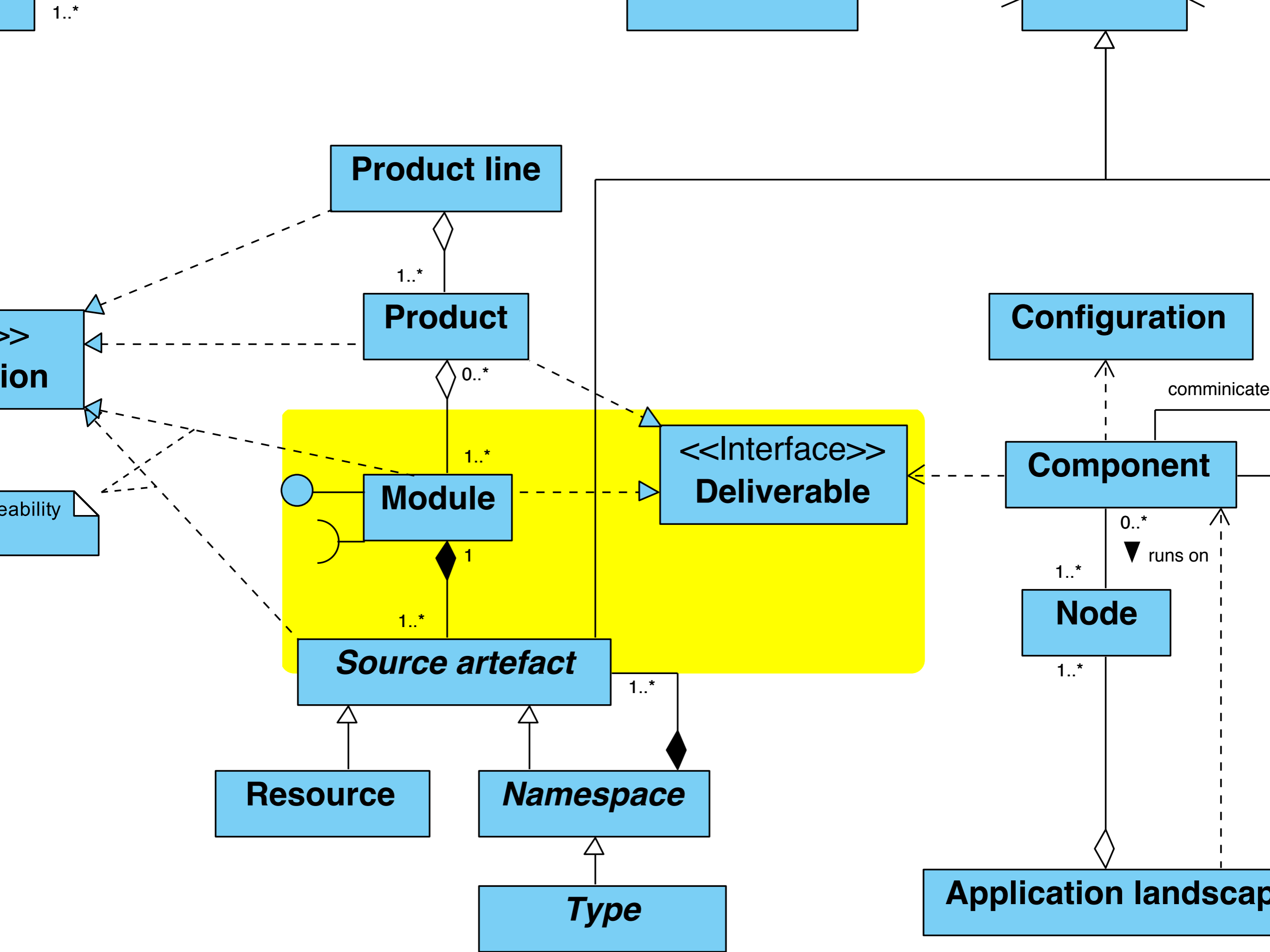
High cohesion

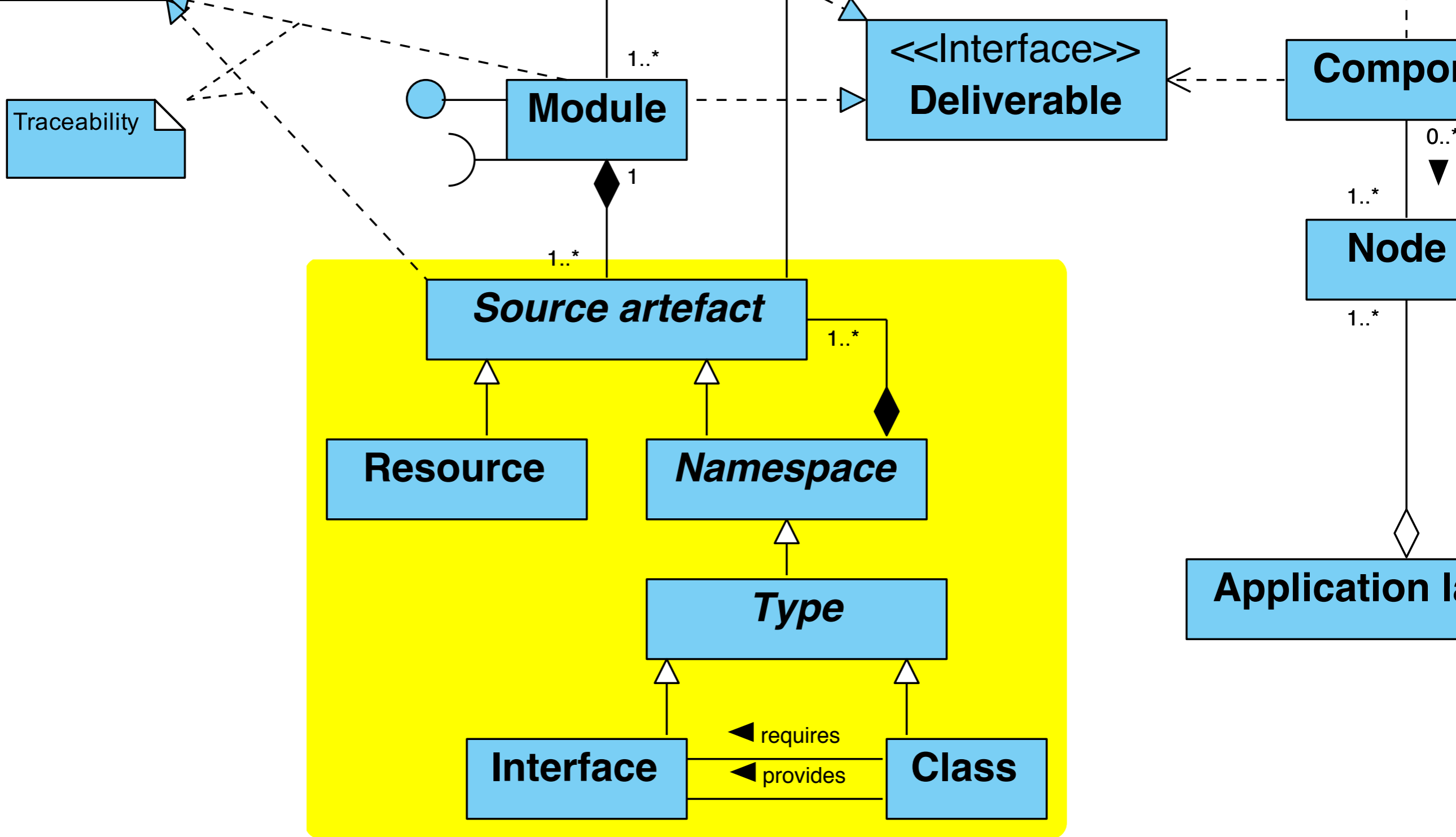






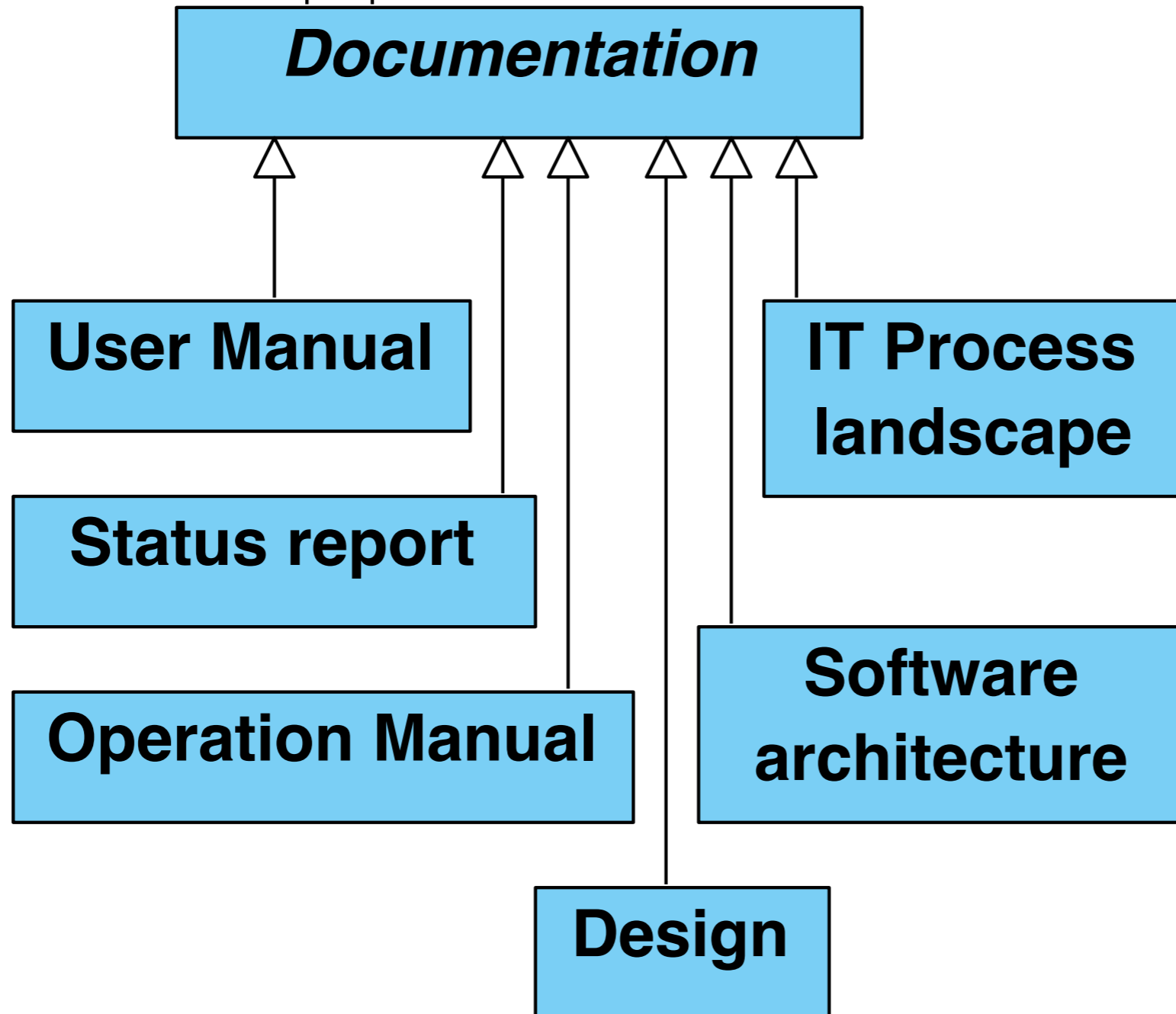








▲ provides



# IT Process landscape

Document history

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1 Introduction

2 Functional requirements

3 Non-functional requirements

4 Product decomposition

5 Alternative decomposition

# Update

## Document history

Version	Description	Date	Author(s)
0.0	Document creation	3.4.2009	Hans Muster
0.1	Enhancement of chapter 5.1	7.4.2009	Reto Meier
0.2	Chapter 5.3 introduced	8.4.2009	Reto Meier
1.0	Release after board review	16.4.2009	Peter Chef
1.1	Chapter 7 changed due to CR123456	1.5.2009	Lukas Herbst
1.2	Rework of chapter 9 due to change of user case « invoce »	14.5.2009	Montag Mueller

