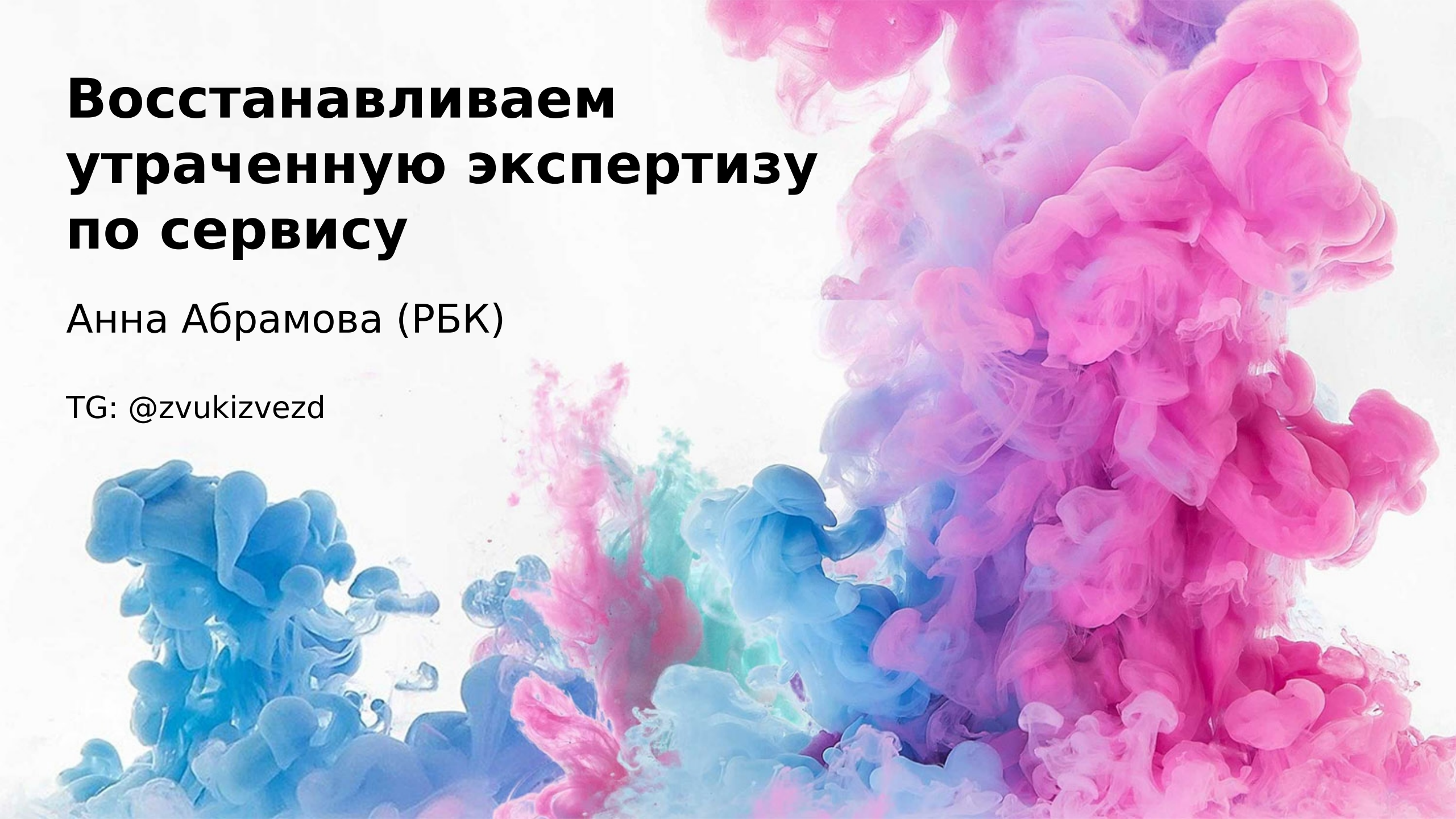


# Восстанавливаем утраченную экспертизу по сервису

Анна Абрамова (РБК)

TG: @zvukizvezd



# Привет!



**Анна Абрамова**

**Руководитель Управления разработки (РБК)**

10 команд

60+ человек

ex fintech: Сбер, Аон, ДОМ.рф, Газпромбанк

ВМиК МГУ; MSc Investment & Finance

Java (ОСР); Python; React; AI





# План выступления

1

Про боль :)

