

MINISTRY OF EDUCATION REPUBLIC OF MOLDOVA
TECHNICAL UNIVERSITY OF MOLDOVA

REPORT

Laboratory work no. 2

On IPP

“Structural patterns”

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Structural Patterns

- Adapter
- Bridge
- Facade
- Flyweight
- Proxy

Adapter

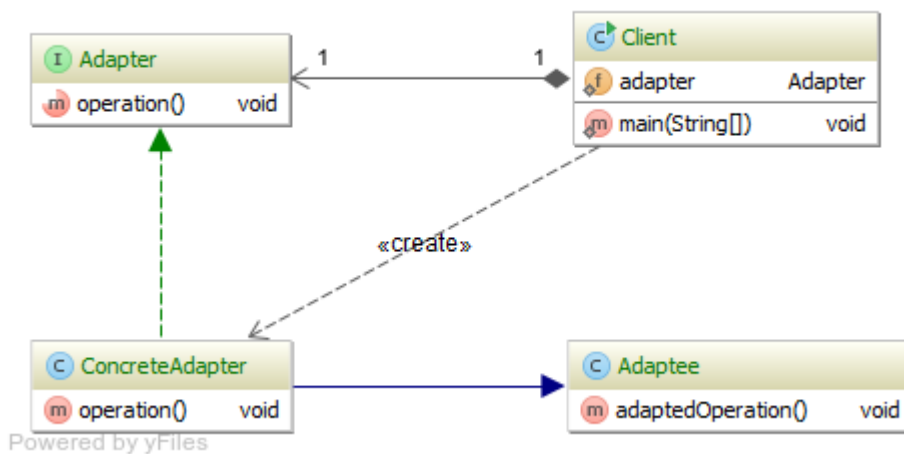
- Story

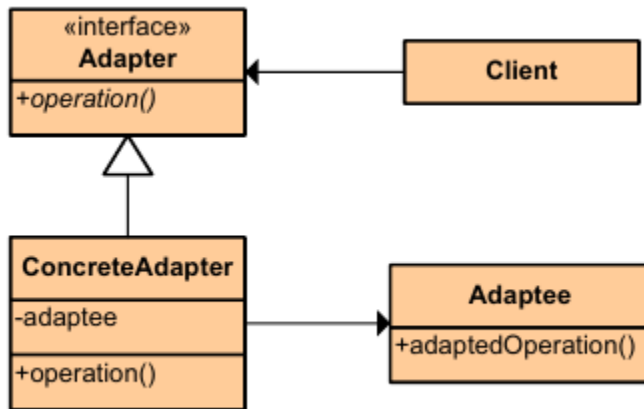
Allows that interface of an existing class to be used from another interface.

Adapters are often used in daily life, for example electrical adapter is a device that converts attributes of one electrical device or system to those of an otherwise incompatible device or system. Some modify power or signal attributes, while others merely adapt the physical form of one electrical connector to another.

- Implementation

UML:





Source Code:

Clone repo:

```
$ git clone https://github.com/cristeav49/IPP.git .
```

Move to adapter folder:

```
$ cd /src/main/java/com/github/cristea/basepatterns/structural/adapter
```

Bridge

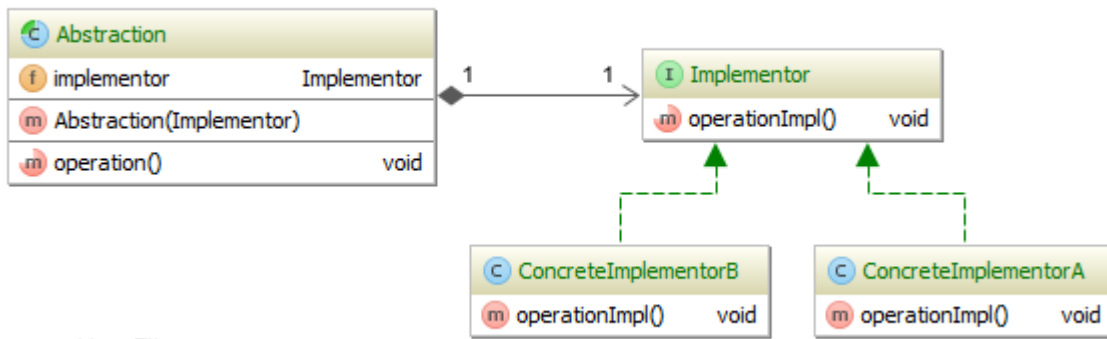
- Story

Decouple an abstraction from its implementation so that the two can vary independently.