## Release / approval

Version	Released chapters	Board	Date
1.0	Chapter 1-5	AR	16.4.2009

# IT Process landscape

Document history

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## 1 Introduction

1.1 Abstract

1.2 Target audience

1.3 Prerequisites

1.4 References

2 Functional requirements

3 Non-functional requirements

4 Product decomposition

5 Alternative decomposition

## **1.4 Document references**

[Concept foo] Elaboration and conception product Foo

[Module bar] Conception of module Bar

## 1.4 Document references

- [Concept foo] Elaboration and conception product Foo, **version 1.4**  
**<intranet>/products/foo.doc**
- [Module bar] Conception of module Bar, **version 2.89**  
**<intranet>/modules/bar.doc**

# IT Process landscape

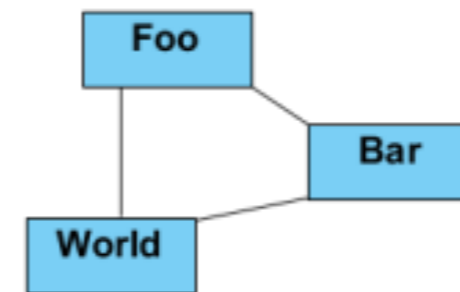
1.2 Target audience

1.3 Prerequisites

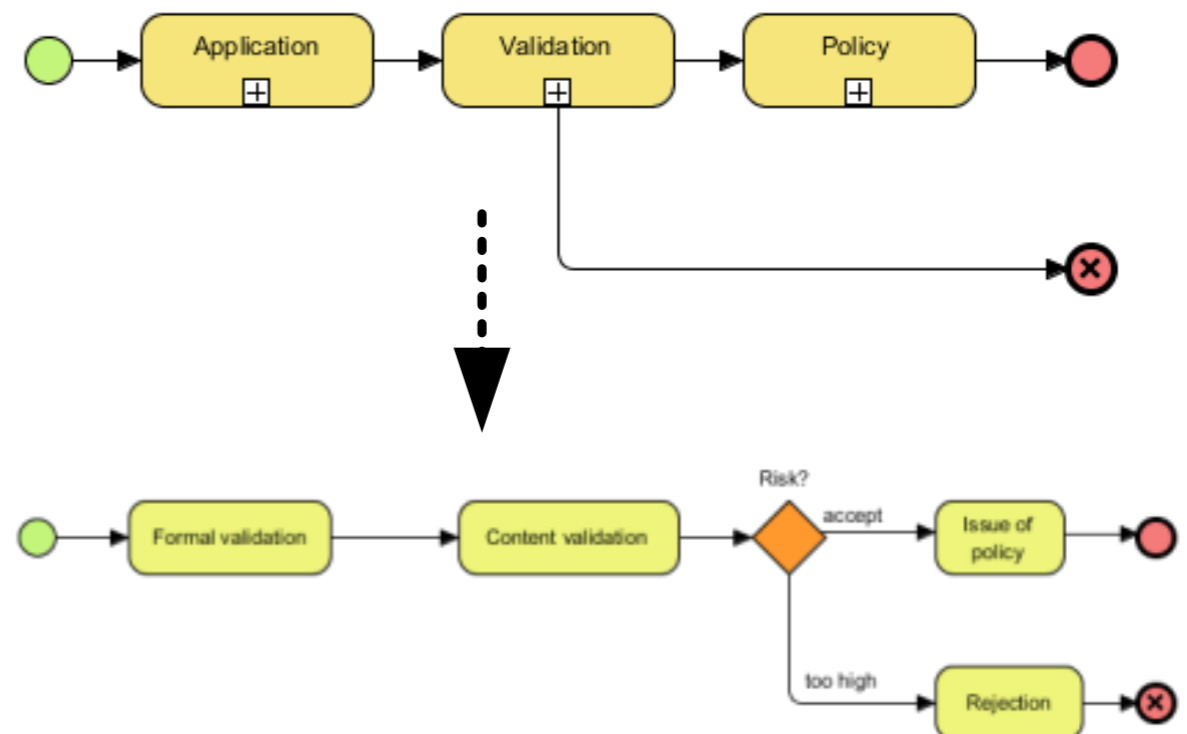
1.4 References

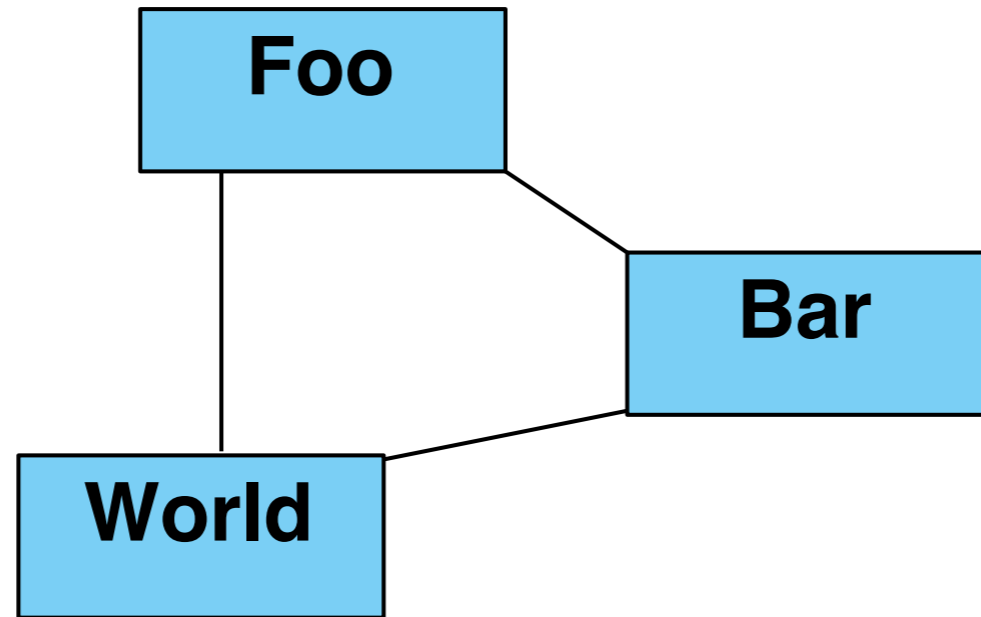
## 2 Functional requirements

### 2.1 Domain model

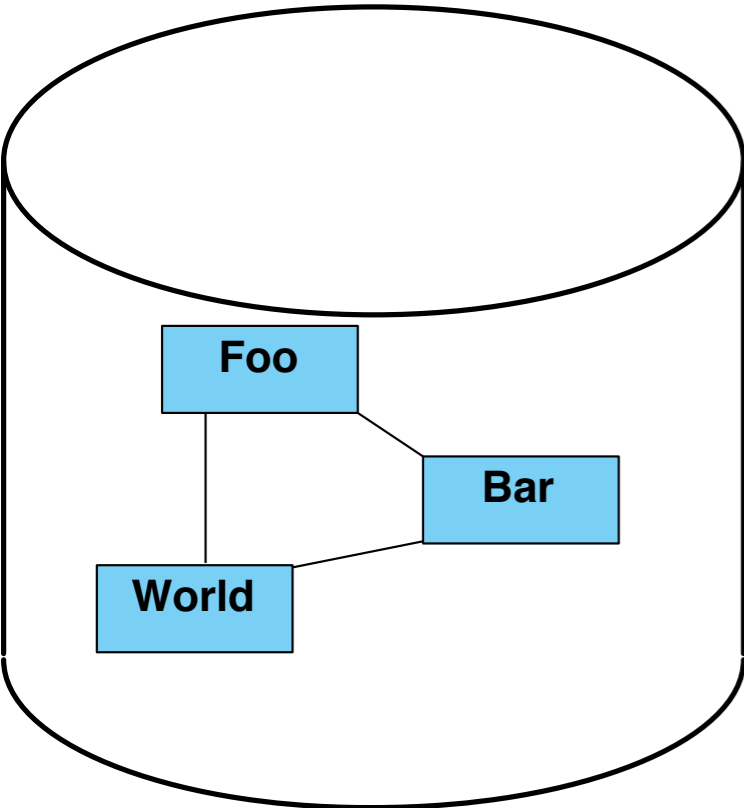


### 2.2 Process





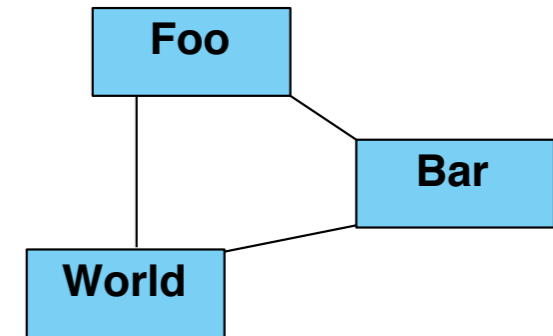




# Repository

## 4.5 Lorem ipsum

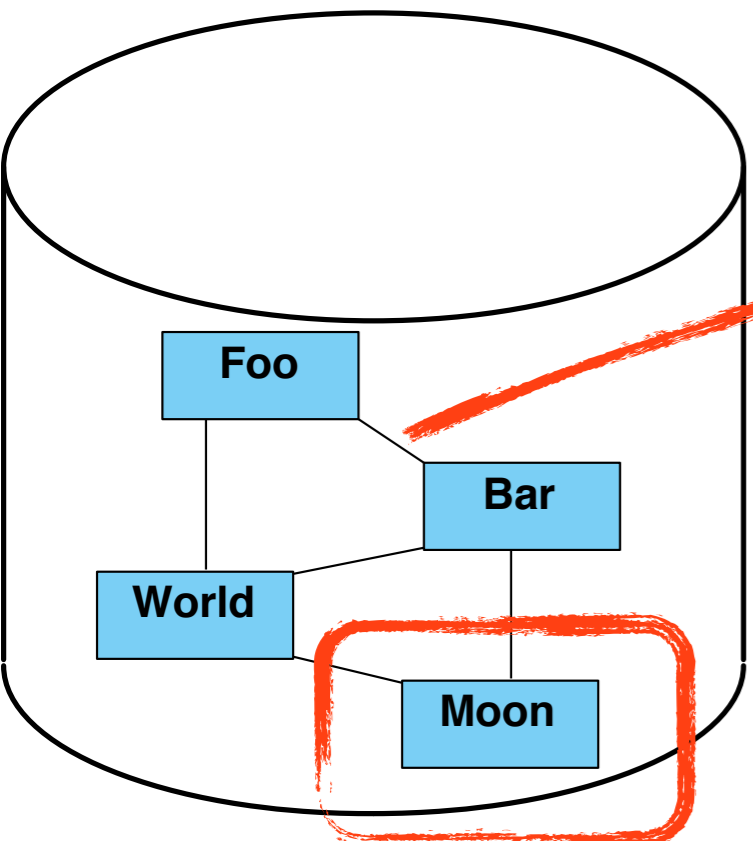
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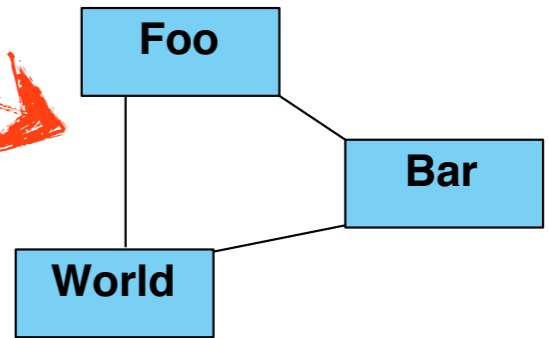