2

Создание “Карточки” сервиса

3

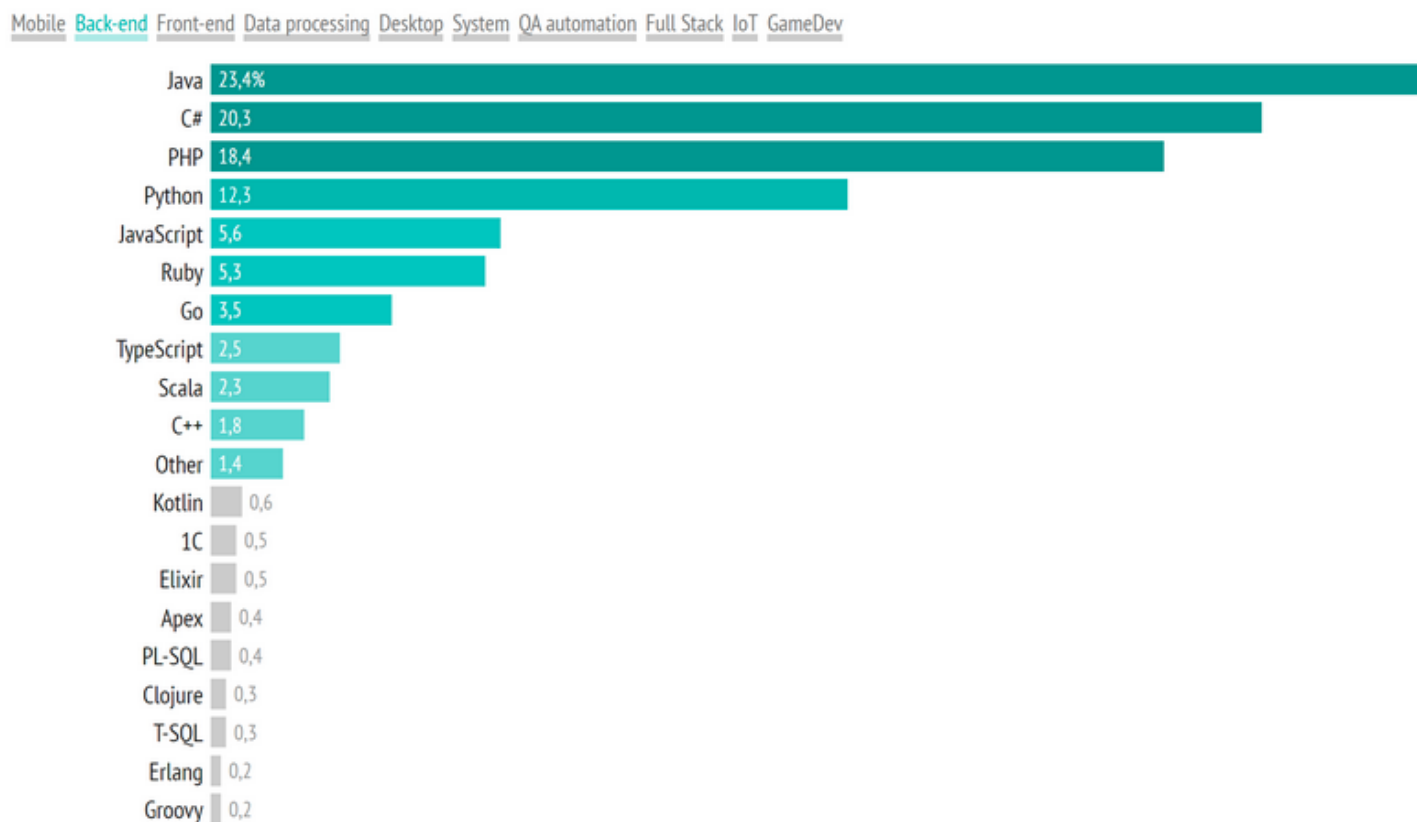
Изучение, рефакторинг и отладка