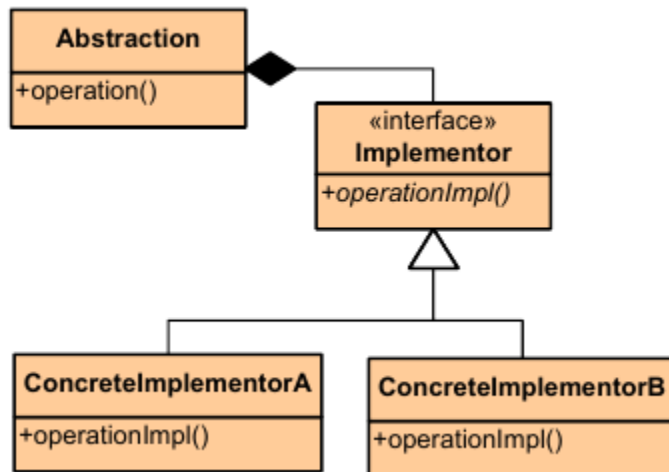
Steering wheel is an example of the Bridge. The purpose of a steering wheel is to transmit driver's input to the steered wheels in order to dynamically change direction of the vehicle. There are different implementations of the steering wheels used in cars, buses, tracks, tractors and formulas.

- Implementation

UML:



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Source Code:

Clone repo:

```
$ git clone https://github.com/cristeav49/IPP.git .
```

Move to bridge folder:

```
$ cd /src/main/java/com/github/cristea/basepatterns/structural/bridge
```

Facade

- Story

Facade hides the complexity of the system and provides an interface to the client from where the client can access the system.

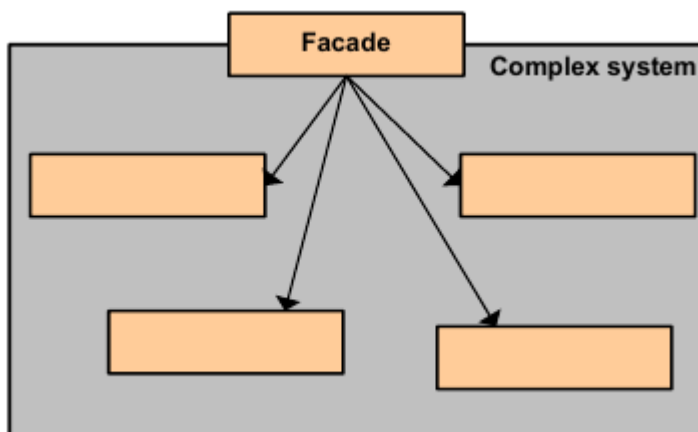
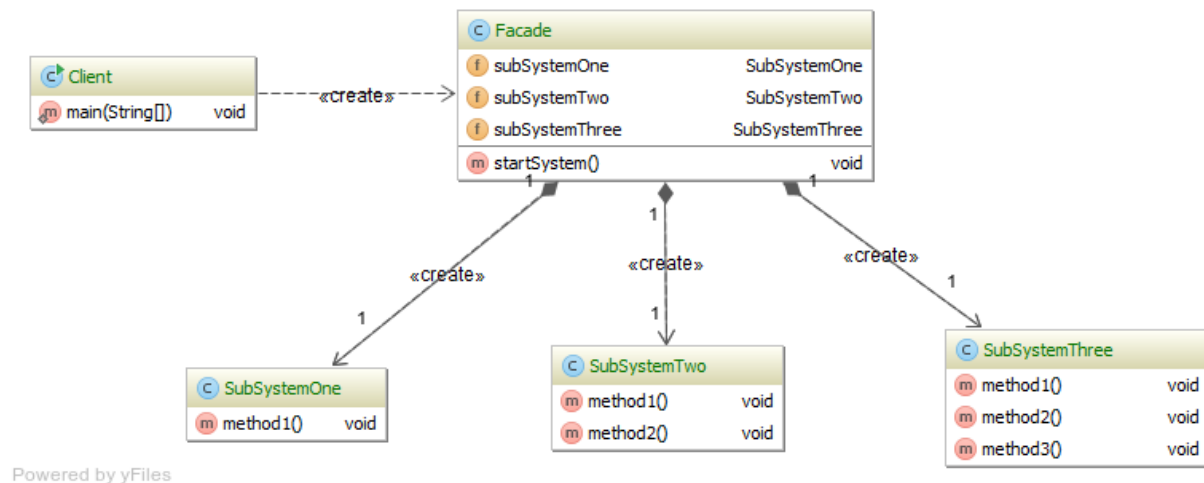
You want to organize a marriage reception with dinner for 100 people. So in order to organize such event, you need to find and decorate a hall where the event will happen, then you need to find a music, organize flowers, send invitations and so on and so on.

