

敏捷技术实践 之道

一七年四月二十一日至二十二日



CSD认证讲师

麦宇安



敏捷工程实践教练



中国平安
PINGAN



代码测试 编程设计

整洁
代码评审
味道

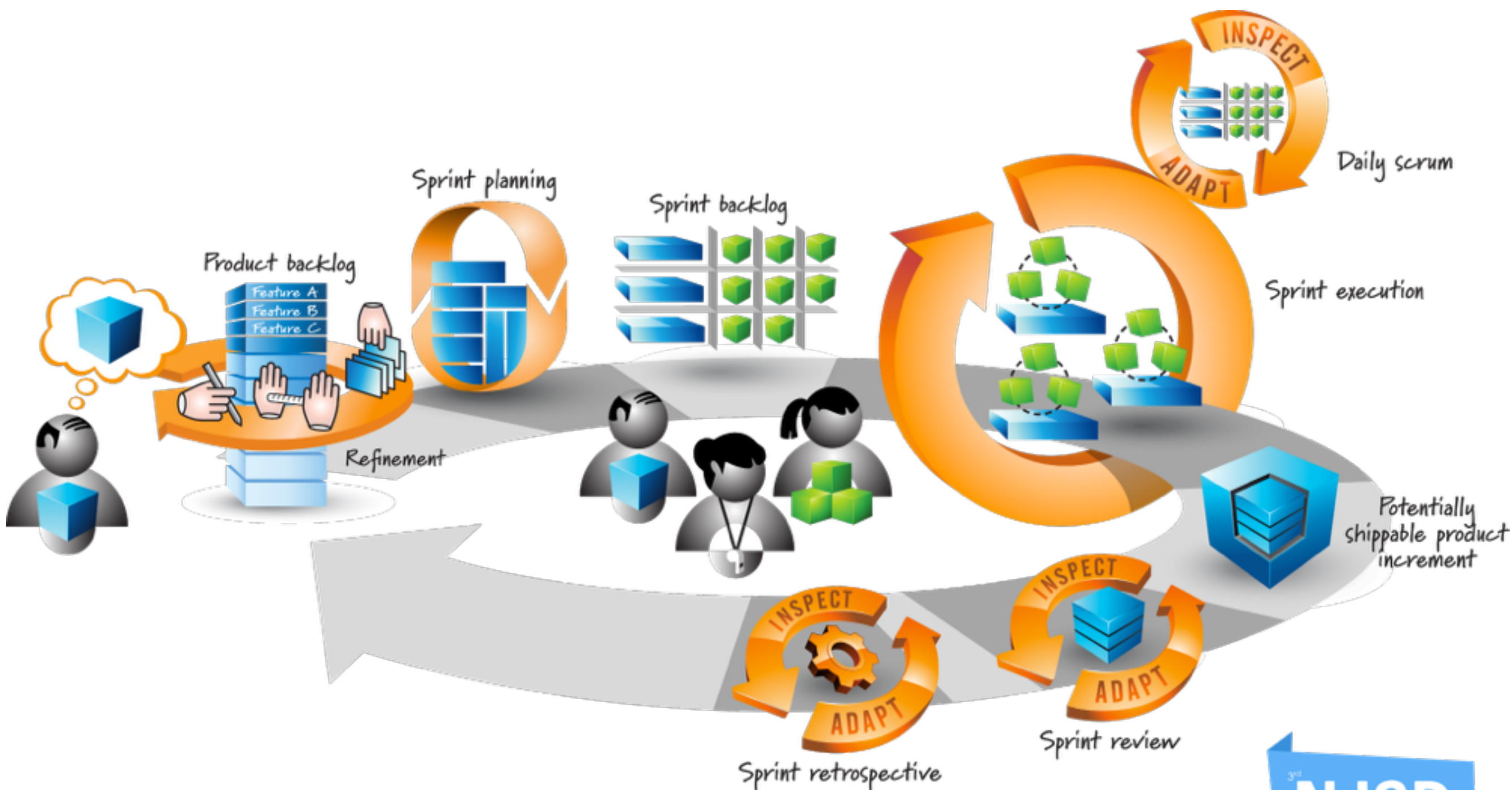
单元
测试先行
金字塔

结对
编程

简单
浮现式设计
模式

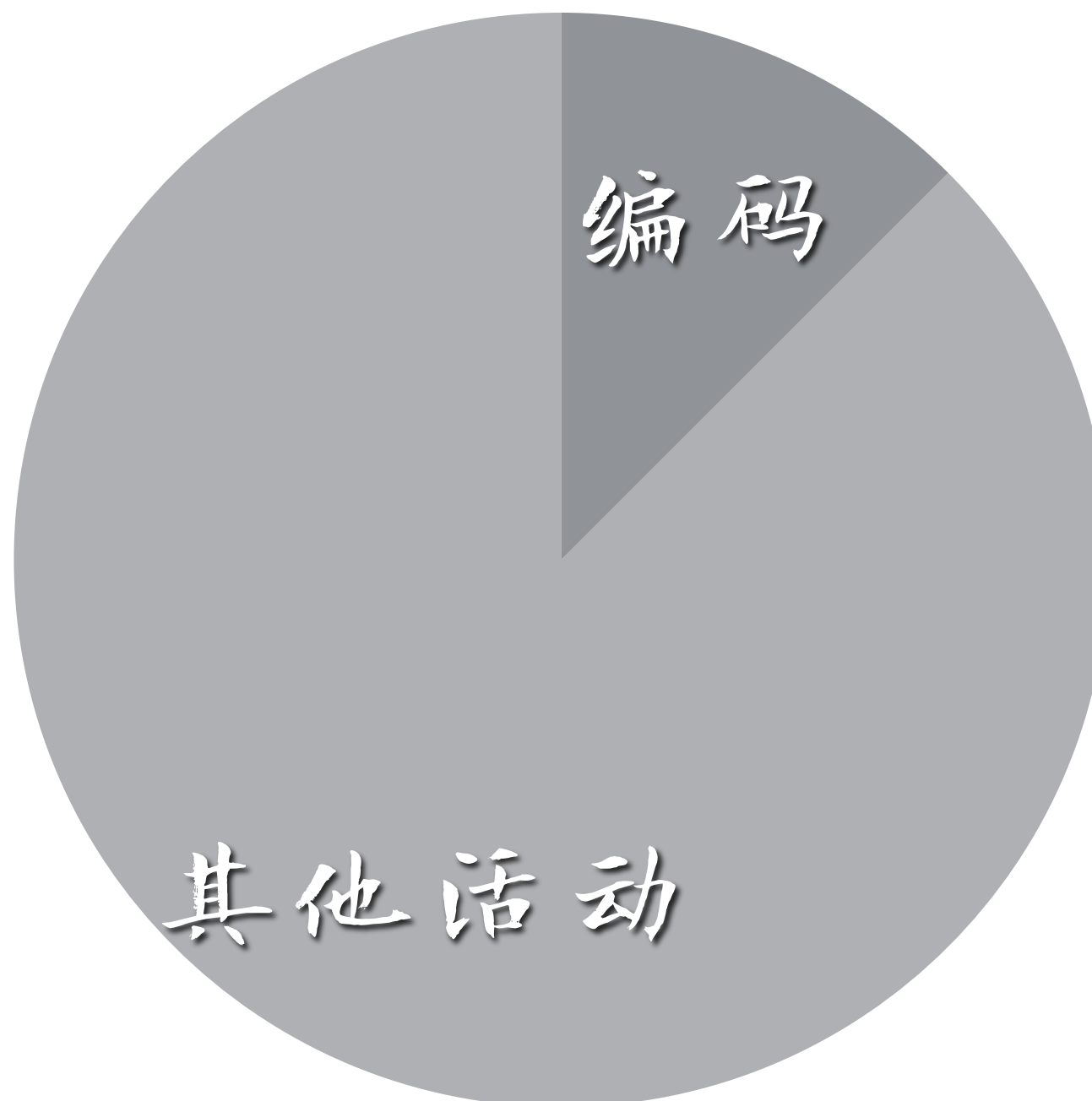
重构

天下武功，唯快不破

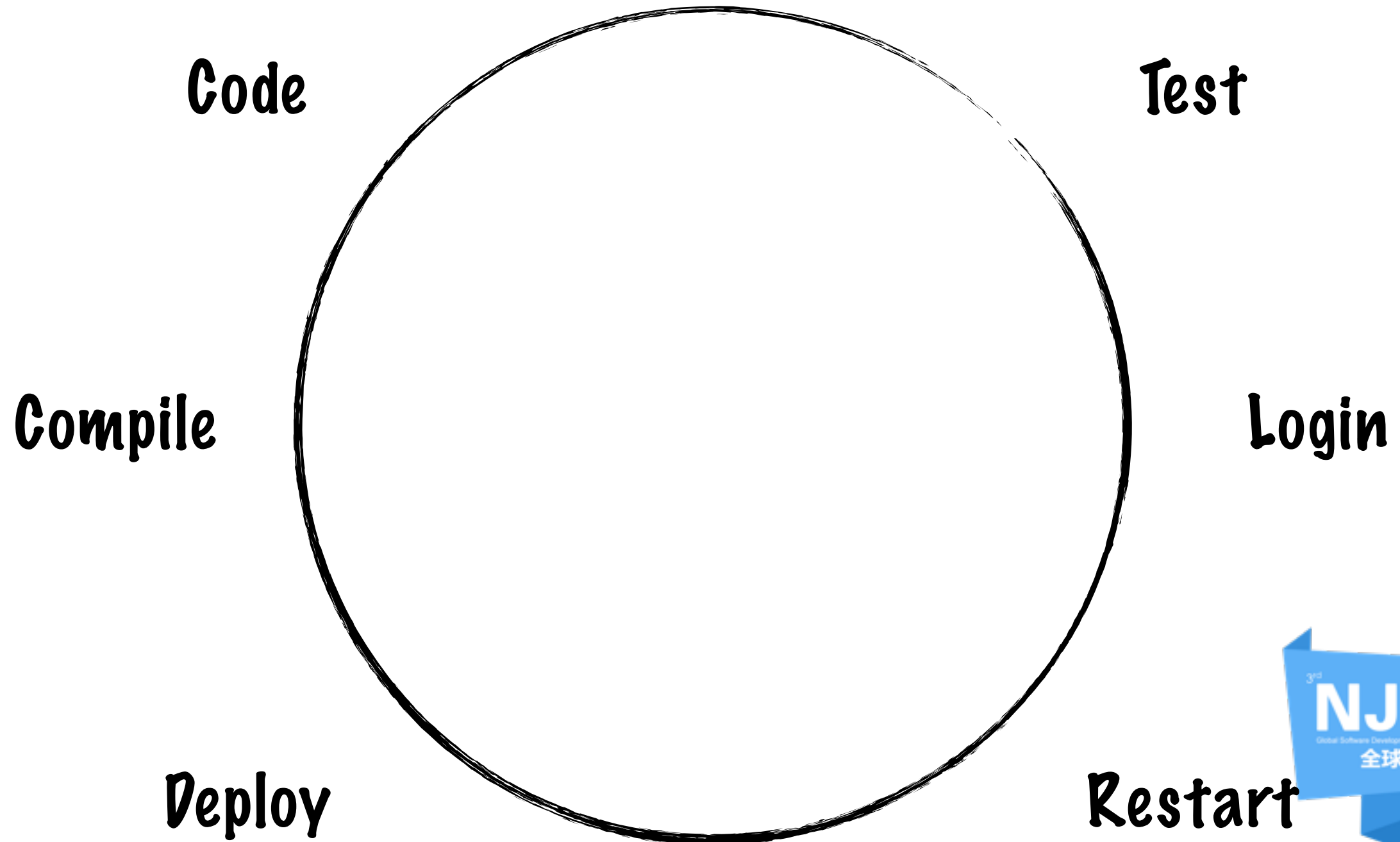


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? LOC / day



反馈周期



摩尔定律

- 开机、打开IDE、全量编译、运行

Quality Gate **Passed**

Bugs & Vulnerabilities

Leak Period: last 30 days
last analysis 8 个月前

375 ^E
Bugs

58 ^E
Vulnerabilities

0
New Bugs

0
New Vulnerabilities

Code Smells

139d ^A
Debt
started 6 年前

5.9k
Code Smells

3h
New Debt

33
New Code Smells

Coverage

 58.4%
Coverage

1.8k
Unit Tests

80.6%
Coverage on
28 New Lines to Cover

Duplications

 2.4%
Duplications

148
Duplicated Blocks

—
Duplications on New Code

SonarLint:
Current file
Project files
Log

Scope: All project files

- (51, 16) Move the contents of this initializer to a
 - (50, 40) Replace this syntax with a different type
- AnnotatedBuilder.java (3 issues)
 - (101, 69) Define and throw a dedicated exception
 - (103, 23) NullPointerException might be thrown
 - (105, 19) NullPointerException might be thrown
- AnnotatedSpecScanner.java (7 issues)
 - (34, 16) Refactor this method to reduce its Cognitive Complexity
 - (35, 33) Reduce this anonymous class number
 - (40, 25) Either log or rethrow this exception.
 - (41, 30) Define and throw a dedicated exception
 - (46, 20) Merge this if statement with the enclosing method
 - (59, 25) Either log or rethrow this exception.
 - (59, 25) Catch Exception instead of Throwable.
- AnnotationWriter.java (3 issues)
- AsmLineNumberStrategy.java (32 issues)

Analysis done 1 hour ago

Rule
Locations

Cognitive Complexity of methods should not be too high

Code smell
Critical
squid:S3776

Cognitive Complexity is a measure of how hard the control flow of a method is to understand. Methods with high Cognitive Complexity will be difficult to maintain.