4

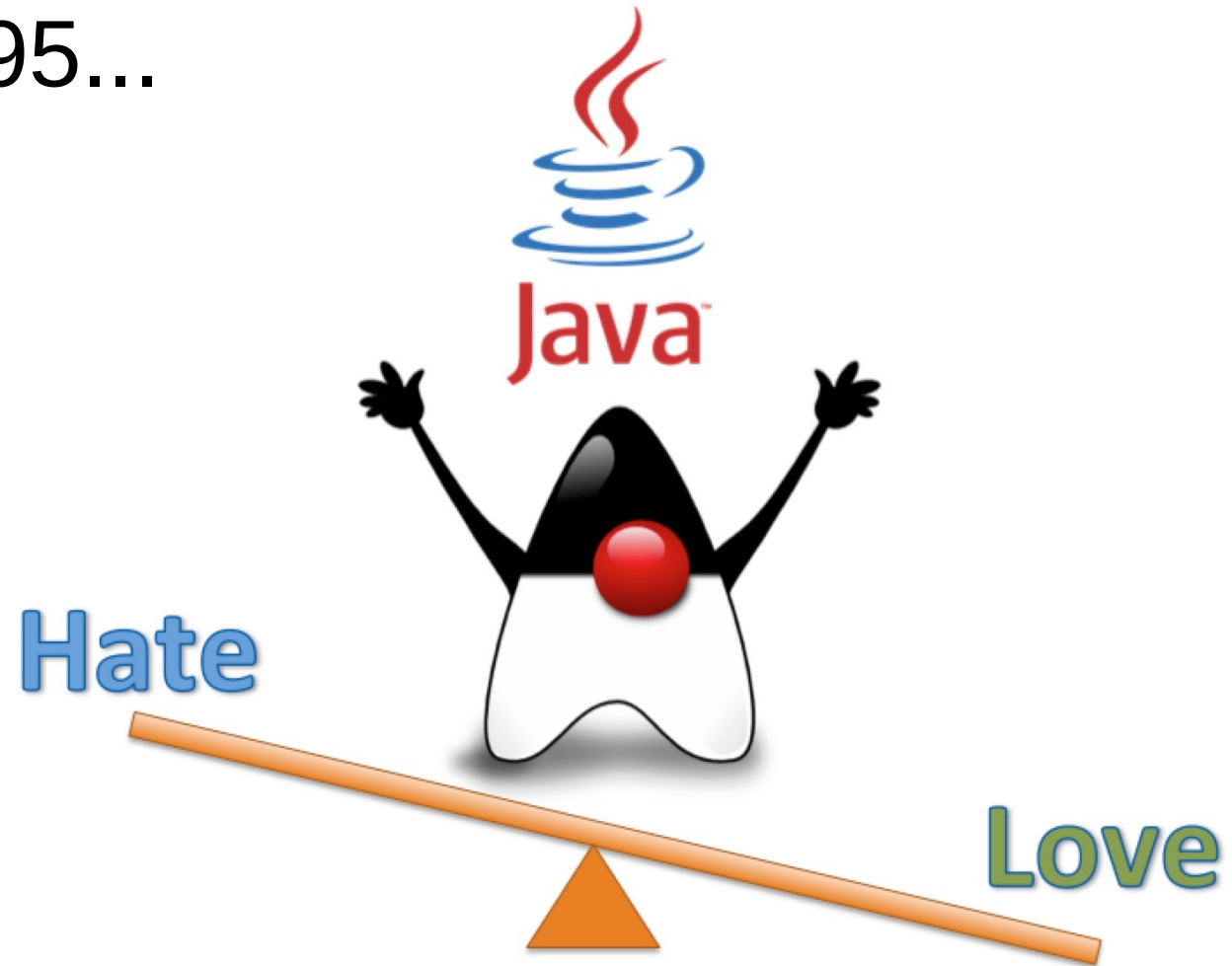
Вдохновение на задачи

# Почему это важно?