If this is too much for you then you can find an event manager which will organize the event for you.

This is a typical example for Facade.

- Implementation

UML:



Source Code:

Clone repo:

```
$ git clone https://github.com/cristeav49/IPP.git .
```

Move to facade folder:

```
$ cd /src/main/java/com/github/cristea/basepatterns/structural/facade
```

Flyweight

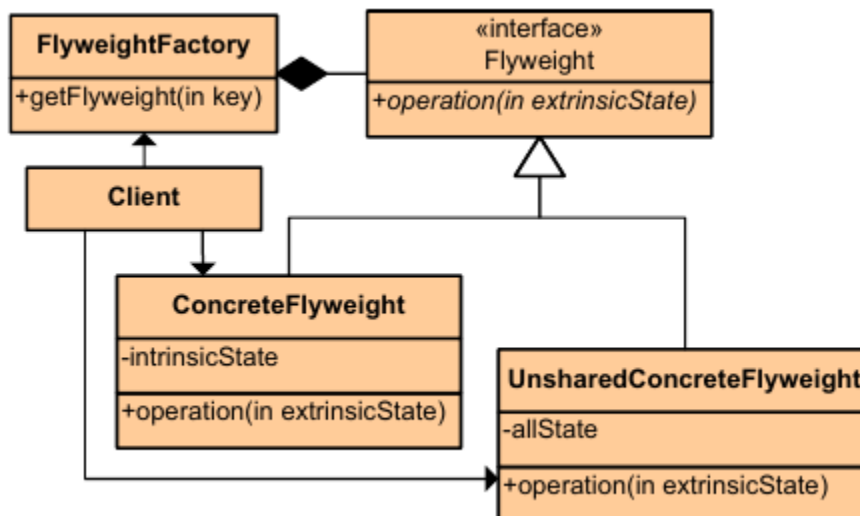
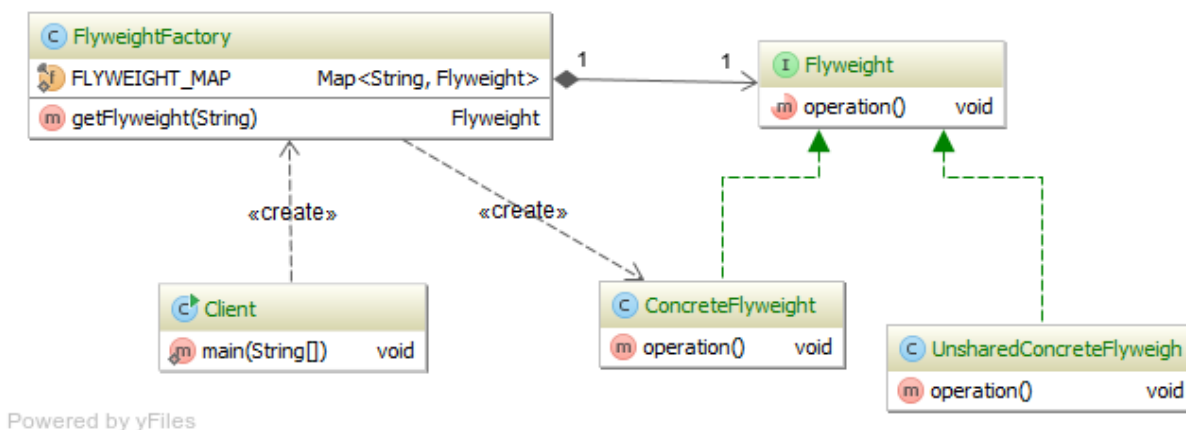
- Story

Remove duplicates.

