TDD - Flying

The Java Way

Introduction

- What i planned to do is not what i was able to do
- The plan was to implement the outside-in-kata in java
- Why?
  - I am currently not working in any C# projects
  - By doing this kata in java it will provide more value in a normal workday
  - By investing more time i will remenber better.
- Why ony a plan?
  - There was simply not enough time
  - Holyday preperations
  - Kids
  - Bouvet Summer party

What did i got time to do?

- Doing the string calculator to warm up.
- Creating the skeleton for the Acceptance tests and Unit tests
- Creating most of the classes.
- Getting the PrintHeaderWhenThereAreNoTransactions to work
  - Yey!
  - (Obvious implementation)

My java setup

Why am i showing this?

- To show
  - Code smells
  - Violation of Object Calistenics rules
  - Bad pratices
- Will focus on the Java backend part

Unit tests

- Hundreds of tests failing because they rely on LDAP user directory.
- Unit test fail beacuse they are missing the SMTP server.
- Integration test inside unit test project. Failing beause the database is missing (By the way: There is a integration test project also)
- And a lot of tests fail because they rely on precompiled code. (java classes are generated from xsd files)
- Tests expect exceptions to be throwed

```
@Test(expected = IllegalArgumentException.class)
public void getTemplateShouldThrowIllegalArgumentExceptionIfTemplateDoesNotExist() {
    provider.getTemplate(NON_EXISTING_TEMPLATE);
}
```

What is the test smells

- Tests should be independent and small
- Exception swallowing
- Unclear failing reason
- There extremely many excepetion thown upon compile

Code smell: Large class

- The LdapSource class
- 1285 lines of code
- 74 Methods
- How to fix?
- @SuppressWarnings({ "PMD.GodClass", "PMD.TooManyMethods", "PMD.ExcessiveClassLength" })
- And another 17 classes that needs @SuppressWarnings PMD.GodClass.

Code smell: Man in the middle and Message Chain

- A request coming for the controller needs
- Ccu.Resource.getCcus ->
- QueryHandler.getCcu ->
- RelationalApplicationServer.getCcu ->
- CcuDAO.GetCcu ->
- CcuRepository.findByExtCcuId
- Finally This is inherited from Spring.CrudRepository.
- This long tree makes the application difficult to debug and hard to change.
- A change will be a shotgun surgery as all these classes needs to be updated with the change.

Long parameter list

- These long parmeter list are hard to read.
- Compiler is not very happy:
- @SuppressWarnings({ "PMD.ExcessivePublicCount", "PMD.GodClass", "PMD.TooManyFields", "PMD.ExcessiveParameterList" })

```
public void copyMutableFieldsFrom(CcuDTO otherCcu) {
    this.setOrganization(otherCcu.getOrganization());
    this.setGln(otherCcu.getGln());
    this.setCcuClass(otherCcu.getCcuClass());
    this.setCcuSubclass(otherCcu.getCcuSubclass());
    this.setCcuOwnerId(otherCcu.getCcuOwnerId());
    this.setTareWeight(otherCcu.getTareWeight());
    this.setMaxGrossWeight(otherCcu.getMaxGrossWeight());
    this.setLength(otherCcu.getLength());
    this.setWidth(otherCcu.getWidth());
    this.setHeight(otherCcu.getHeight());
    this.setTankVolume(otherCcu.getTankVolume());
    this.setR002Compliance(otherCcu.getR002Compliance());
    this.setZ015(otherCcu.getZ015());
    this.setCertificateNumber(otherCcu.getCertificateNumber());
    this.setCertificateExpiryDate(otherCcu.getCertificateExpiryDate());
    this.setImoCertificateNumber(otherCcu.getImoCertificateNumber());
    this.setImoCertificateExpiryDate(otherCcu.getImoCertificateExpiryDate());
}
```

Duplicated Code

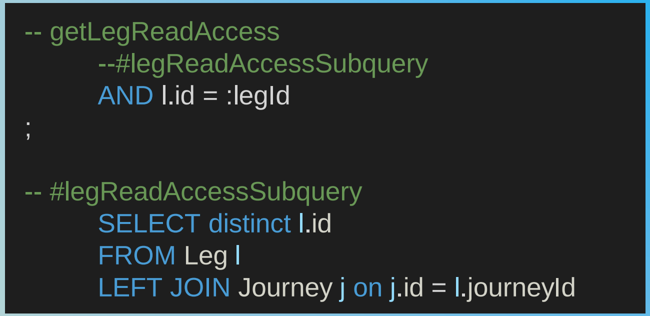
- The abstract server was copied to make a new webapi.
- The new webapi-server does much of the same as the abstract server
- A changed in the API or data structure need to be changed in both servers.
- Why?
- Time pressure from the customer.
- By the way. The abstract server is not very abstract.

Primitive Obsession

```
protected List<SearchResultDTO> ccuByPage(String key, Map<String, Object> params) {
   try {
      var q = query(key);
      return jdbcTemplate.query(q, params, (rs, rowNum) -> {
         SearchResultDTO sr = new SearchResultDTO();
         sr.setCcuId(rs.getInt("ccuid"));
         sr.setExtCcuId(rs.getString("extccuid"));
         sr.setCcuClass(rs.getString("ccuclass"));
         sr.setCcuSubclass(rs.getString("ccusubclass"));
         sr.setMaxGrossWeight(rs.getBigDecimal("maxgrossweight"));
         sr.setTareWeight(rs.getBigDecimal("tareweight"));
         sr.setLength(rs.getBigDecimal("length"));
         sr.setWidth(rs.getBigDecimal("width"));
         sr.setHeight(rs.getBigDecimal("height"));
         sr.setImoCertificateNumber(rs.getString("imocertificatenumber"));
         sr.setImoCertificateExpiryDate(DateUtil.asLocalDateTime(rs.getTimestamp("imocertificateexpirydate")));
         sr.setCertificateNumber(rs.getString("certificatenumber"));
         sr.setCertificateExpiryDate(DateUtil.asLocalDateTime(rs.getTimestamp("certificateexpirydate")));
         sr.setOwningOrgId(rs.getInt("owning_org_id"));
```

Primitive Obsession

- If any of these string has a typo it the application will blow up.
- They are uses for parameters in SQL files.
- The sql files has also primitive obsession.



```
-- getLegReadAccess
	--#legReadAccessSubquery
	AND l.id = :legId
;

-- #legReadAccessSubquery
	SELECT distinct l.id
	FROM Leg l
	LEFT JOIN Journey j on j.id = l.journeyId
```

Summary

- There is a lot of good stuff also
- Still hard to read and hard to change
- Why?
- The sheer size of it
- The class hiearchy is hard to navigate
- A lot of the code is not obvbious written
- How to fix it? It not a easy task.
- Code smells, Object calistenics rules and TPP will help.

Thank you!

- Any Questions?

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