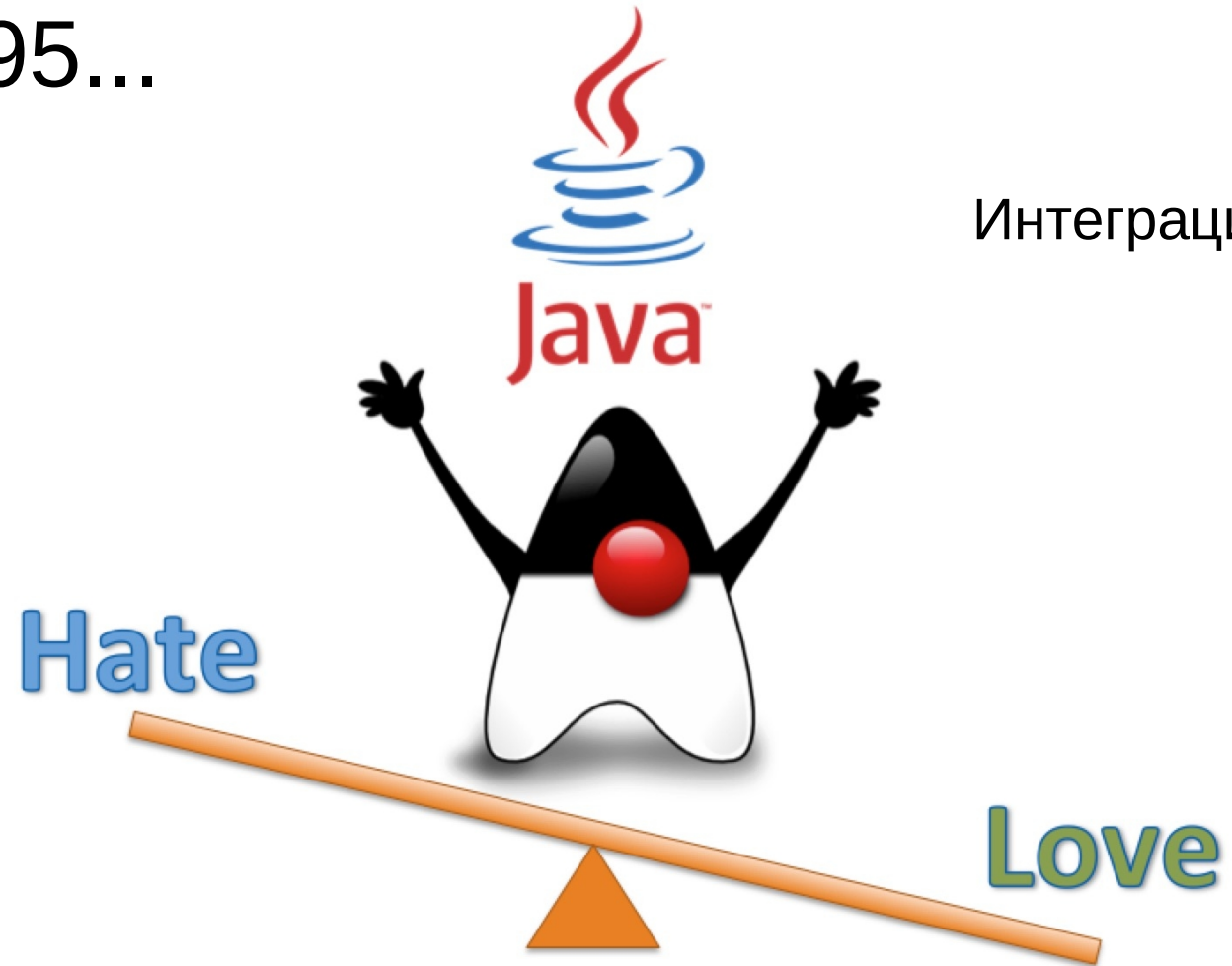
Один из самых популярных языков программирования (JetBrains 2020).



Since 1995...