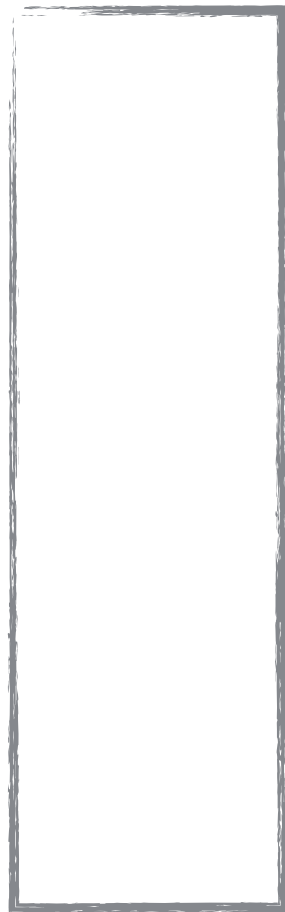
See

SonarLint
6: TODO
Terminal
Event Log

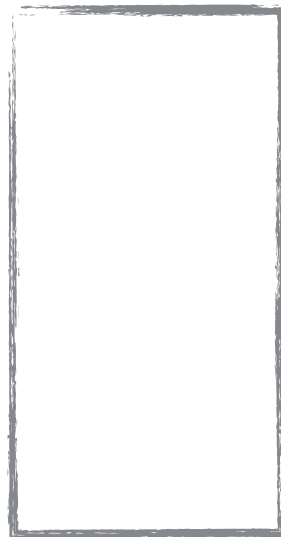
十万个回归测试案例

- C移植到Java
- DSL -> Java->Byte Code -> ClassLoader -> 执行

并发运行
40分钟



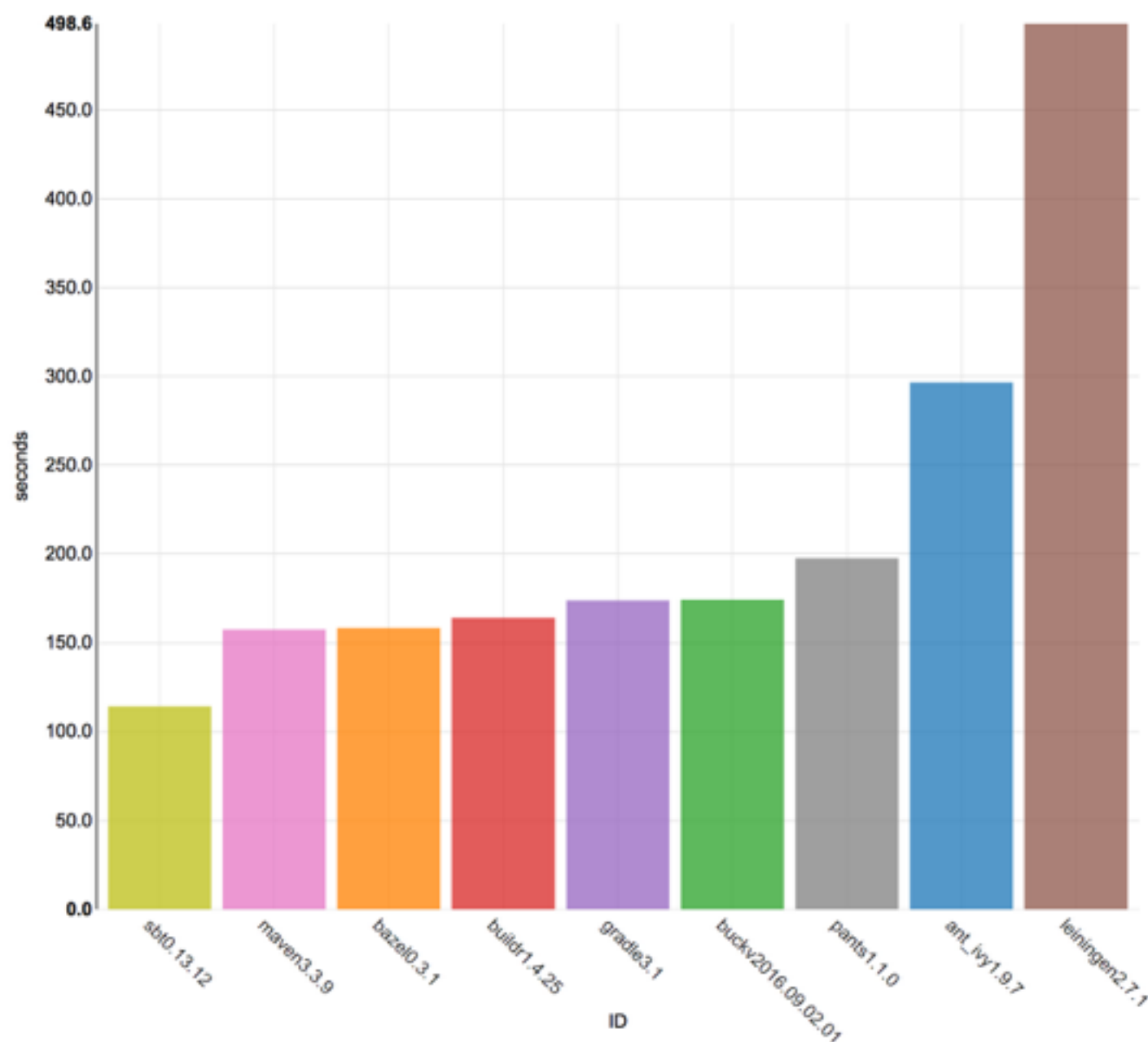
In Memory
Java
Compiler



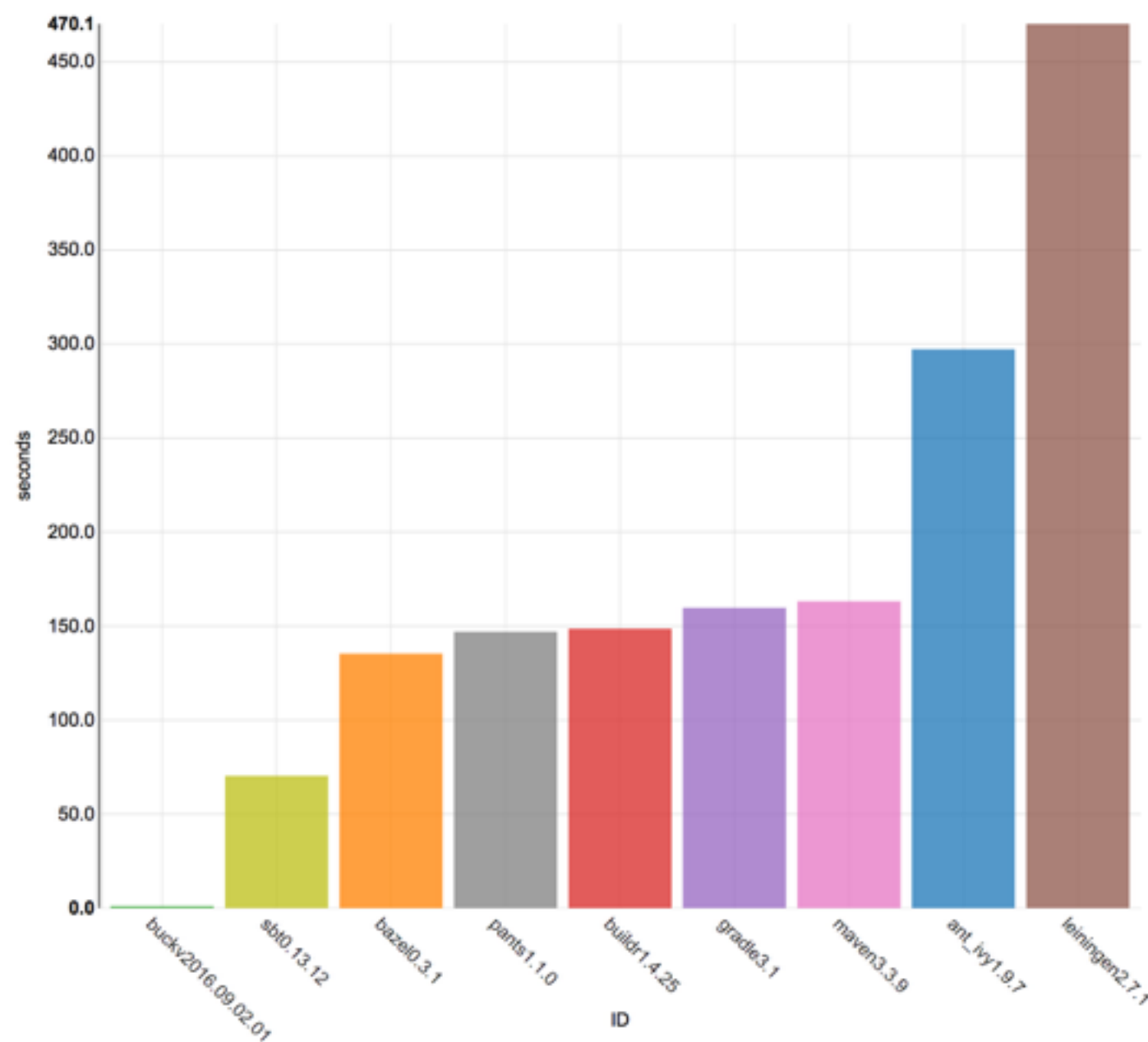
-XDuseUnsharedTable



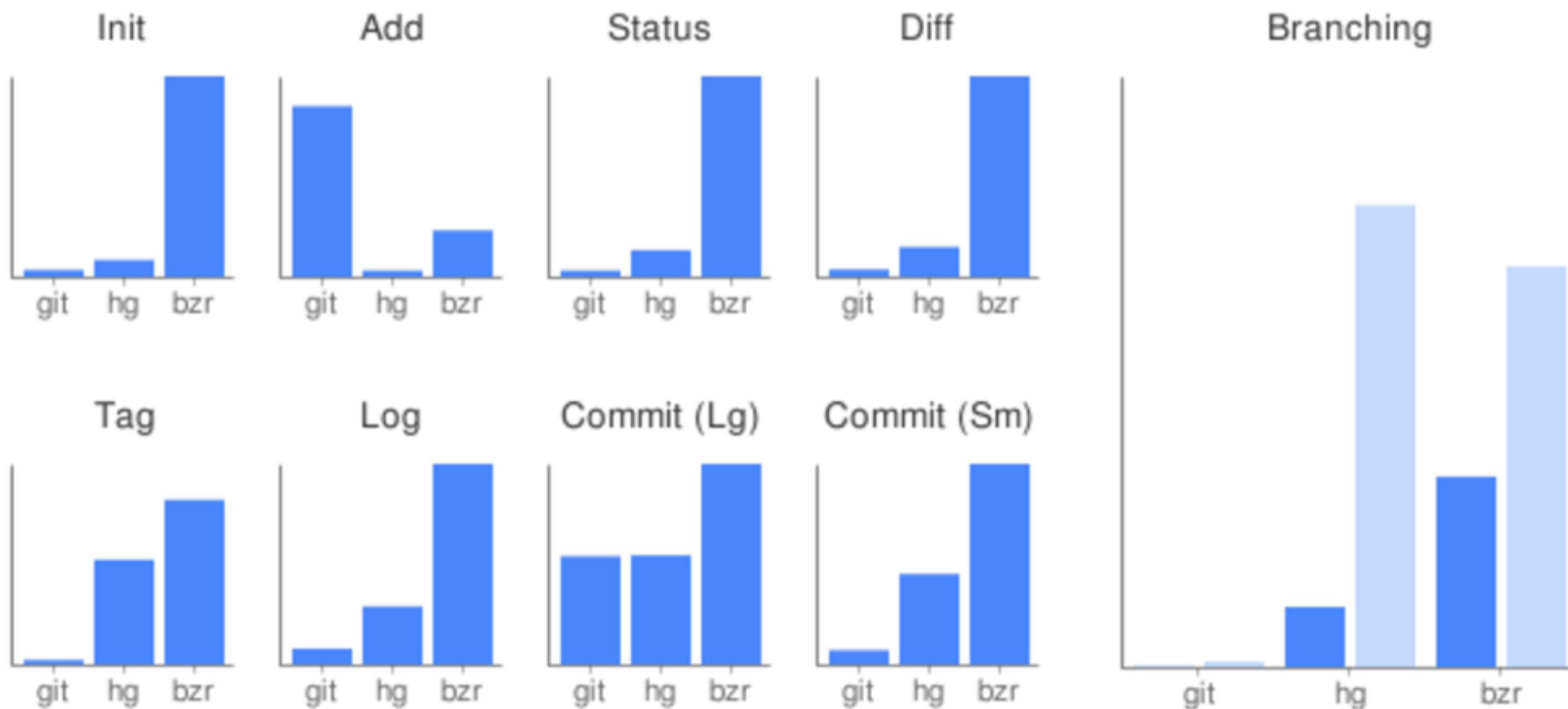
干净构建(buck)



修改一个文件



人生苦短，我用 git



单元测试要隔离数据库？

- 两种单元测试的定义

持续集成瓶颈

- 开发提交
- Jenkins运行失败
- 回滚修改或者马上修复



Pull requests

Create pull request

FILTERS: Open Merged Declined Reviewing Mine

Author	Title	Updated	Builds
Erik van Zijst [...]	#8177: Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore	15 minutes ago	
Mark Adams	#8166: Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse	2 hours ago	
Mark Adams	#8106: Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur,	2 hours ago	
Zachary Davis ...	#8175: Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut	11 hours ago	
Erik van Zijst [...]	#8047: Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore	11 hours ago	
Grant Mathews	#7306: Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur,	11 hours ago	
Jon Mooring	#7039: Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore	11 hours ago	
TJ Kells	#8155: Itaque earum rerum hic tenetur a sapiente delectus, ut aut reiciendis voluptatibus	11 hours ago	
William Binns-...	#8125: Nam libero tempore, cum soluta nobis est eligendi optio cumque nihil impedit	15 hours ago	
Ken	#8163: Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur,	16 hours ago	
Jonathan Poh [...]	#8159: Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore	16 hours ago	
Jon Mooring	#8154: Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit,	16 hours ago	
Chris Somme	#8122: At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis	16 hours ago	
Dan Tao	#7619: Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore	16 hours ago	
Michael Frauen...	#8170: Temporibus autem quibusdam et aut officiis debitis aut rerum necessitatibus saepe eveniet	16 hours ago	
Jon Mooring	#8066: Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse	17 hours ago	

