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API4Future - A journey how to create a stable API

SPEAKER

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About more than 15 years he is working in different large Web Application projects all over the world. He is an independent consultant / trainer. To share his knowledge he gives talks on conferences, if he is not writing on a new article about software engineering. https://elmar-dott.com

+ Consultant + Writer + Speaker + Trainer +

AGENDA

- Samples for APIs
- Design Pattern
- Changes and Maintenance
- Documentation with API Guardian
- RESTful API & Swagger
- The API checklist

KNOWN APIS

XML
Extensible Markup Language
//multiple APIs

SAX – Simple API for XML
DOM – Document Object Model
Stax – Streaming API for XML

JDBC
Java Database Connectivity
//rudimentary API

MySQL
MariaDB
PostgreSQL
Oracle

PDF
Portable Document Format
//manufacturer-specific APIs

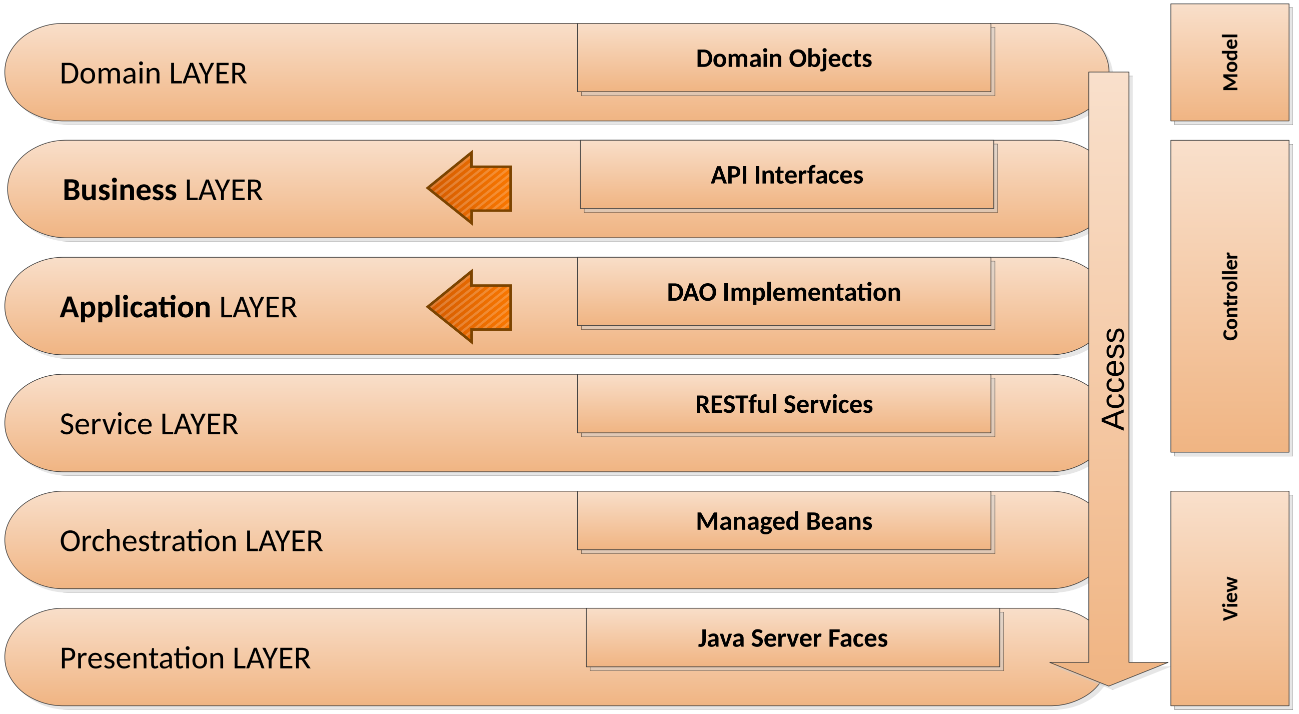
iText vs. OpenPDF

Adaptor: also known as Wrapper, coupels an interface to another when they not compatible to each other.

Facade: group multiple interfaces together, to a simplified one.

Proxy: also an generalization of a complex interface. Can understood as complement to the facade that combines several interfaces into a single one.

ARCHITECTURE



MAINTENANCE

```
// Java Standard API
List<String> collection = new ArrayList<>();

// User defined Project based API
IList<String> collection = new ListImpl<>();
```

Architecture & Structure

- my.pkg.**business**: Interfaces
- my.pkg.**application**: Implemetation
- my.pkg.application.**hepler**: Helper

Documentation with API Guardian

```
@API(status = STABLE, since = "1.0", consumers = "GenrericHbmDAO")
public interface GenericDAO<T, PK extends Serializable> extends Serializable { … }
```

```
<dependency>
    <groupId>org.apiguardian</groupId>
    <artifactId>apiguardian-api</artifactId>
    <version>1.1.2</version>
</dependency>
```