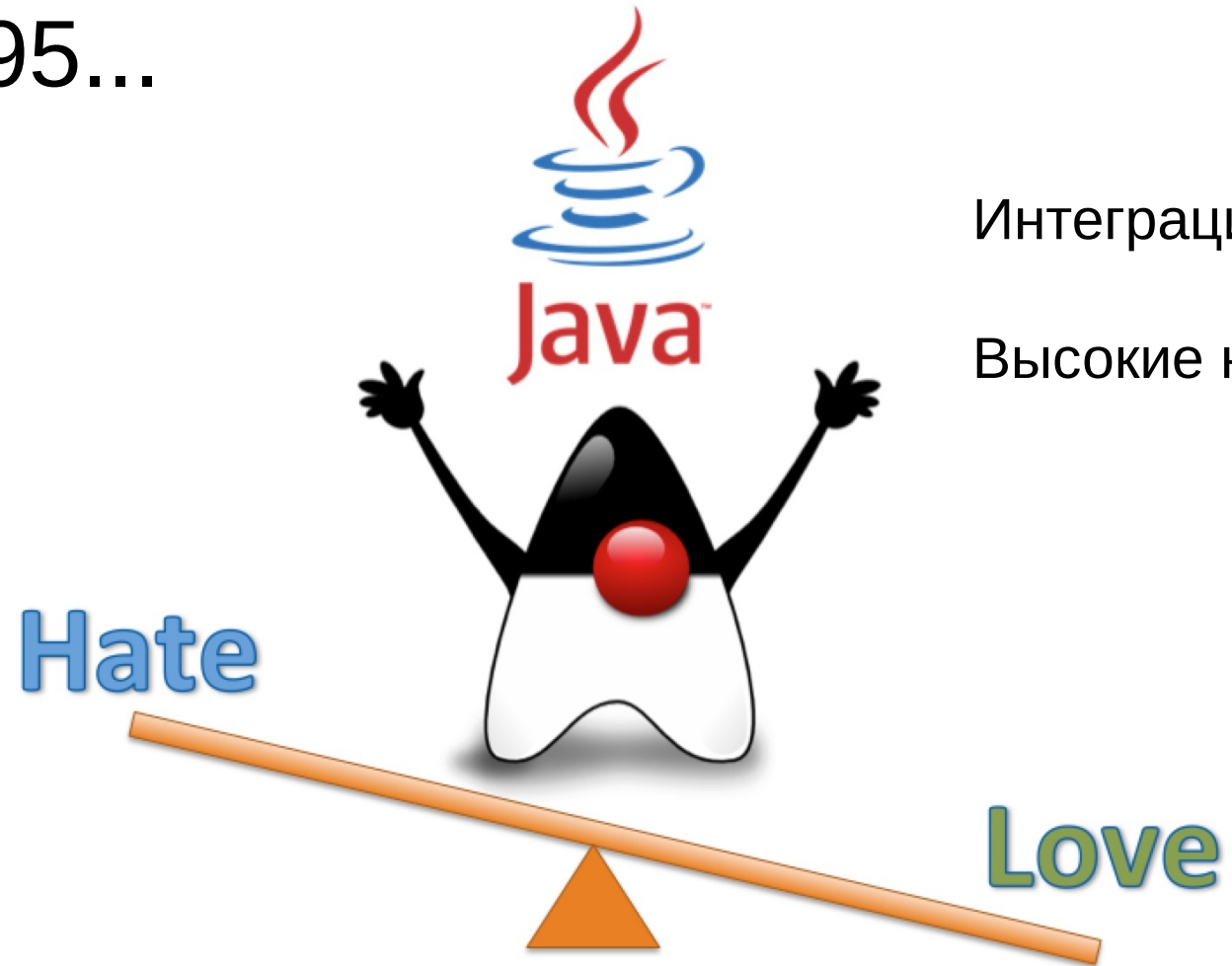


Since 1995...