SQL DDL DML持续集成案例

增量

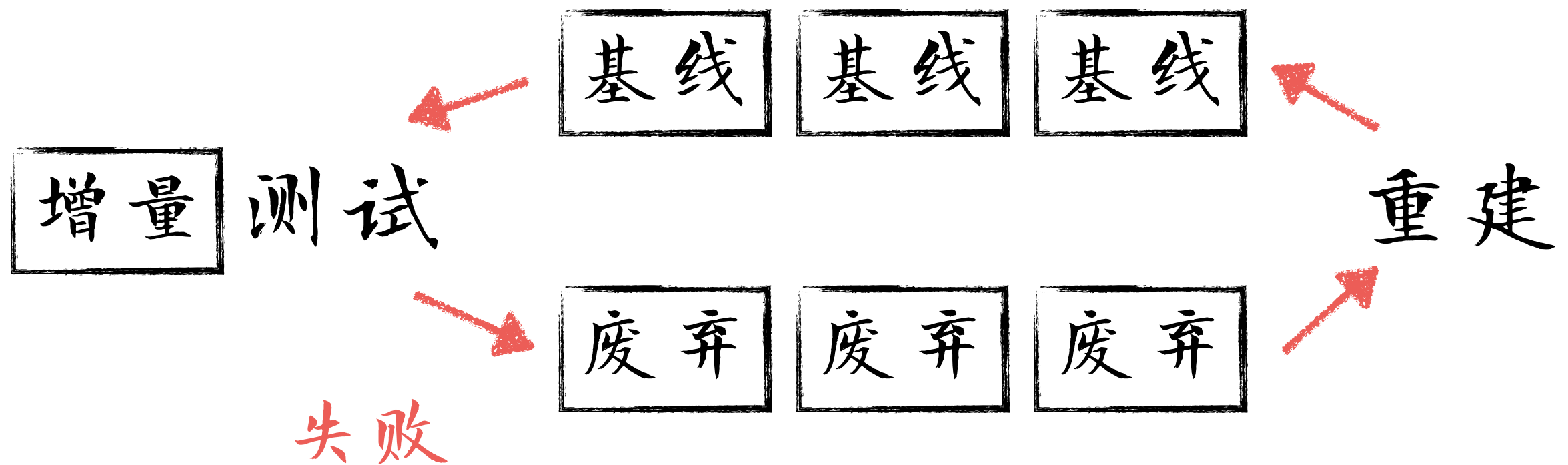
增量

基线

挑战

- 基线构建>30分钟
- 跨团队持续集成
- 频繁提交
- 无法回滚

用数据库池来降低延迟



更快的反馈？
更全面的反馈？

自动化一切

内存数据库

持续集成
持续交付

即时回归

即时反馈

SonarLint

单元测试

面向反馈设计

固态硬盘

先写设计文档？
先写代码？

价值



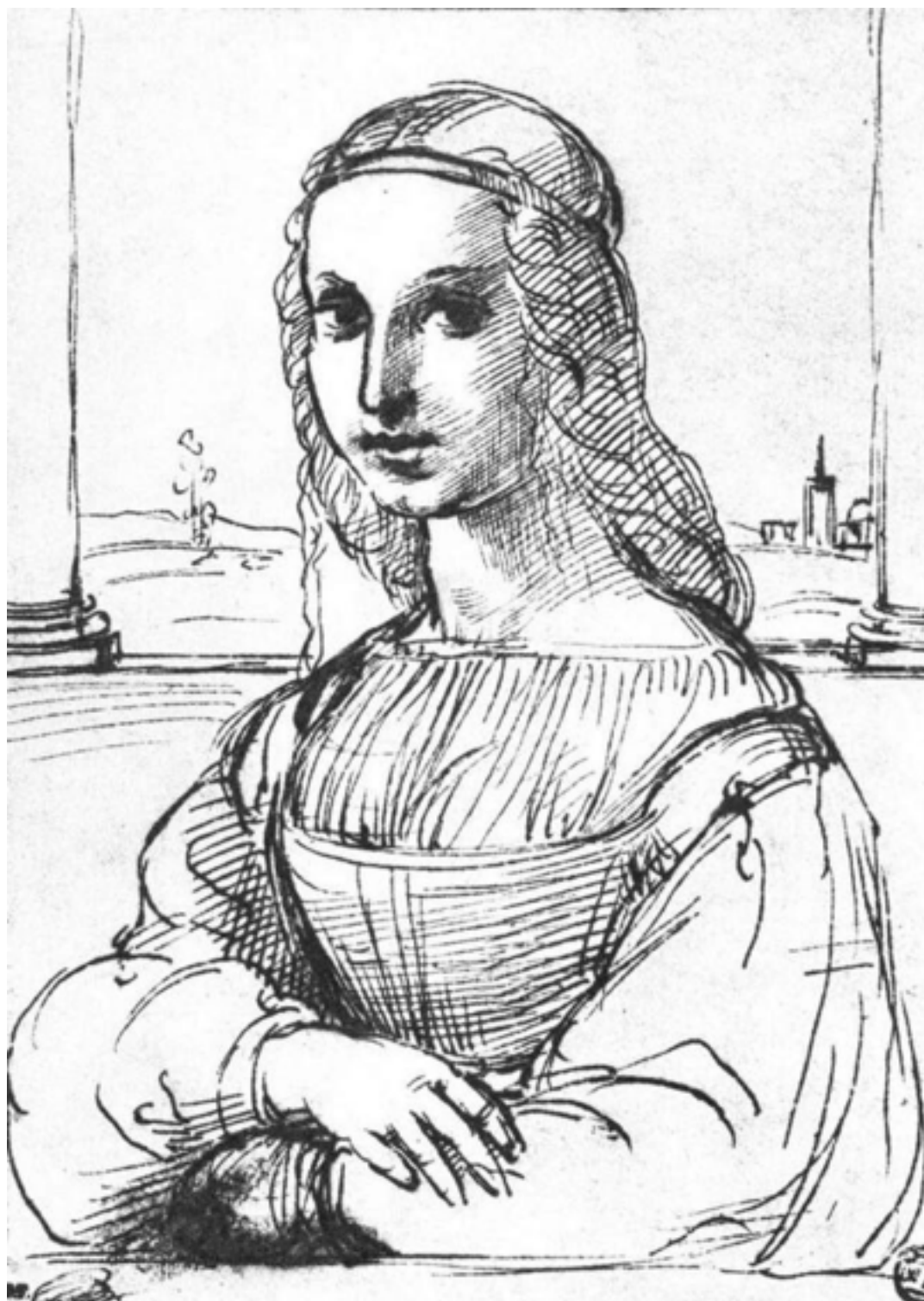
柔性

价值