Repository



#### 4.5 Lorem ipsum

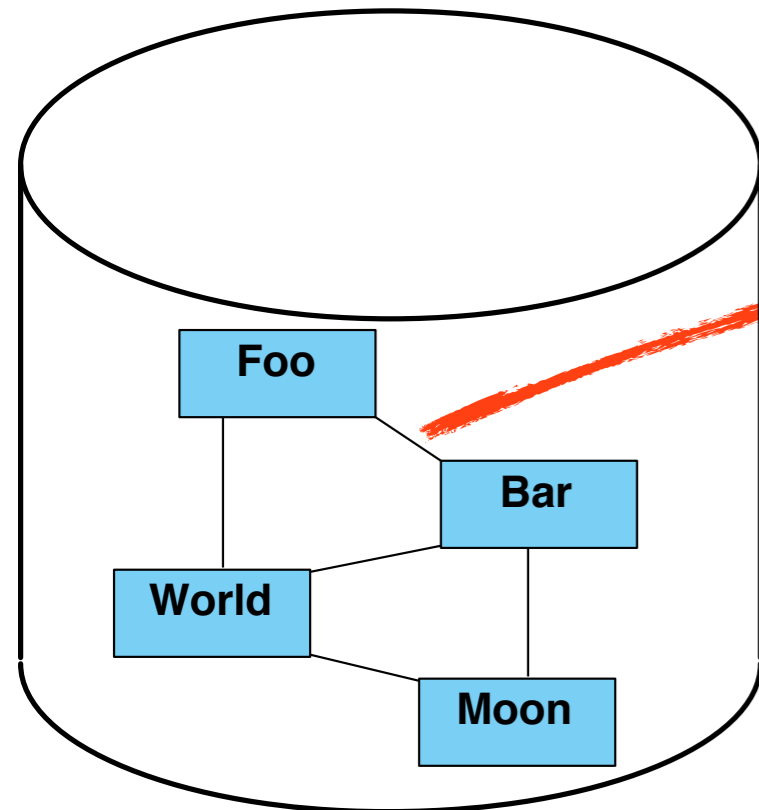
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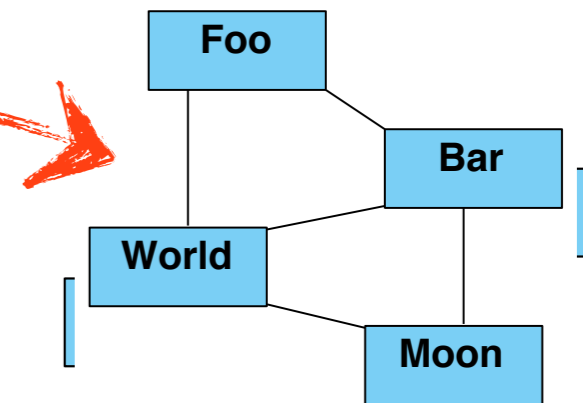
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copy-paste



Repository

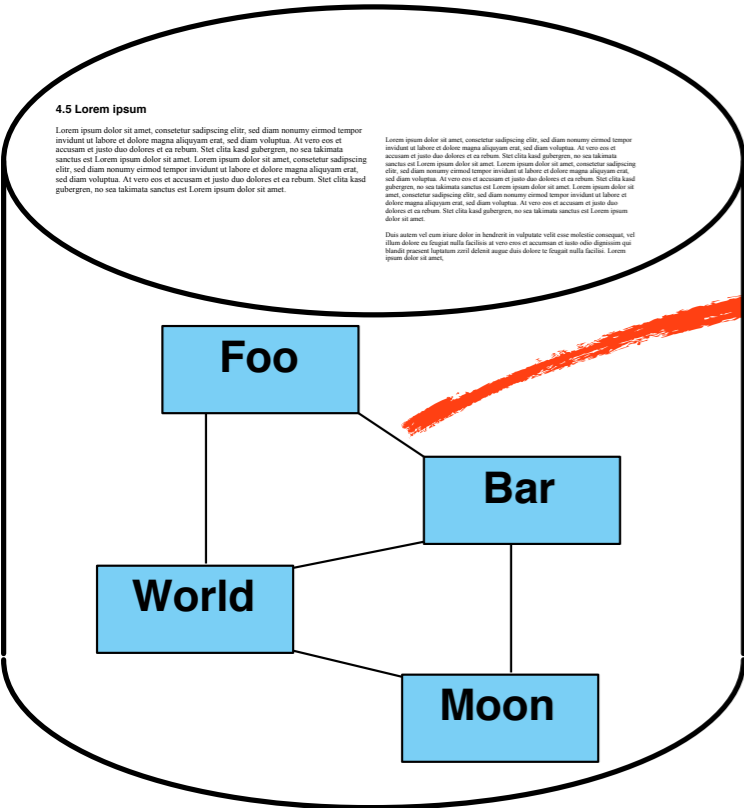
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Repository

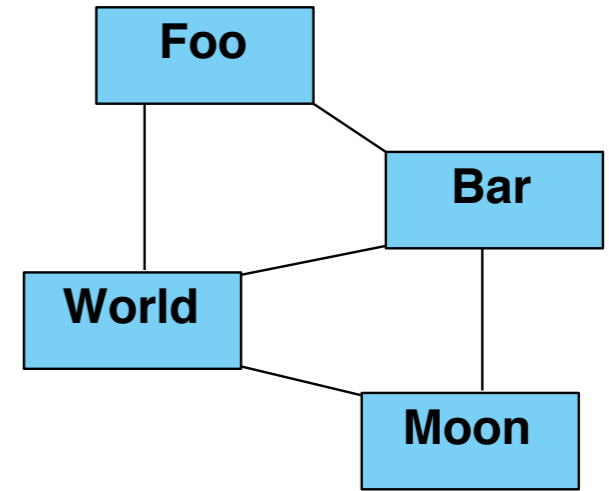
generate



Template

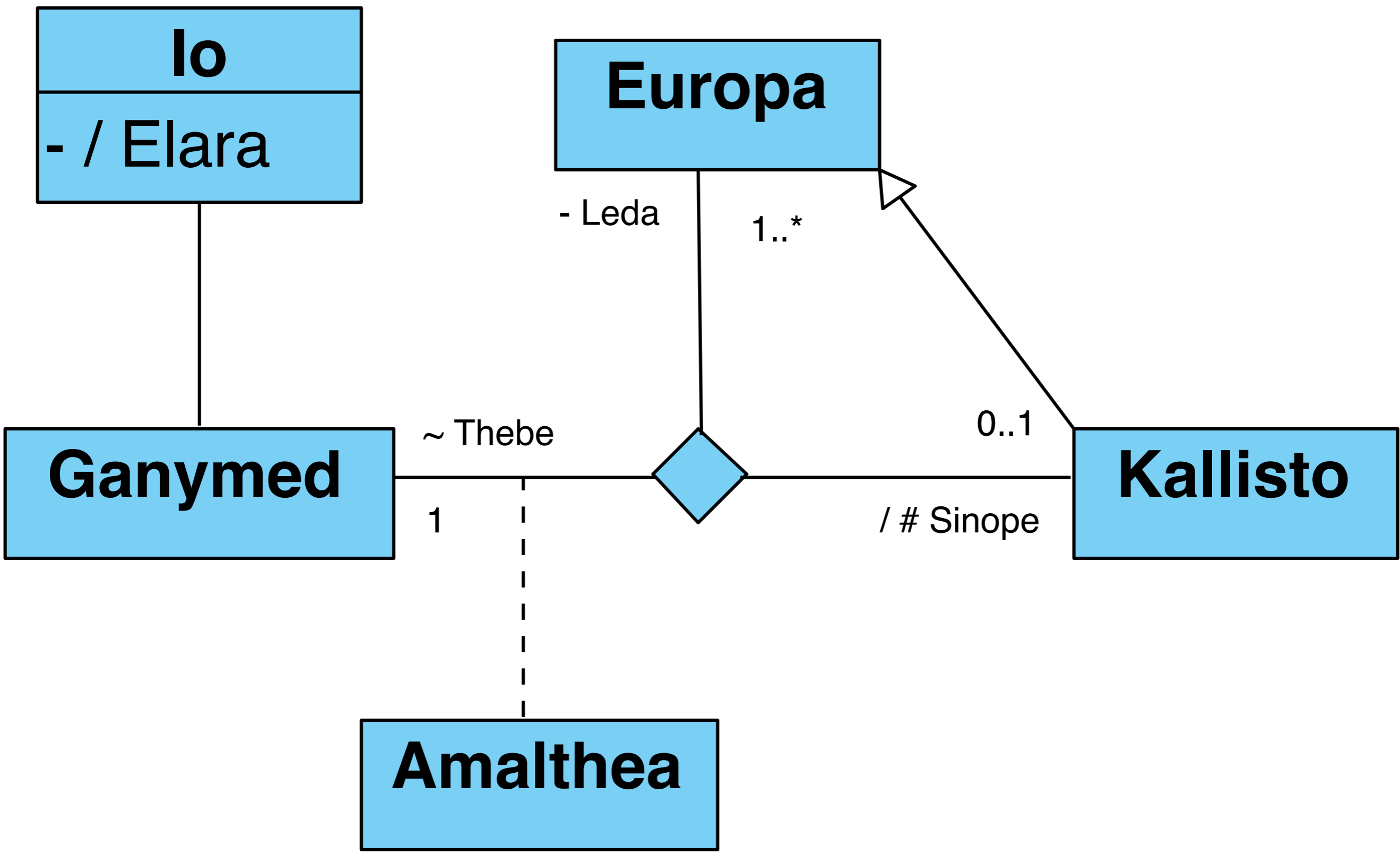
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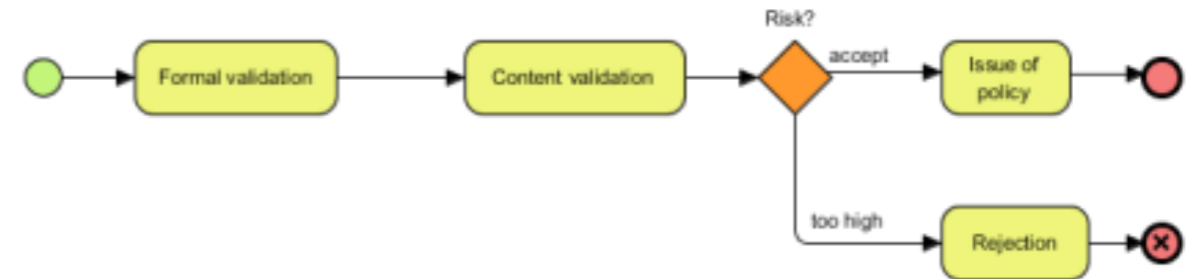


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Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Lorem ipsum dolor sit amet,