Интеграционные взаимодействия

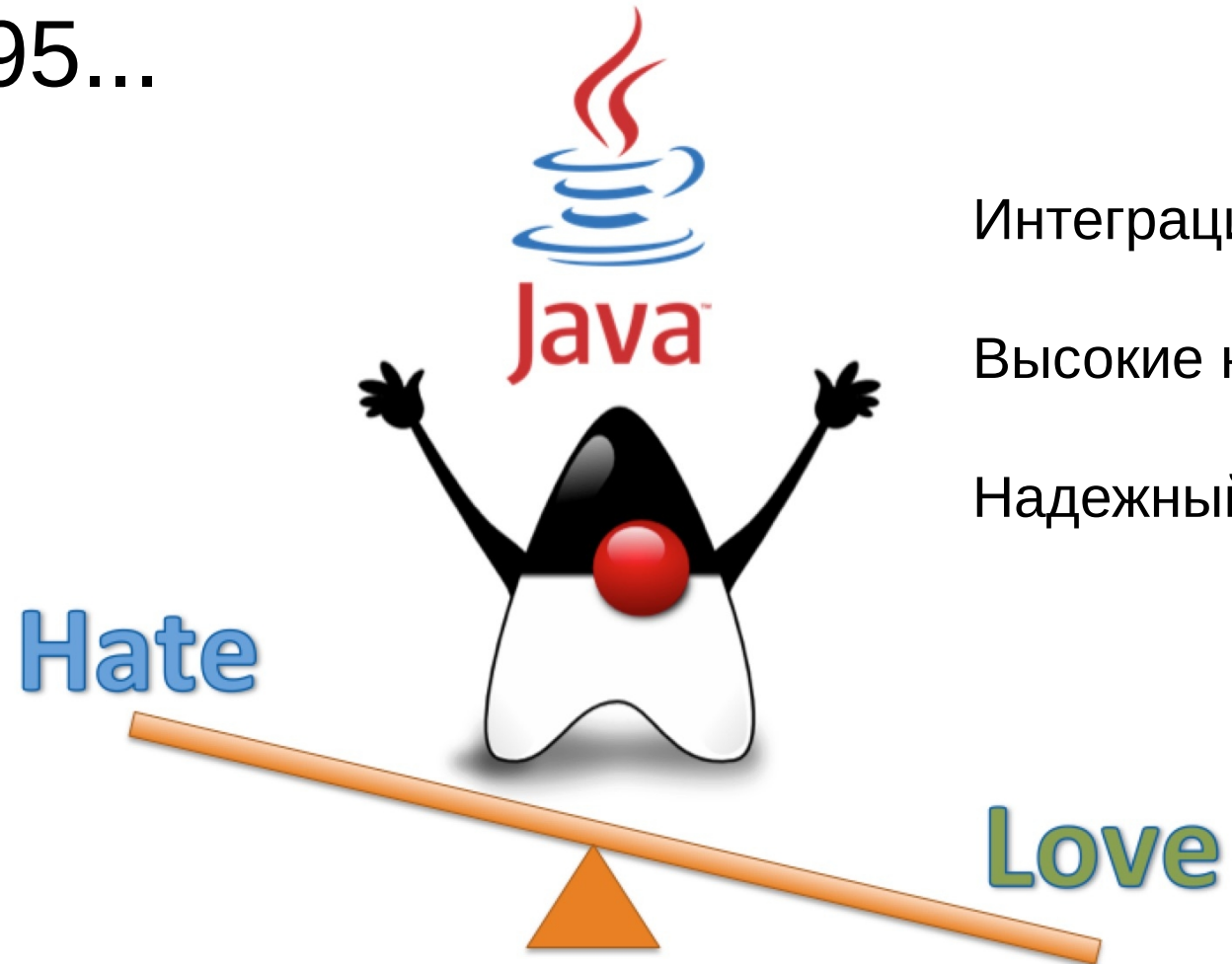
Since 1995...



Интеграционные взаимодействия

Высокие нагрузки

Since 1995...



Интеграционные взаимодействия

Высокие нагрузки

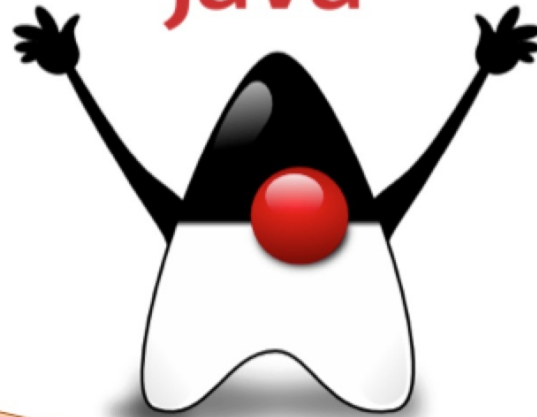
Надежный Backend



Since 1995...

Чужой код =)