柔性

价值



柔性

价值



柔性

价值

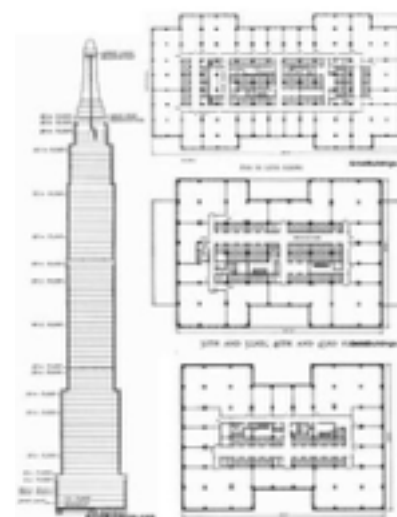


媒介



柔性

价值



柔性

价值



代码

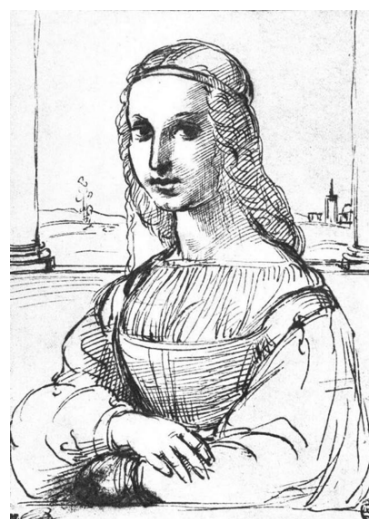


柔性

价值

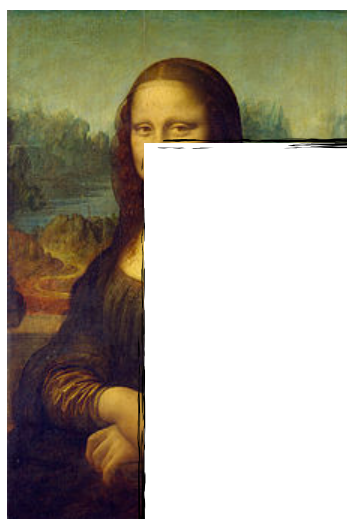


代码



柔性

价值



UML

设计文档

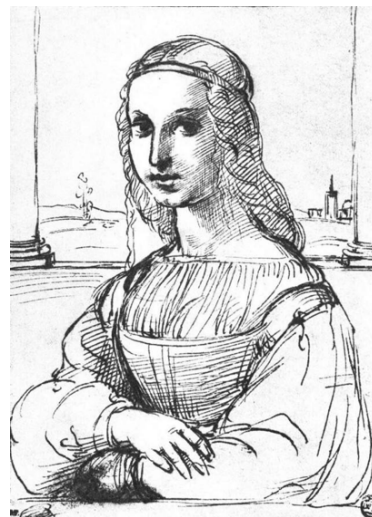


柔性

价值



代码 ?