# IT Process landscape

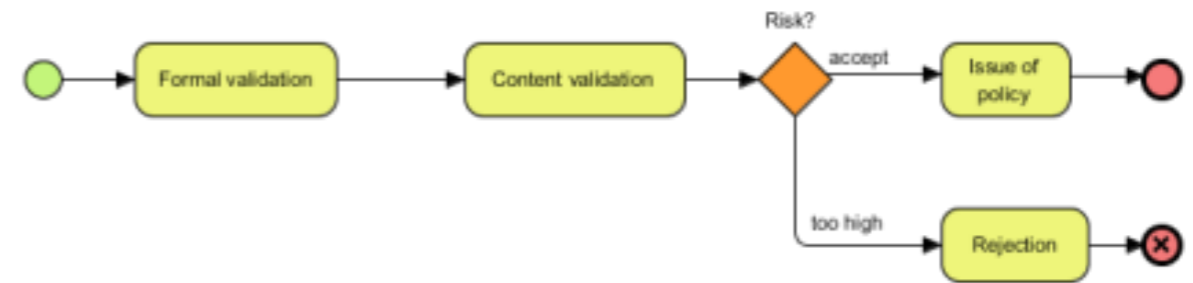


3 Non-functional requirements

4 Product decomposition

5 Alternative decomposition

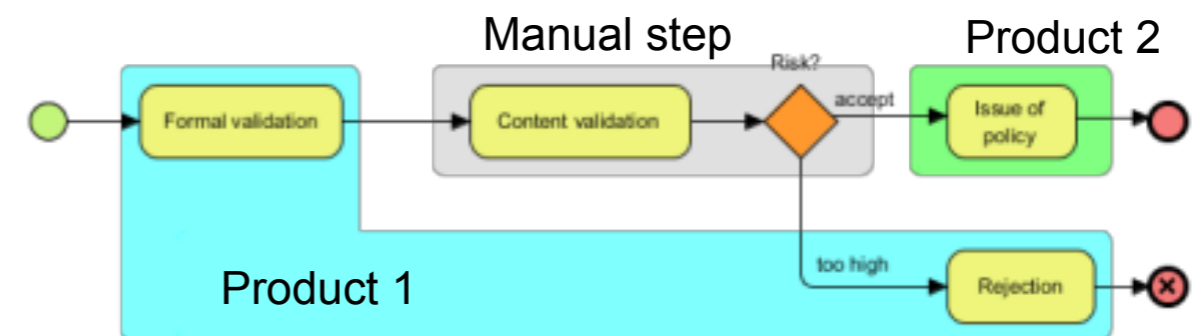
# IT Process landscape



3 Non-functional requirements

4 Product decomposition

4.1 Products



4.2 Rationale

4.3 Consequences

5 Alternative decomposition

# IT Process landscape

Product 1

too high

Rejection



4.2 Rationale

4.3 Consequences

5 Alternative decomposition



# IT Process landscape

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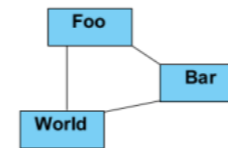
1.2 Target audience

1.3 Prerequisites

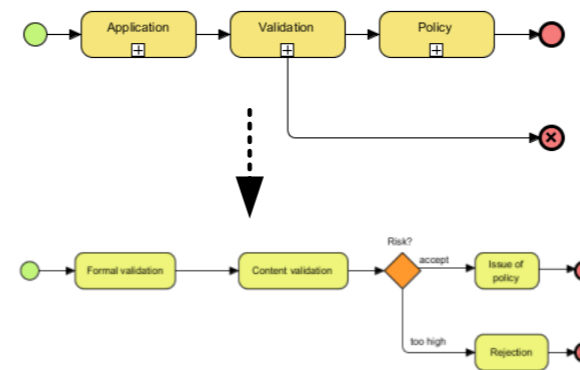
1.4 References

2 Functional requirements

2.1 Domain model



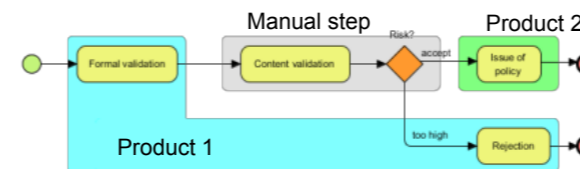
2.2 Process



3 Non-functional requirements

4 Product decomposition

4.1 Products

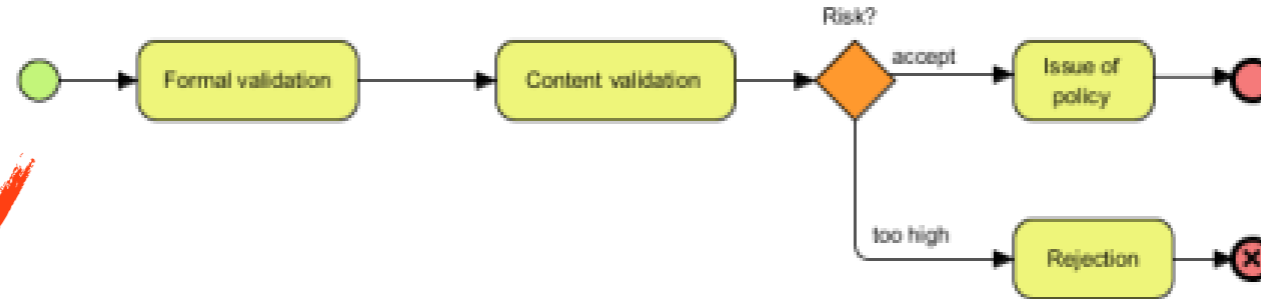
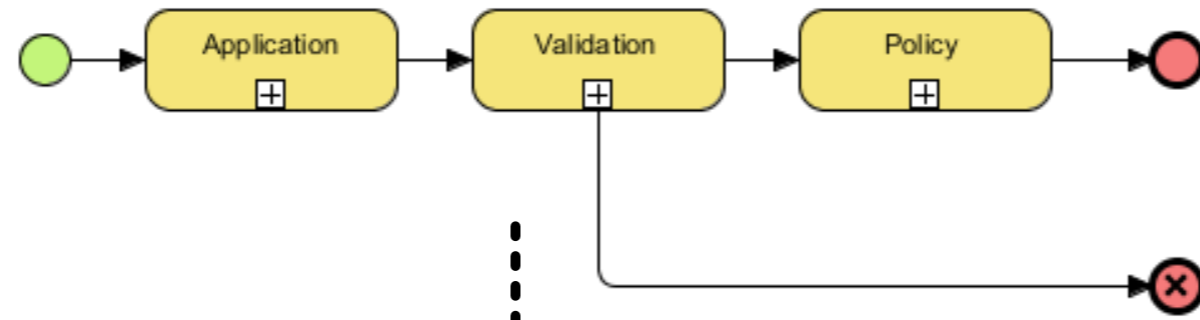


4.2 Rationale

4.3 Consequences

5 Alternative decomposition

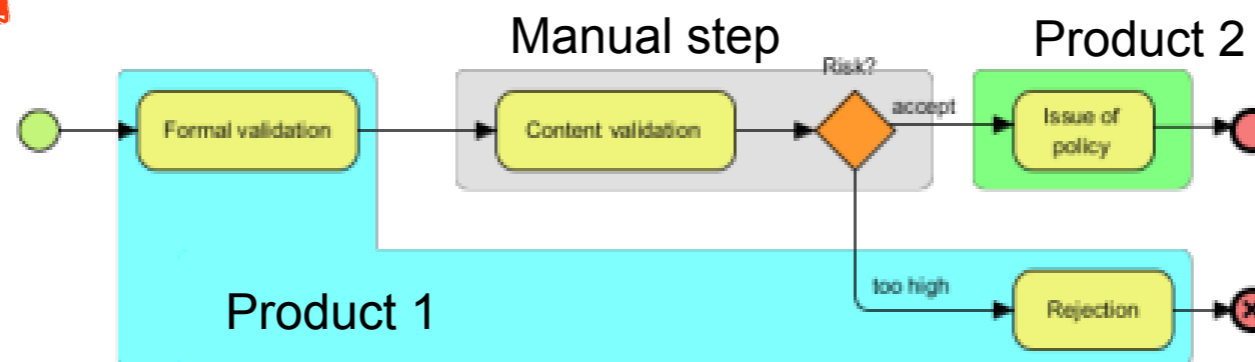
# IT Process landscape



3 Non-functional requirements

4 Product decomposition

4.1 Products



4.2 Rationale

# Software architecture

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7 Alternative module decomposition

# Software architecture

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# Software architecture

1.2 Target audience

1.3 Prerequisites

1.4 References

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4 Non-functional requirements

5 Architecture

6 Module interaction

7 Alternative module decomposition

# Software architecture

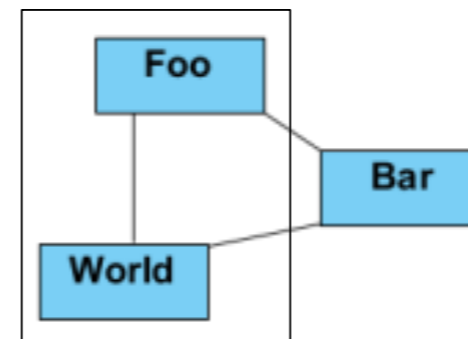
## 1.3 Prerequisites

## 1.4 References

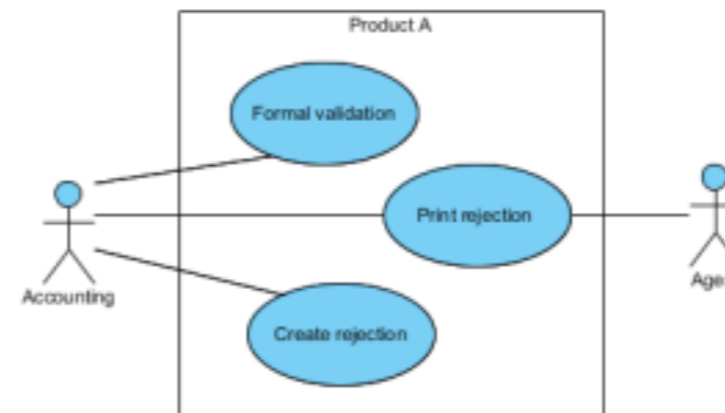
## 2 Context

## 3 Functional requirements

### 3.1 Analysis model



### 3.2 Use cases

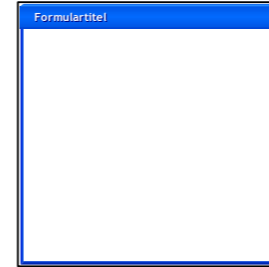


### 3.4 UI



# Software architecture

## 3.4 UI



## 4 Non-functional requirements

4.1 Usability

4.2 Quantity structure

4.3 Performance

4.4 Scalability

4.5 Availability

4.6 Restart capability

4.7 Locking/Concurrency Strategy

4.9 Transaction behavior

4.10 Portability



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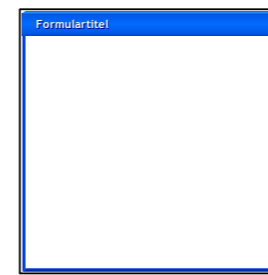
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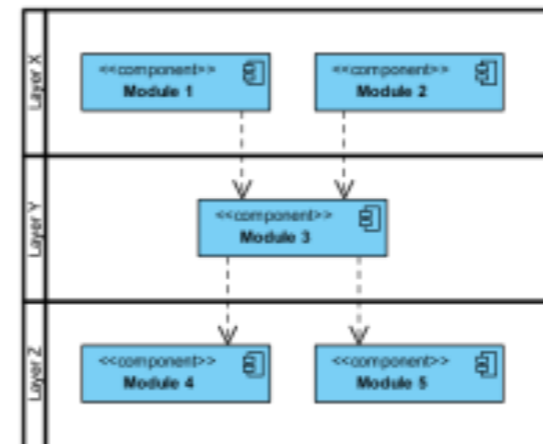
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## 4 Non-functional requirements