Hate

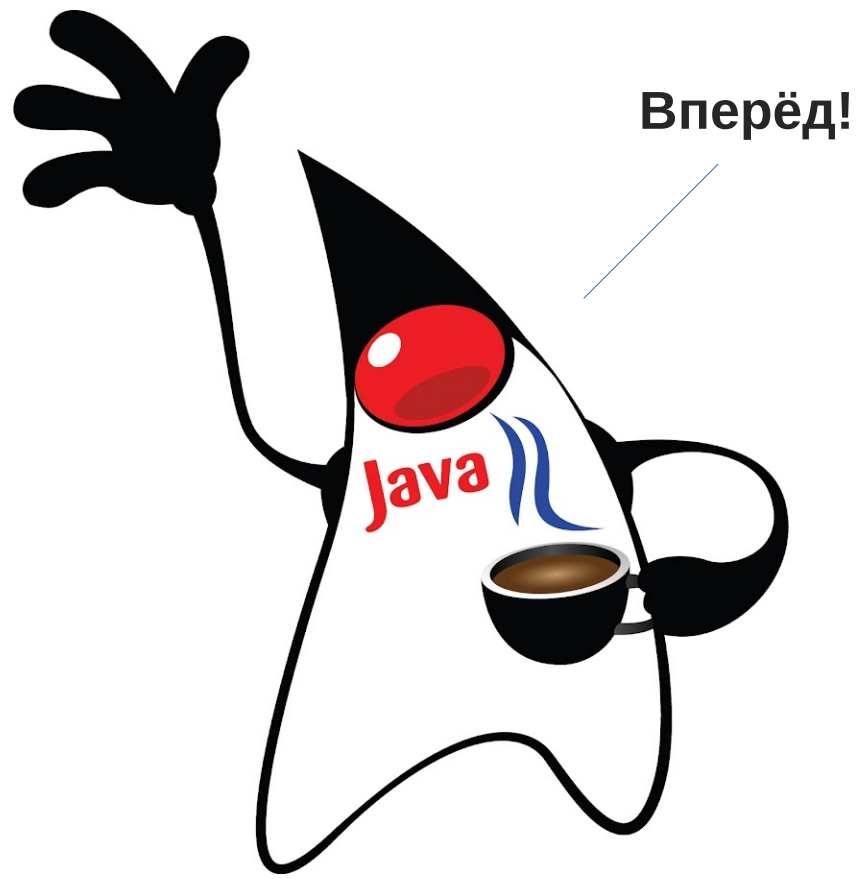


Интеграционные взаимодействия

Высокие нагрузки

Надежный Backend

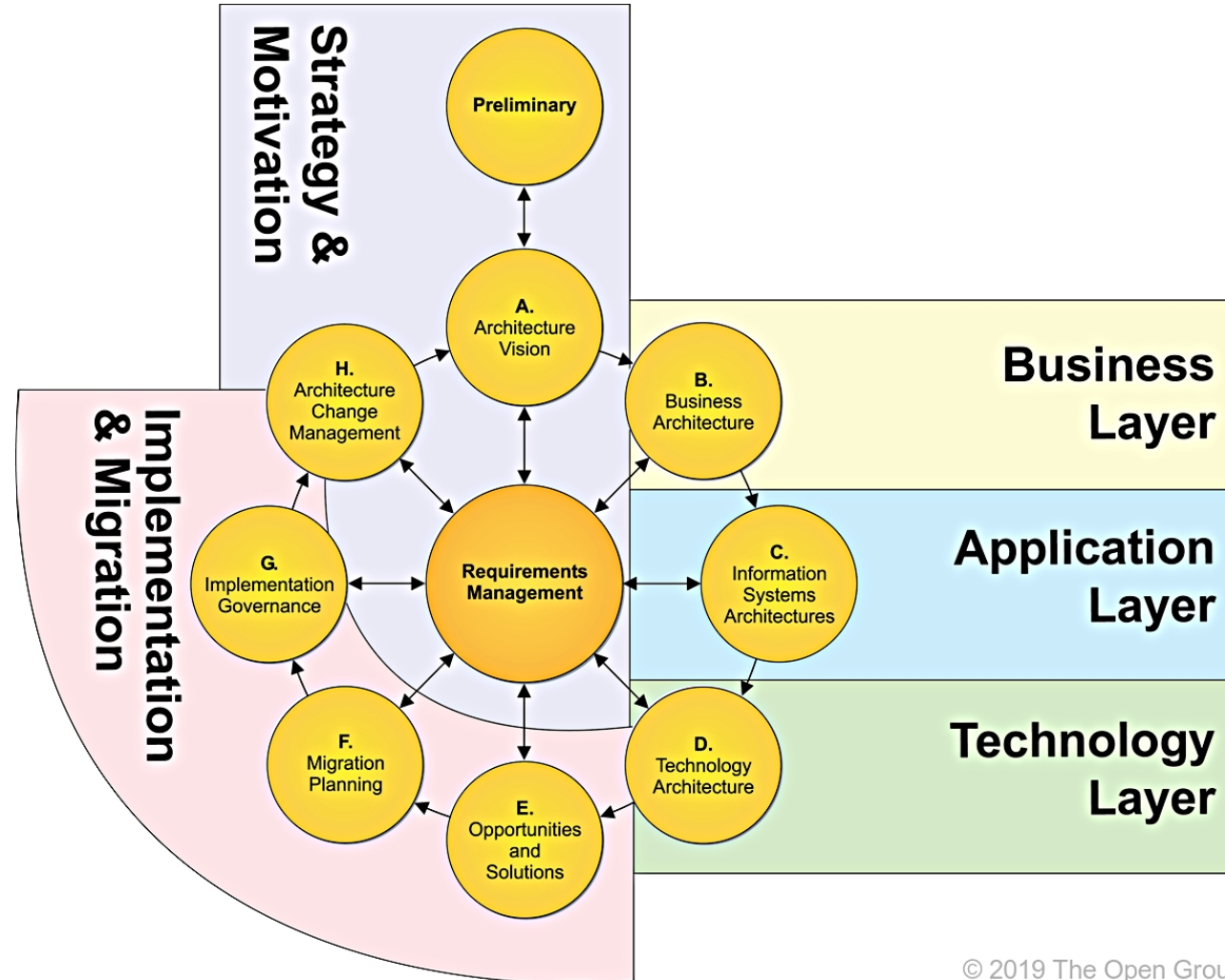
Love



Чужой код =)



# Идём в обратном направлении TOGAF



# Результат «Карточка» сервиса

## Шаблон карточки описания микросервиса

<b>Название сервиса:</b>	<b>Сервис</b>	
Описание:	Сервис реализует ...	
<b>Возможности</b>		
User-story (бизнесовые возможности)		
<u>Репозиторий</u>	...	
<b>API сервиса</b>		
<i>Команды</i>	<i>Очереди</i>	<i>События</i>
<u>Swagger:</u>		
Синхронные:	<ul style="list-style-type: none"><li>• getRequest()</li></ul>	<ul style="list-style-type: none"><li>• SomeEvent_1</li></ul>
• getHTTPs()		
Асинхронные:		
• ...		
Нефункциональные требования:	<ul style="list-style-type: none"><li>• NN% доступность</li><li>• NNNN запросов/сек</li></ul>	
<b>Метрики</b> (что логируем, за чем следим)		
<ul style="list-style-type: none"><li>• кол-во ____</li><li>• ошибки</li><li>• ...</li></ul>		
<u>Логи</u> (куда пишутся)		
<i>Health check endpoint</i>	/actuator/health	
<b>Стенды</b>		
test	кластер: <ul style="list-style-type: none"><li>• ...</li></ul> ноды: <ul style="list-style-type: none"><li>• ...</li></ul> пользователь: <ul style="list-style-type: none"><li>• ...</li></ul>	БД сервиса + <u>стенды вызываемых компонент:</u> мастер: <ul style="list-style-type: none"><li>• ...</li></ul> реплика: <ul style="list-style-type: none"><li>• ...</li></ul>
stage		