UML

设计文档

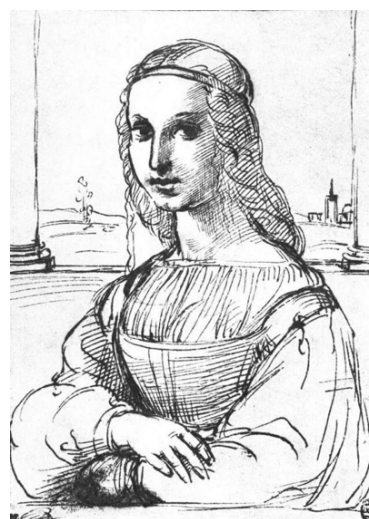
柔性

价值



代码

可重构
媒介

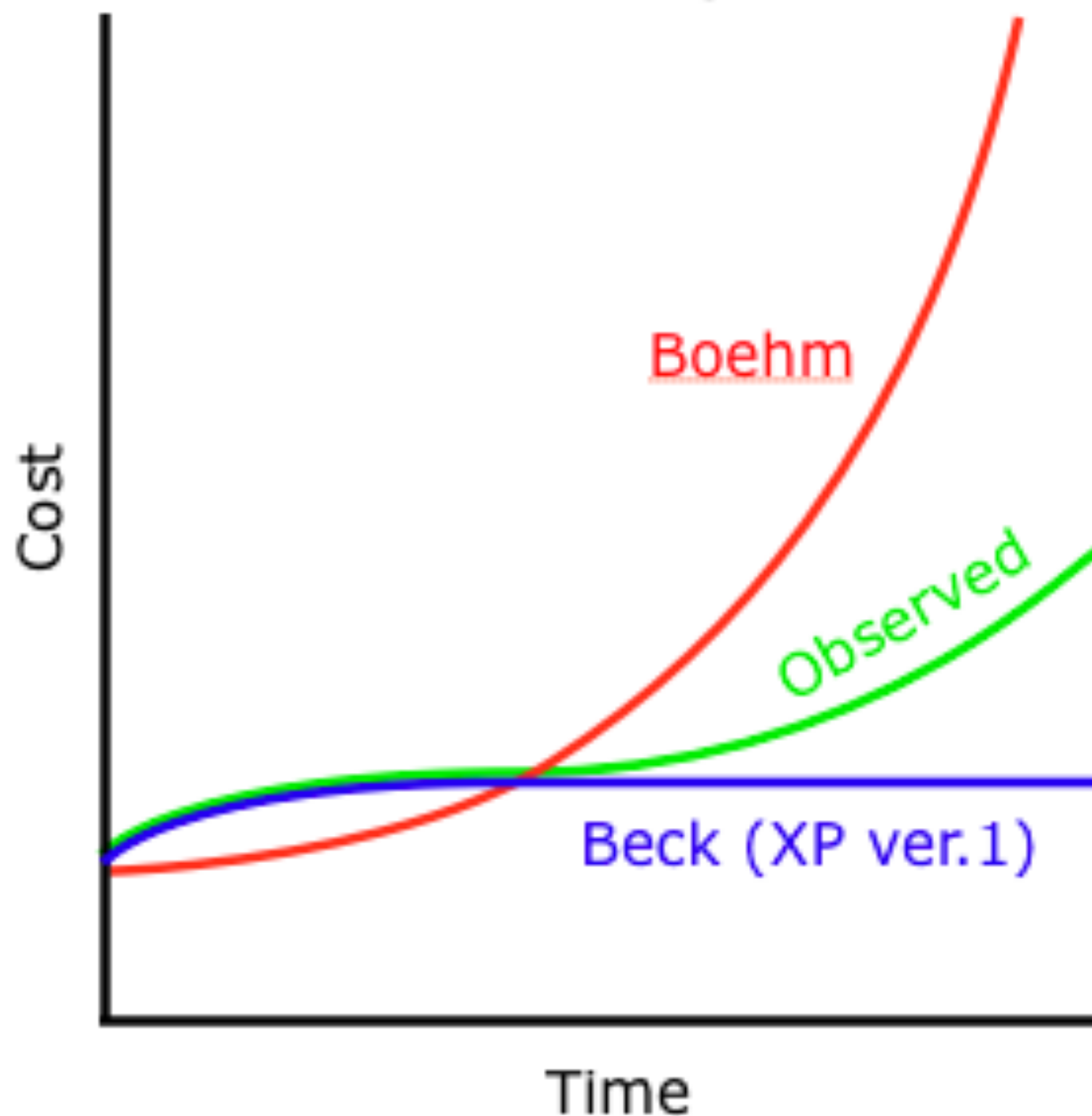


UML

设计文档

柔性

Cost of Change Curve



如何降低变更成本？

- 代码+设计文档？
- 可重构媒介？

代码质量？

- 代码需要可读吗？
- 代码需要整洁吗？
- 代码需要静态扫描？

设计？

- 代码即设计/可执行模型
- 浮现式设计

扩大可重构的疆域

- 数据库
- 数据库初始数据生成

让数据库变得可重构

- DB $\rightarrow$ Java
- Java $\rightarrow$ DB
- Java $\rightarrow$ XML $\leftarrow$ DB

数据库初始化

```
CREATE TABLE Nutrition(  
    ProductCode VARCHAR(20),  
    Name VARCHAR(50),  
    Amount NUMERIC(6,2) NOT NULL,  
    Unit VARCHAR(10) NOT NULL,  
    PRIMARY KEY(ProductCode, Name),  
    FOREIGN KEY(ProductCode) REFERENCES Product(Code)  
);;
```

```
INSERT INTO StdNutrition VALUES('100g', 100, 'g');
```

用ORM来初始化数据库

```
public HouseBuilder withOneRoom() {  
    this.roomList.add(new Room());  
    return this;  
}
```

```
public HouseBuilder withOneBathroom() {  
    this.bathrooms.add(new Bathroom());  
    return this;  
}
```

```
public House build() {  
    return new House(this.roomList, this.bathrooms);  
}
```

提高代码的信噪比

- Lombok
- 函数式编程

高信噪比代码

```
import lombok.Data;
```

```
@Data public class DataExample {  
    private final String name;  
    private double score;  
    private String[] tags;  
}
```

人生苦短，我用Lombok

- `@Data` =
 - `@ToString` +
 - `@EqualsAndHashCode` +
 - `@Getter` +
 - `@Setter` +
 - `@RequiredArgsConstructor`

低信噪比代码

```
class Author...
    static public IEnumerable<String>
TwitterHandles(IEnumerable<Author> authors, string company) {
    var result = new List<String> ();
    foreach (Author a in authors) {
        if (a.Company == company) {
            var handle = a.TwitterHandle;
            if (handle != null)
                result.Add(handle);
        }
    }
    return result;
}
```

人生苦短，我用FP

```
class Author...  
    static public IEnumerable<String>  
TwitterHandles(IEnumerable<Author> authors, string  
company) {  
    return authors  
        .Where(a => a.Company == company)  
        .Select(a => a.TwitterHandle)  
        .Where (h => h != null);  
}
```

能交付价值的代码？
易理解易修改的代码？

用可重构媒介生成不可重构媒介

高信噪比

浮现式设计

可重构媒介

可执行模型(代码作为设计)

清晰代码

依赖/环境+代码？

嵌入式数据库

```
@Before public void setUp() {  