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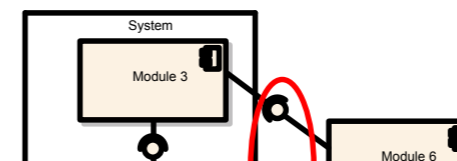
### 5.1 Module decomposition, layers



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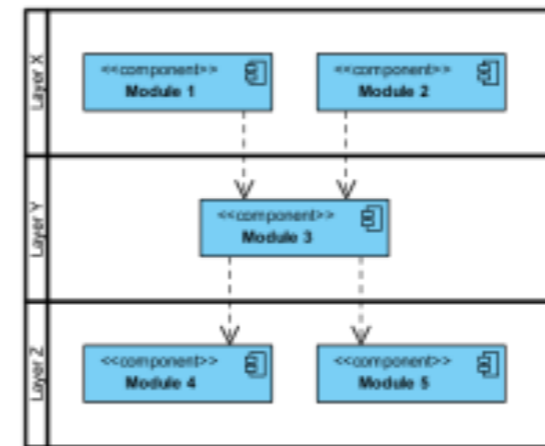
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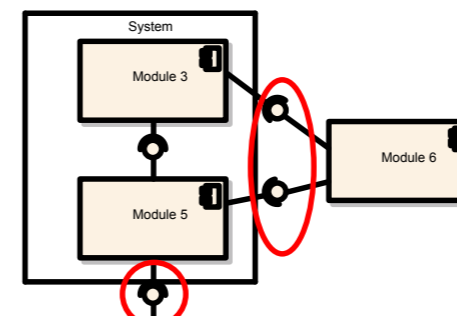
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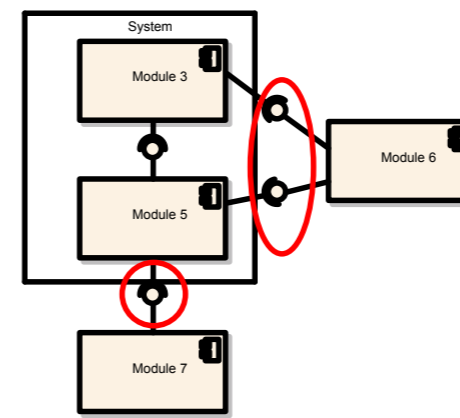
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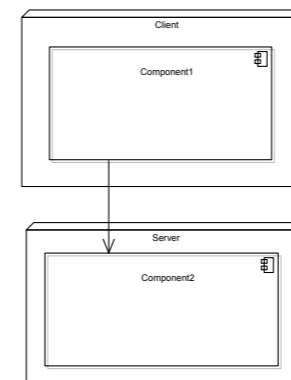
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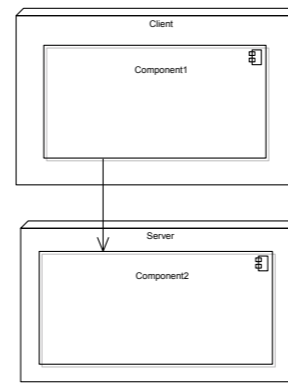
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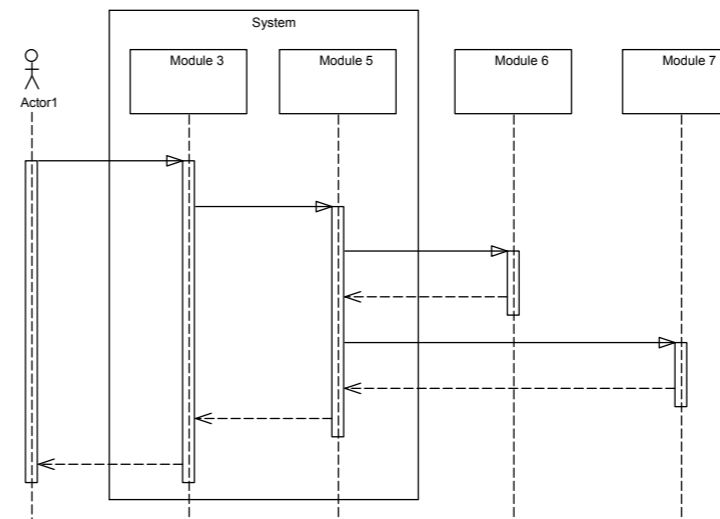
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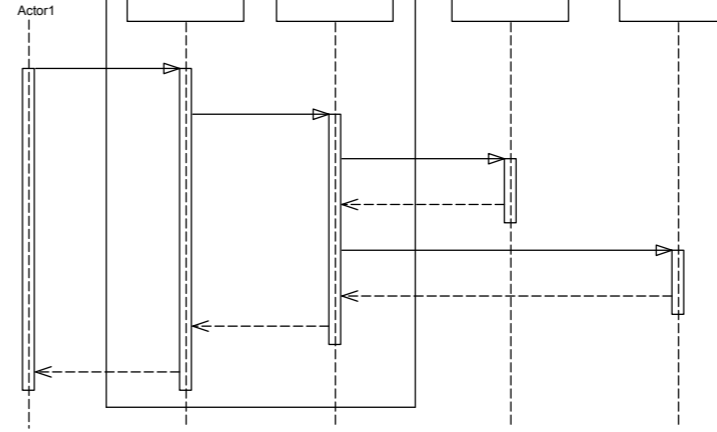


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## 7 Alternative decomposition

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## 7 Alternative decomposition

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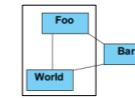
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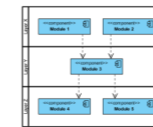
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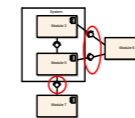
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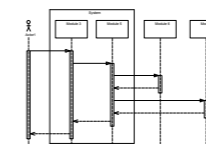
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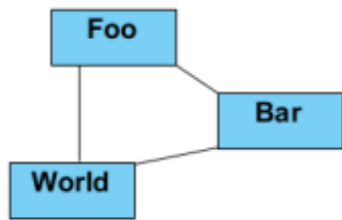
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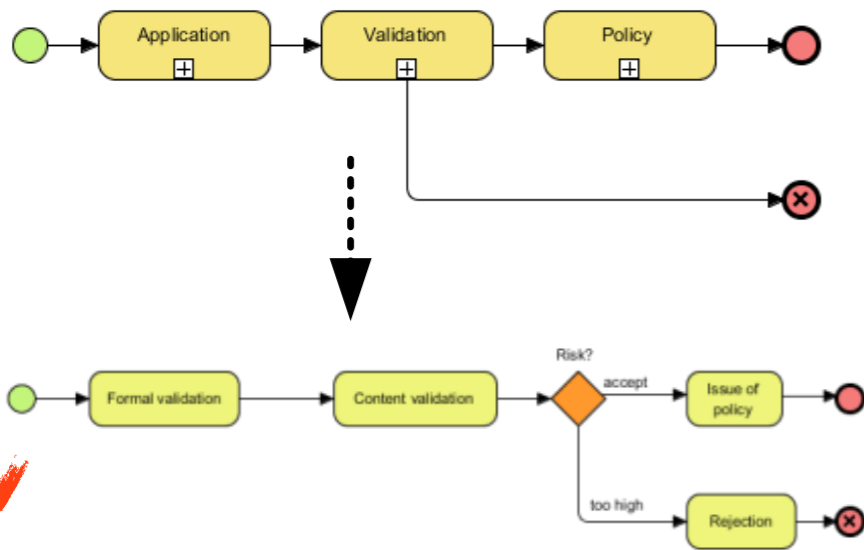
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## 2.1 Domain model



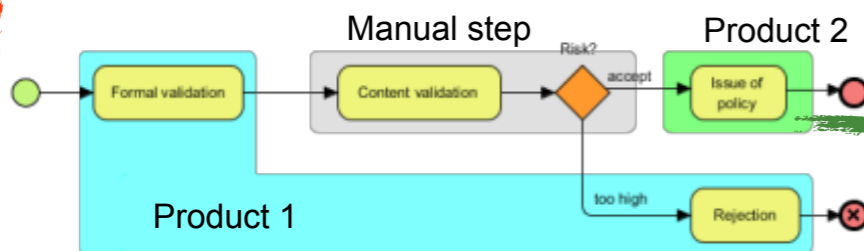
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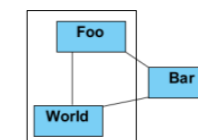
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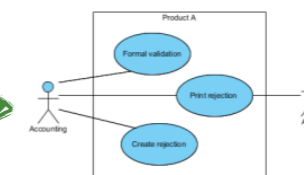
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Product 1

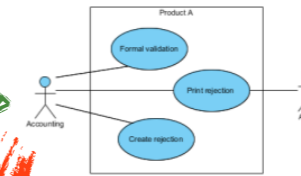


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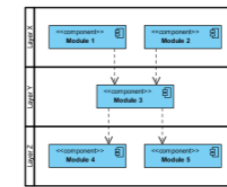
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### 4 Non-functional requirements