Flyweight pattern is used to reduce memory by loading only the data necessary to perform action. Database normalization is flyweight. Normalisation, is the process of organizing the columns (attributes) and tables (relations) of a relational database to minimize data redundancy.

- Implementation

UML:



Source Code:

Clone repo:

```
$ git clone https://github.com/cristeav49/IPP.git .
```

Move to flyweight folder:

```
$ cd /src/main/java/com/github/cristea/basepatterns/structural/flyweight
```

Proxy

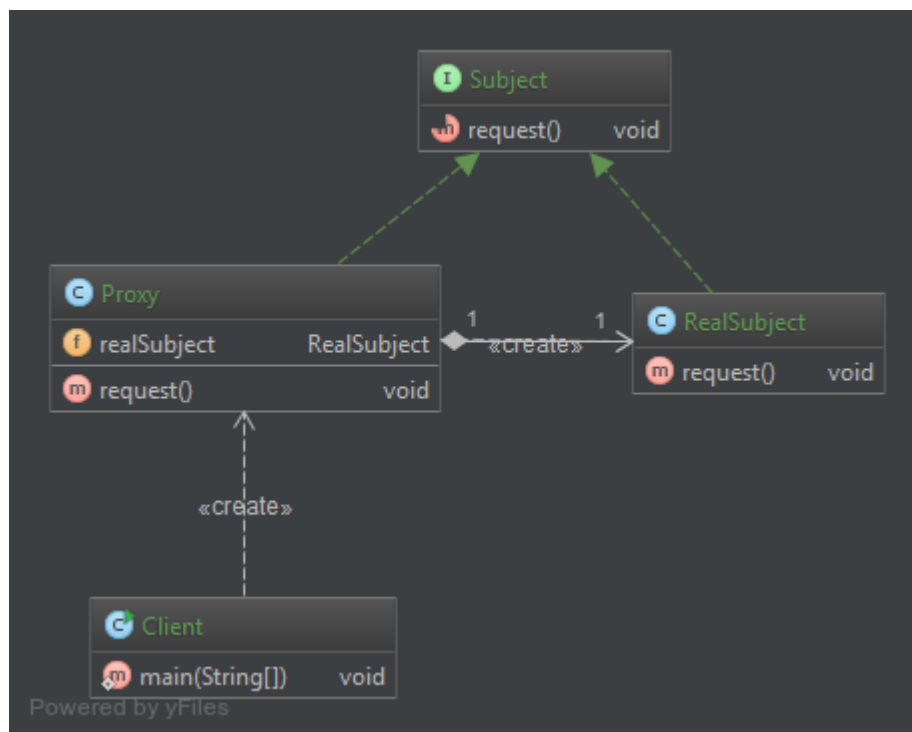
- Story

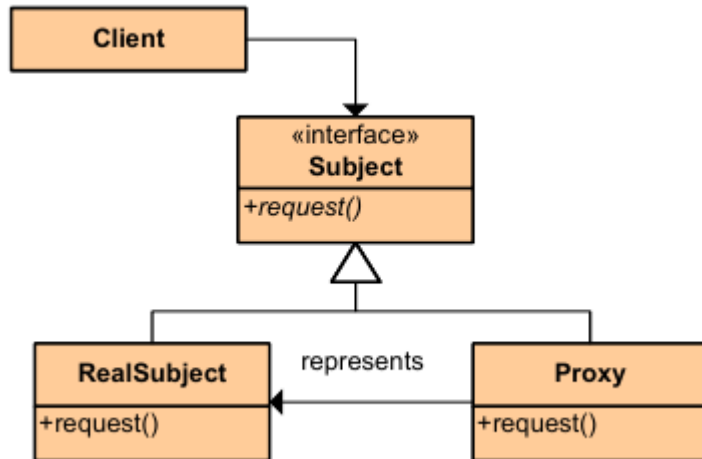
Provide a surrogate or placeholder for another object to control access to it.

Envoy Extraordinary is a Proxy. He is an accredited messenger, agent, or representative who is sent by one government to represent it in dealing with another government.

- Implementation

UML:





Source Code:

Clone repo:

```
$ git clone https://github.com/cristeav49/IPP.git .
```

Move to proxy folder:

```
$ cd /src/main/java/com/github/cristea/basepatterns/structural/proxy
```