    db = new EmbeddedDatabaseBuilder()  
        .setType(EmbeddedDatabaseType.H2)  
        .addScript("db/sql/create-db.sql")  
        .addScript("db/sql/insert-data.sql")  
        .build();  
}  
  
@Test public void testFindByName() {  
    NamedParameterJdbcTemplate template = new  
NamedParameterJdbcTemplate(db);  
    UserDaoImpl userDao = new UserDaoImpl();  
    userDao.setNamedParameterJdbcTemplate(template);  
  
    User user = userDao.findByName("da xian");  
  
    Assert.assertNotNull(user);  
}
```

嵌入式Tomcat

```
public static void main(String[] args) throws Exception {
    String webappDirLocation = "src/main/webapp/";
    Tomcat tomcat = new Tomcat();

    tomcat.setPort(8080);

    StandardContext ctx = (StandardContext) tomcat.addWebapp("/", new
File(webappDirLocation).getAbsolutePath());
    System.out.println("configuring app with basedir: " + new File("./" +
webappDirLocation).getAbsolutePath());

    File additionWebInfClasses = new File("target/classes");
    WebResourceRoot resources = new StandardRoot(ctx);
    resources.addPreResources(new DirResourceSet(resources, "/WEB-INF/classes",
        additionWebInfClasses.getAbsolutePath(), "/"));
    ctx.setResources(resources);

    tomcat.start();
    tomcat.getServer().await();
}
```

Docker化部署环境

```
src/main/docker/Dockerfile
```

```
FROM frolvlad/alpine-oraclejdk8:slim
VOLUME /tmp
ADD gs-spring-boot-docker-0.1.0.jar app.jar
RUN sh -c 'touch /app.jar'
ENV JAVA_OPTS=""
ENTRYPOINT [ "sh", "-c", "java $JAVA_OPTS -Djava.security.egd=file:/dev/./urandom -jar /app.jar" ]
```

Jenkinsfile

```
pipeline {  
    agent any  
  
    stages {  
        stage('Build') {  
            steps { echo 'Building..' }  
        }  
        stage('Test') {  
            steps { echo 'Testing..' }  
        }  
        stage('Deploy') {  
            steps { echo 'Deploying....' }  
        }  
    }  
}
```

嵌入式CI

```
#.travis.yml
```

```
language: java
```

```
jdk:
```

```
- oraclejdk8
```

```
script:
```

```
- mvn test
```

Dockerfile

Jenkinsfile

可回滚媒介

Git

用分支对应环境

棘轮效应

Embedded Jetty/Tomcat

h2 db

依赖即代码

Docker

Maven

FROM WWW.U148.NET

即时反馈

可重构媒介

可回滚媒介

代码即依赖