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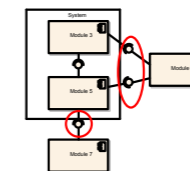
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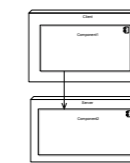
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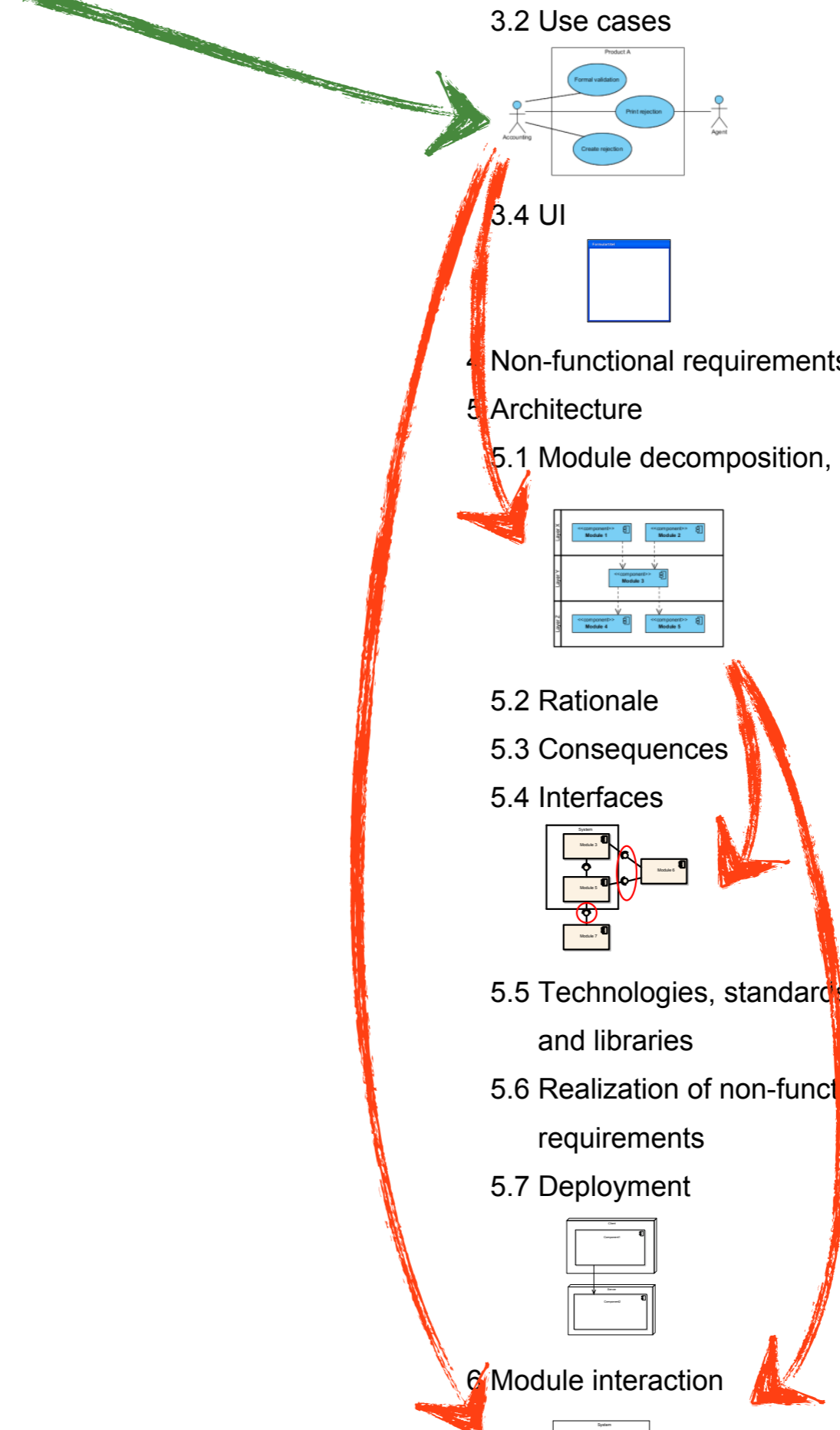
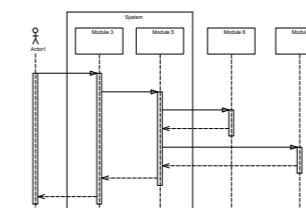
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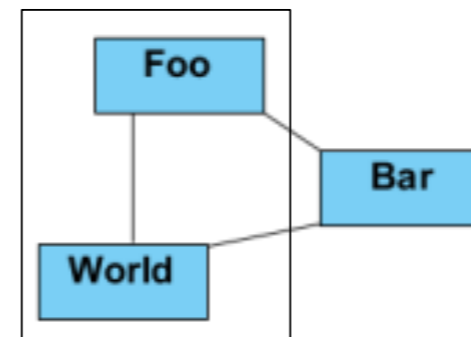
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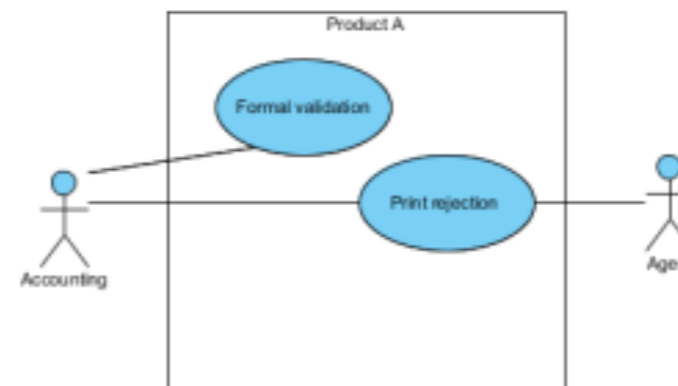
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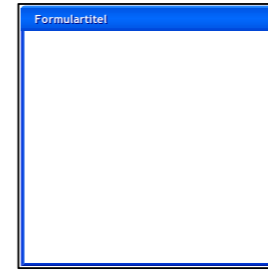
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3.3 UI

# Design

## 3.3 UI



4. Non-functional requirements

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6 Namespace interaction

7 Design Namespaces

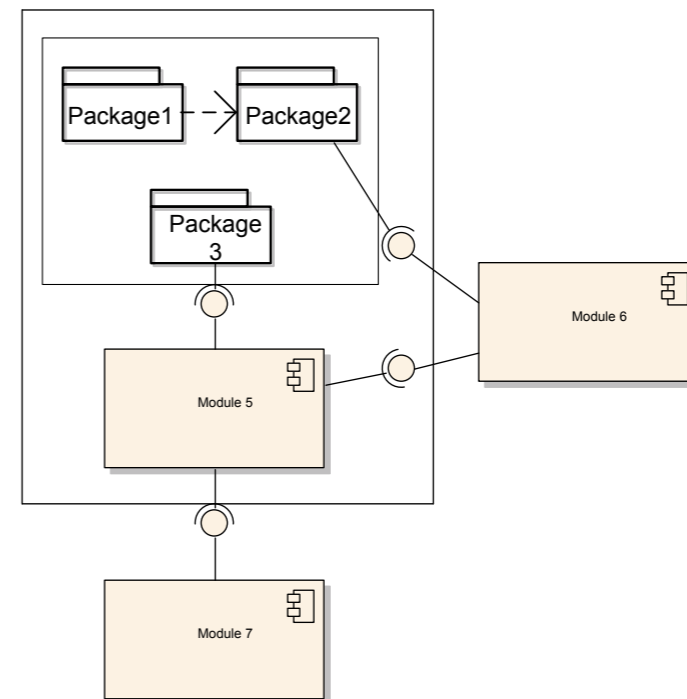
8 Alternative decomposition



# Design

4. Non-functional requirements
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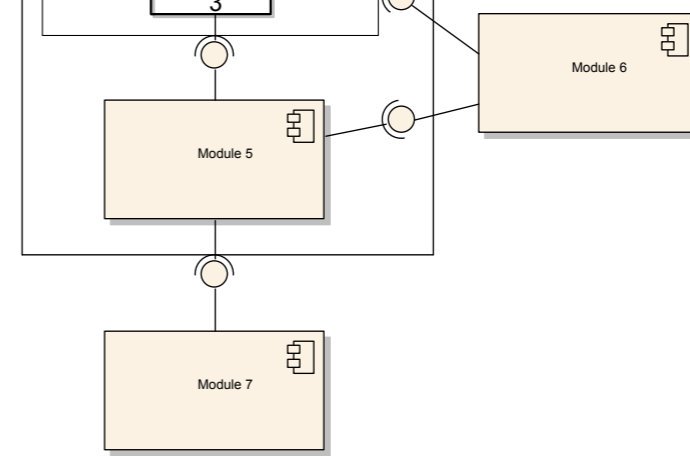
## 5.2 Rationale

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## 5.5 Realization of non-functional

# Design



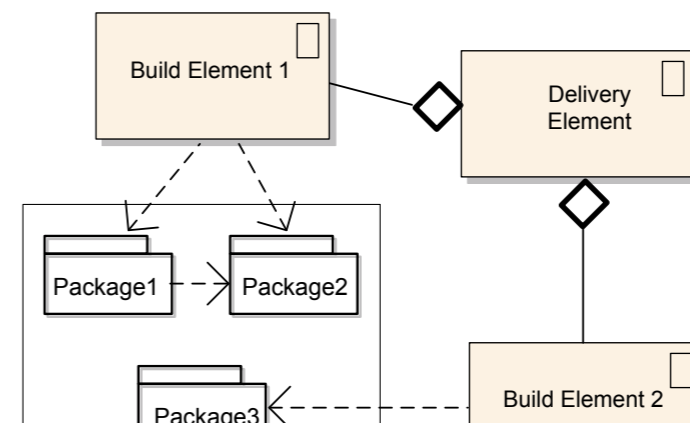
## 5.2 Rationale

## 5.3 Consequences

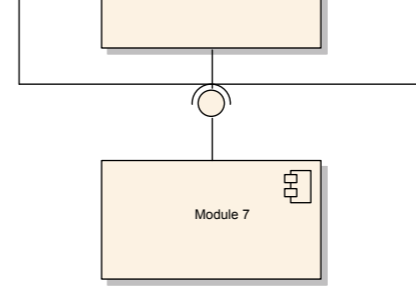
## 5.4 Interfaces

## 5.5 Realization of non-functional requirements

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# Design



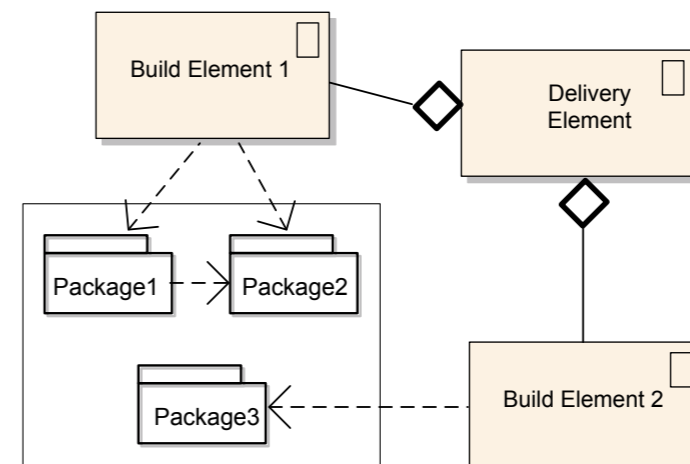
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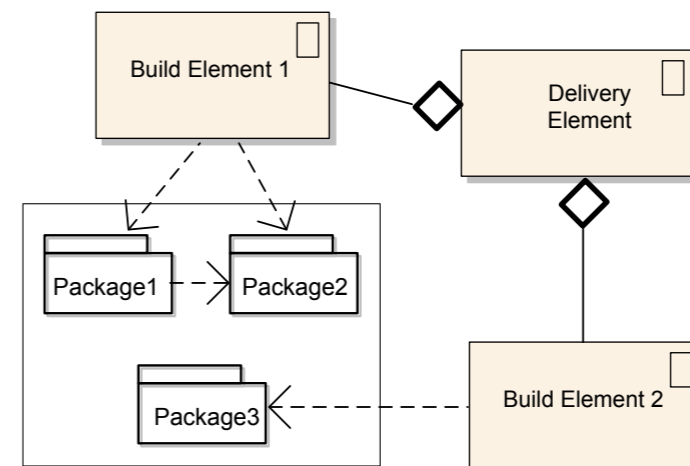
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6 Namespace interaction

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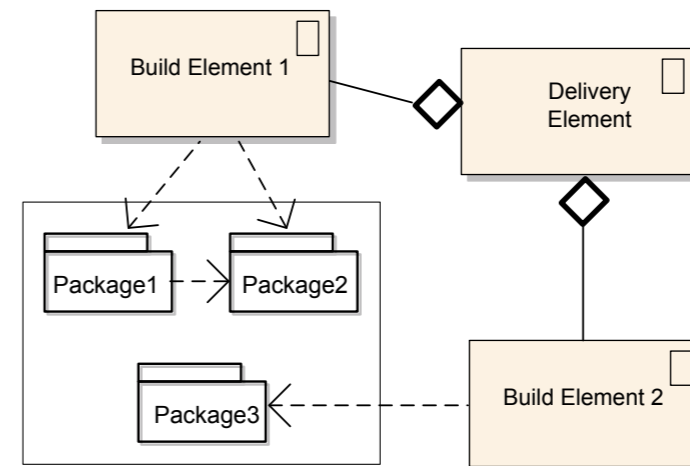
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6 Namespace interaction