Maven™

Gradle

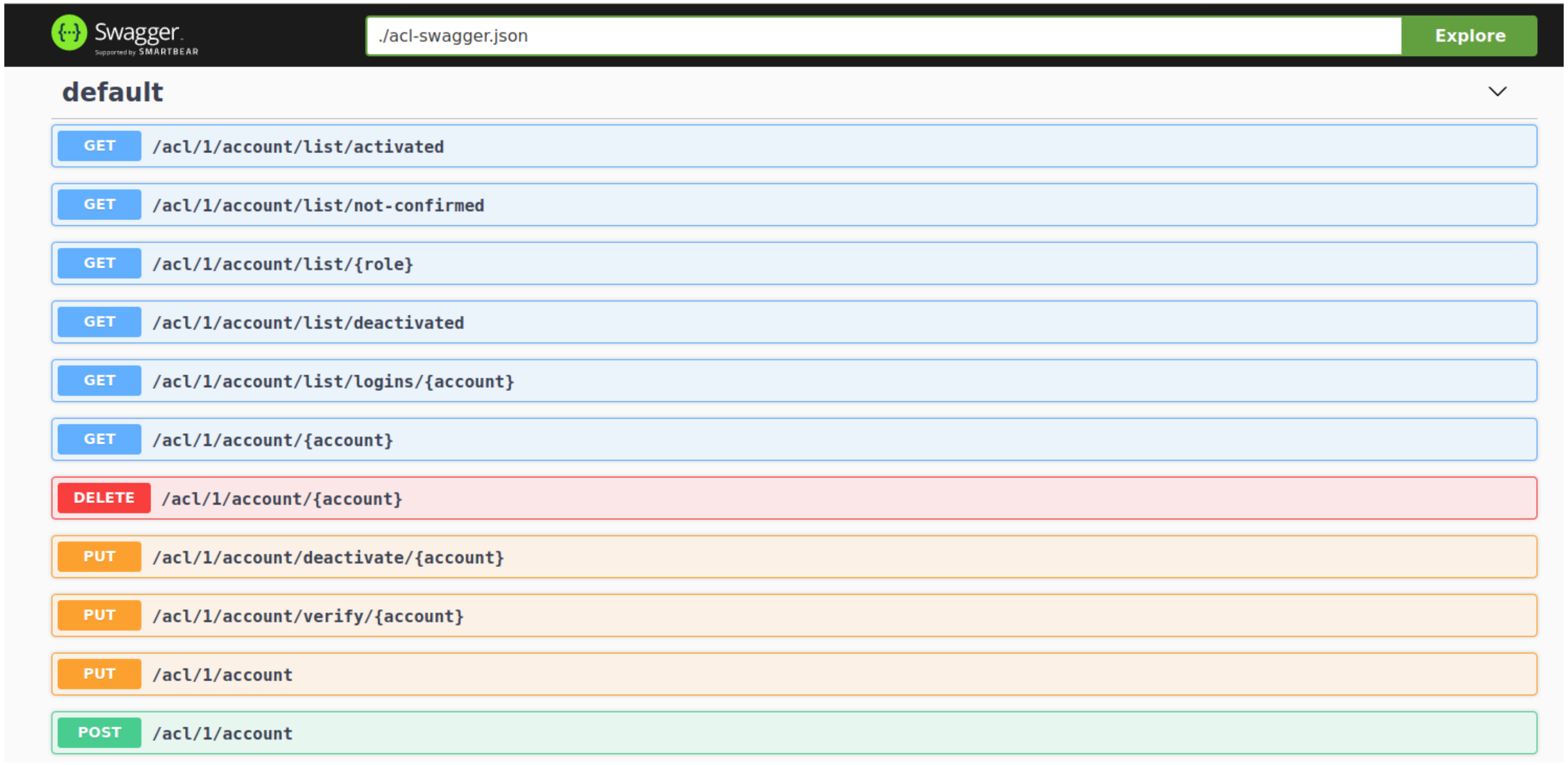
```
repositories {
    mavenCentral()
}
dependencies {
    compileOnlyApi("org.apiguardian:apiguardian-api:1.1.2")
}
```

https://github.com/apiguardian-team/apiguardian

```
RolesDO role = rolesDAO.find(roleName);
String json = rolesDAO.serializeAsJson(role);

if (role != null) {
    response = Response.status(Response.Status.OK)
           .type(MediaType.APPLICATION_JSON)
           .entity(json)
           .encoding("UTF-8")
           .build();
} else {
   response = Response
         .status(Response.Status.NOT_FOUND)
         .build();
}
```

SWAGGER



./acl-swagger.json

default

```
GET     /acl/1/account/list/activated
GET     /acl/1/account/list/not-confirmed
GET     /acl/1/account/list/{role}
GET     /acl/1/account/list/deactivated
GET     /acl/1/account/list/logins/{account}
GET     /acl/1/account/{account}
DELETE  /acl/1/account/{account}
PUT     /acl/1/account/deactivate/{account}
PUT     /acl/1/account/verify/{account}
PUT     /acl/1/account
POST    /acl/1/account
```

CHECKLIST

- implement against interfaces
- KISS: Keep It Simple, Stupid.
- work with standardized structures they can reused
- name interfaces more general
- name implementation in the way they are specialized
- have a well and full documentation of your interfaces
- bundle API changes in a specialized major release
- take care of compatibility

CREDENTIALS

BUSSINESS ITC SOLUTIONS
Dipl. Inf. Marco Schulz
Expert for Enterprise Applications
CONSULTANT • TRAINER • SPEAKER • WRITER

```
-------------------------------------------------------------------
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