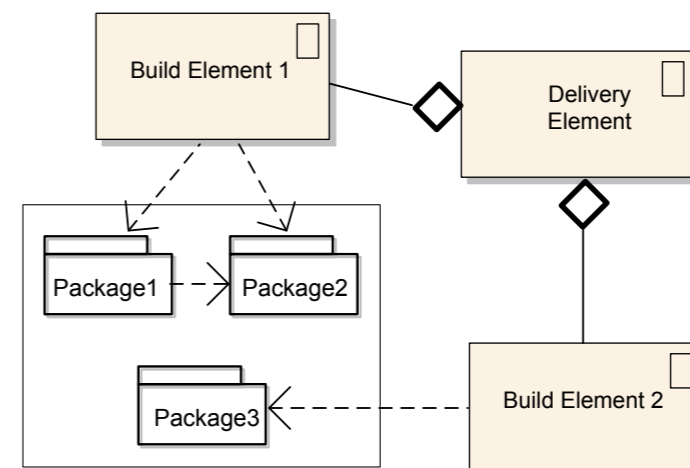
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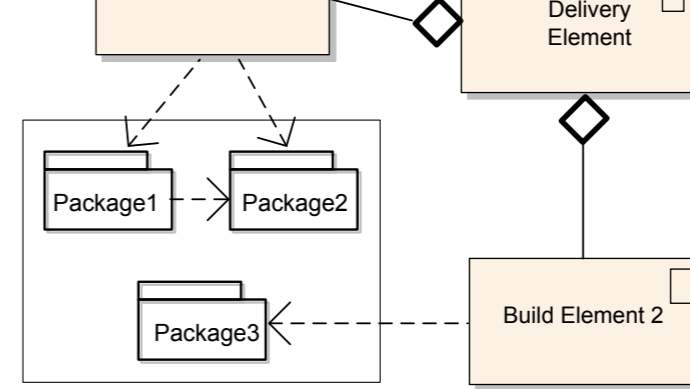


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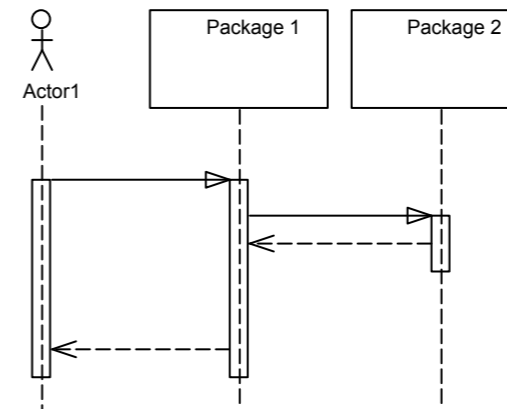
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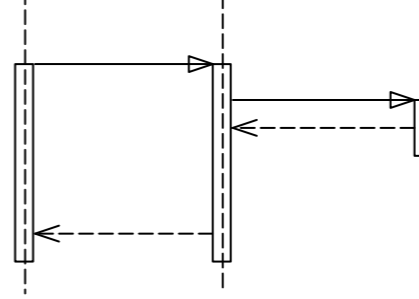
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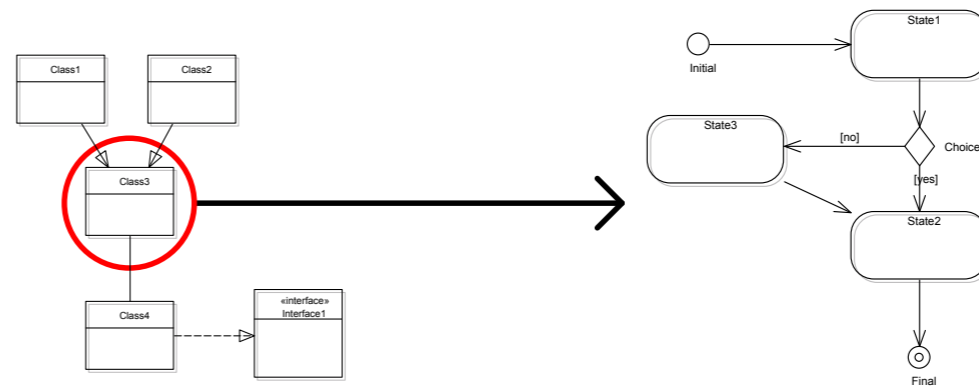
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## 7 Design Namespaces

### 7.1 Namespace <TBD>



## 8 Alternative decomposition



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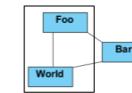
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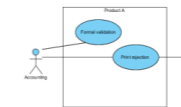
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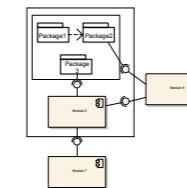
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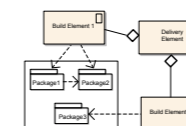
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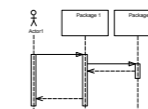
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6 Namespace interaction



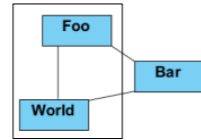
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7.1 Namespace <TBD>

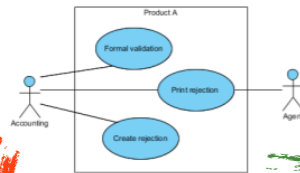


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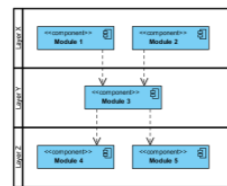
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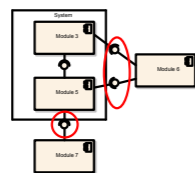
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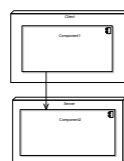
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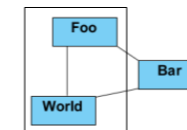
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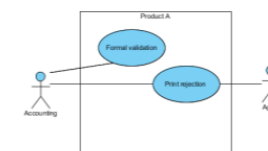
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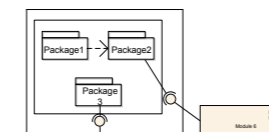
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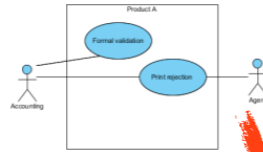
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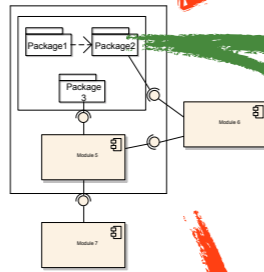
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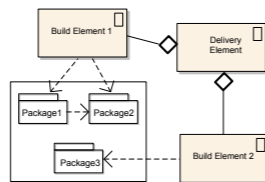
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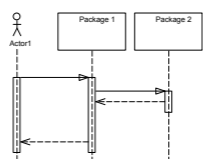
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## 6 Namespace interaction



## 7 Design Namespaces

### 7.1 Namespace <TBD>

```
package ch.abraxas.gpi.products.testingTools;
import java.lang.reflect.Constructor;
import java.lang.reflect.InvocationTargetException;
import java.lang.reflect.Method;
import java.util.HashMap;
import java.util.Map;

/**
 * Copyright 2012 by Abraxas Informatik AG.
 * Waltersbachstrasse 5, CH-8006 Zürich
 * All rights reserved.
 */
```

```
package ch.abraxas.gpi.products.testingTools;
import java.lang.reflect.Constructor;
import java.lang.reflect.InvocationTargetException;
import java.lang.reflect.Method;
import java.util.HashMap;
import java.util.Map;

/**
 * Copyright 2012 by Abraxas Informatik AG.
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 * All rights reserved.
 * Created: 27.04.2012
 */

/**
 * The Class JavaBeanTester.
 */
public class JavaBeanTester {

    /**
     * clazz under test.
     */
    private final Class<?> out;

    /**
     * map of default values of out.
     */
    private final Map<String, Object> defaultValues = new HashMap<String, Object>();

    /**
     * map of test values of out.
     */
    private final Map<String, Object[]> testValues = new HashMap<String, Object[]>();

    /**
     * Constructor.
     * @param pClazz the clazz
     */
    public JavaBeanTester(Class<?> pClazz) {
        out = pClazz;
    }

    public void testDefaultValues() {
        Object out = newCUInstance(new Object[] {});
        assertEquals("test defaults", out, defaultValues);
    }

    /**
     * Assert equals.
     * @param pOut the out
     * @param pValues the values
     */
    private void assertEquals(String pContext, Object pOut, Map<String, Object> pValues) {
        for (String propertyName : pValues.keySet()) {
            assertEquals(pContext, pOut, propertyName, pValues.get(propertyName));
        }
    }

    /**
     * Assert equals.
     * @param pContext the context
     * @param pOut the out
     * @param pPropertyName the property name
     * @param pValue the value
     */
    private void assertEquals(String pContext, Object pOut, String pPropertyName, Object pValue) {
        Method getter = getGetterMethod(pPropertyName);
        Object value;
        try {
            value = getter.invoke(pOut, null);
        } catch (IllegalArgumentException | IllegalAccessException |
                InvocationTargetException | InstantiationException |
                IllegalAccessException | RuntimeException) {
            throw new RuntimeException("Illegal Access Exception");
        }
        assertEquals(pContext, value, pOut.toString() + " " + pPropertyName, pValue, value);
    }

    /**
     * New out instance.
     * @param pConstructorValues the constructor values
     * @return the object
     */
    private Object newCUInstance(Object[] pConstructorValues) {
        try {
            Constructor<?> constructor = getConstructor(pConstructorValues);
            return constructor.newInstance(pConstructorValues);
        } catch (InstantiationException | IllegalAccessException |
                InvocationTargetException | RuntimeException) {
            throw new RuntimeException("Illegal Access Exception");
        }
    }
}
```

```
defaultValues = new HashMap<String, Object>();
testValues = new HashMap<String, Object[]>();

class {
    // Object[] ();
    defaultValues;

    print, Object pOut, Map<String, Object> pValues) {
        as.keySet()) {
            propertyName, pValues.get(propertyName));
        }
    }

    private name

    print, Object pOut, String pPropertyName, Object pValue) {
        (pPropertyName);
    }

    } IllegalArgumentException {
        IllegalArgumentExcep
        IllegalAccessExceptio
        IllegalAccessExceptio
        InvocationTargetExcep
        InvocationTargetExcep
    }
    print + " " + pOut.toString() + " " + pPropertyName, pValue, value);

    constructor values

    ctor[] pConstructorValues) {
        getConstructor(pConstructorValues);
        (pConstructorValues);
        instantiationExceptio
        IllegalAccessExceptio
        IllegalAccessExceptio
        IllegalArgumentExcep
        IllegalArgumentExcep
        IllegalArgumentExcep
        InvocationTargetExcep
        InvocationTargetExcep
    }
}
```

**IT Process landscape**

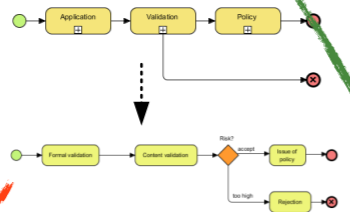
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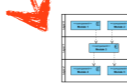
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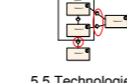
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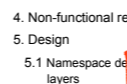


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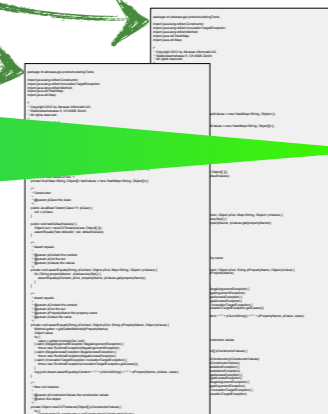
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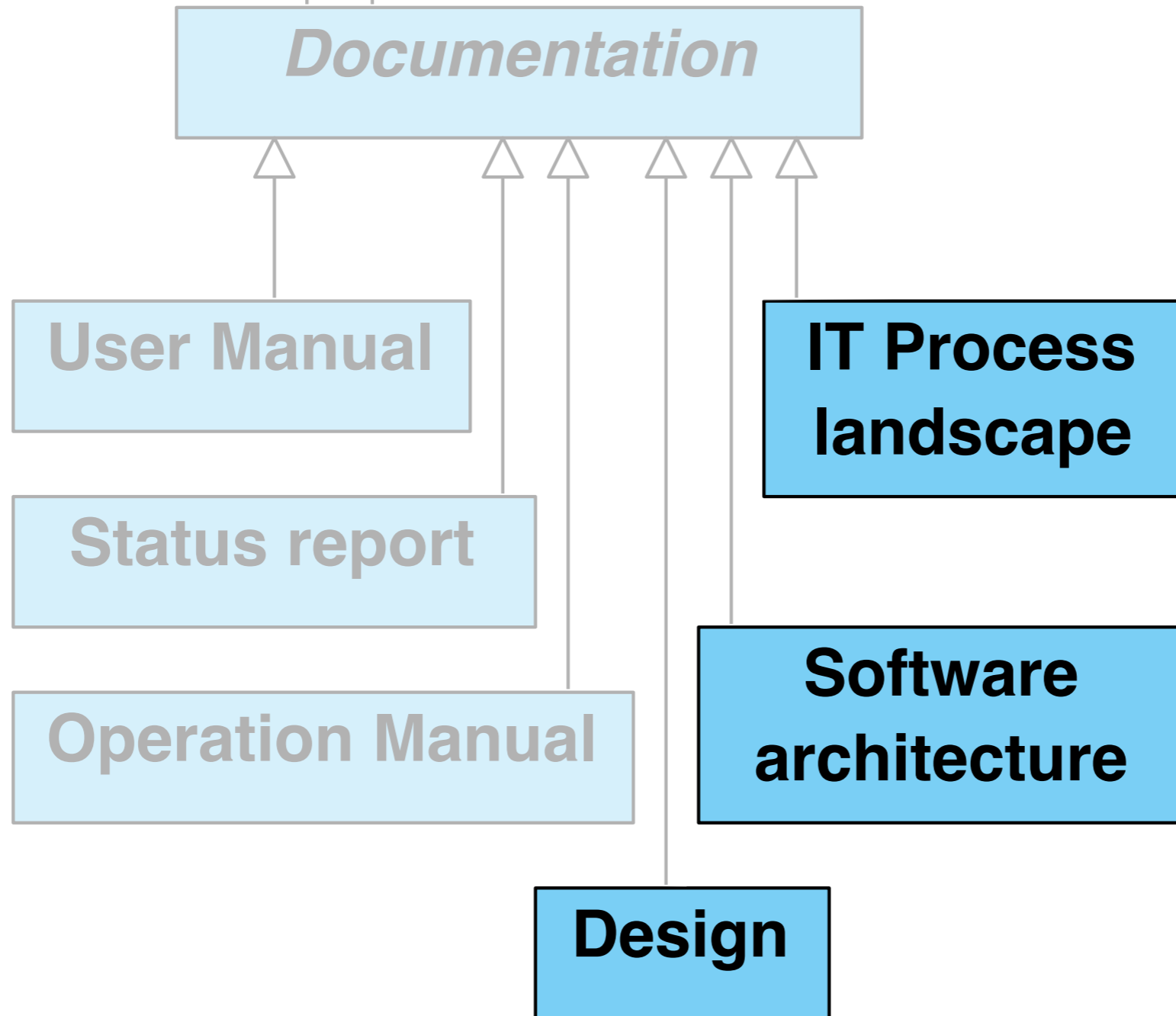
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# Abstractness















▲ provides



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documentClass='Test-specification' and  
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select from documents where  
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<b>Document class : Design (2)</b>							
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 Released
   
 Review

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# Documentation plan










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# Documentation plan

Name	Reference	Class	Status	Version	Disciplin	Product/ Module
SWA product Y	[SWA_Y]	SWA	Released	3.4	AR	Product Y
Design module X	[Design_X]	Design	Review	0.5	Design	Module X
Design module Z	[Design_Z]	Design	Released	1.0	Design	Module Z
Design module Q	[Design_A]	Design	Planned	N/A	Design	Module A
Testing module Z	[Test_Z]	Test-spec	Planned	N/A	Test	Module Z
Testing product Y	[Test_Y]	Test-spec	Planned	N/A	Test	Product Y

Typ	Titel	Version	Status	Iteration	Discipline	Document class	Product/Module
	Cookbook for module X	0.6	Draft	(None)	Implementation	Cookbook	Module X
	Cookbook for module Z	0.6	Draft	(None)	Implementation	Cookbook	Module Z
	Design module Q	0.3	Planed	(None)	Design	Design	Module Q
	Design module X	0.5	Review	(None)	Design	Design	Module X
	Design module Z	1.0	Released	(None)	Design	Design	Module Z
	Release notes module X C17	0.6	Draft	(None)	Implementation	Release notes	Module X
	Release notes module Y C17	0.6	Draft	(None)	Implementation	Release notes	Product Y
	Requirements product Y use cases	1.0	Released	(None)	Implementation	Requirements	Product Y
	Software architecture product Y	3.4	Released	(None)	Architecture	Software architecture	Product Y
	Test specification module X	1.0	Released	(None)	Test	Test-specification	Module X
	Test specification module Z	0.7	Planed	(None)	Test	Test-specification	Module Z
	Test specification product Y	0.7	Planed	(None)	Test	Test-specification	Product Y
	User manual product Y	0.5	Draft	(None)	Implementation	User manual	Product Y



Same level of abstraction

Low coupling

Interface segregation principle

# Design principles

**Open-closed principle**

Separation of concerns

High cohesion

**IT Process landscape**

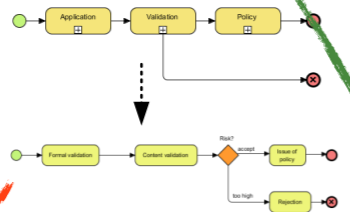
- Document history
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- 1 Introduction
  - 1.1 Abstract
  - 1.2 Target audience

# Concreteness

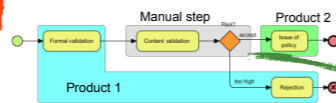
- 1.4 References
- 2 Functional requirements
  - 2.1 Domain model



### 2.2 Process



- 3 Non-functional requirements
- 4 Product decomposition
  - 4.1 Products



- 4.2 Rationale
- 4.3 Consequences

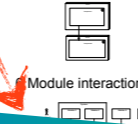
### 5 Alternative decomposition

## Software architecture

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  - 1.3 Prerequisites
  - 1.4 References
- 2 Context
- 3 Functional requirements
  - 3.1 Analysis model

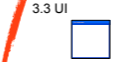


- 4 Non-functional requirements
- 5 Architecture
  - 5.1 Module decomposition, layers
  - 5.2 Rationale
  - 5.3 Consequences
  - 5.4 Interfaces
  - 5.5 Technologies, standards and libraries
  - 5.6 Realization of non-functional requirements
  - 5.7 Deployment

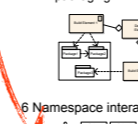


## Design

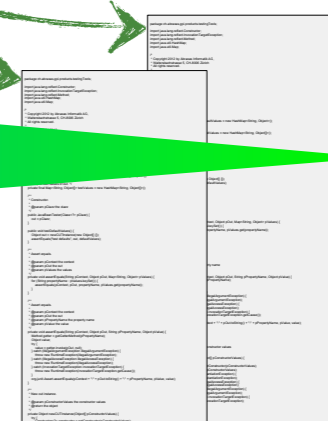
- Document history
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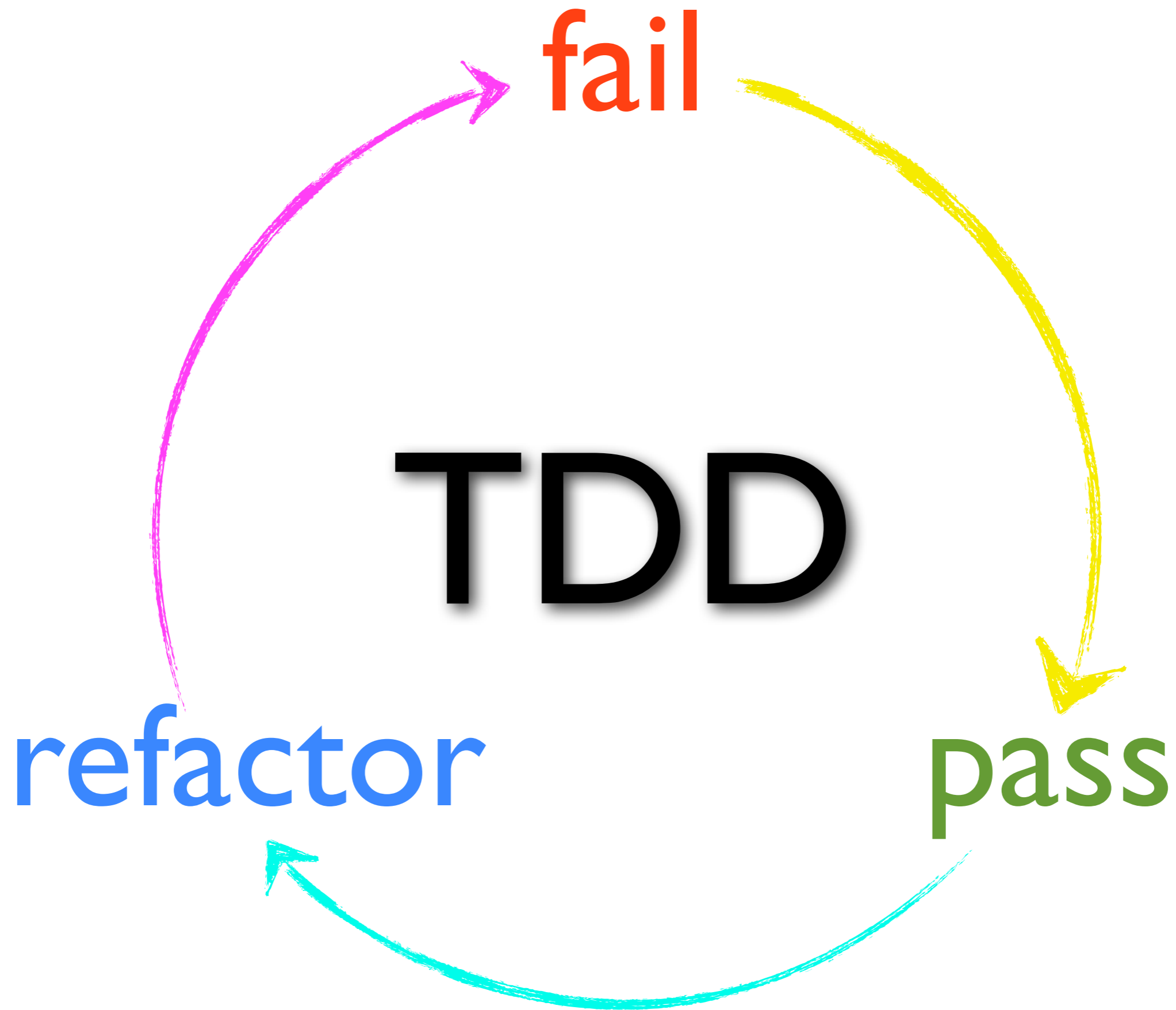
- 4 Non-functional requirements
- 5 Design
  - 5.1 Namespace decomposition, layers
  - 5.2 Rationale



# Abstractness







Adaption

Value oriented

Practical

Customer oriented

Simple

Agile

Iterativ

Incremental

Excellency