prod		
<b>Зависимости</b>		
<i>Вызывает сервис:</i>	<i>Слушает сервис:</i>	



# Шаблон карточки описания микросервиса

<b>Название сервиса:</b>	<b>Сервис</b>	
Описание:	Сервис реализует ...	
<b>Возможности:</b>		
User-story (бизнесовые возможности)		
<u>Репозиторий</u>	...	
<b>API сервиса</b>		
<i>Команды</i>	<i>Очереди</i>	<i>События</i>
<u>Swagger:</u> Синхронные: <ul style="list-style-type: none"><li>• getHTTPs()</li></ul> Асинхронные: <ul style="list-style-type: none"><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• getRequest()</li></ul>	<ul style="list-style-type: none"><li>• SomeEvent_1</li></ul>
Нефункциональ ые требования:	<ul style="list-style-type: none"><li>• NN% доступность</li><li>• NNNN запросов/сек</li></ul>	
<b>Метрики</b> (что логируем, за чем следим)		
<ul style="list-style-type: none"><li>• кол-во ____</li><li>• ошибки</li><li>• ...</li></ul>		

<u>Логи</u> (куда пишутся)		
<i>Health check endpoint</i>	/actuator/health	
<b>Стенды</b>		
test	кластер: <ul style="list-style-type: none"> <li>• ...</li> </ul> ноды: <ul style="list-style-type: none"> <li>• ...</li> </ul> пользователь: <ul style="list-style-type: none"> <li>• ...</li> </ul>	БД сервиса + <u>стенды вызываемых компонент</u> . мастер: <ul style="list-style-type: none"> <li>• ...</li> </ul> реплика: <ul style="list-style-type: none"> <li>• ...</li> </ul>
stage		
prod		
<b>Зависимости</b>		
<i>Вызывает сервис:</i>	<i>Слушает сервис:</i>	

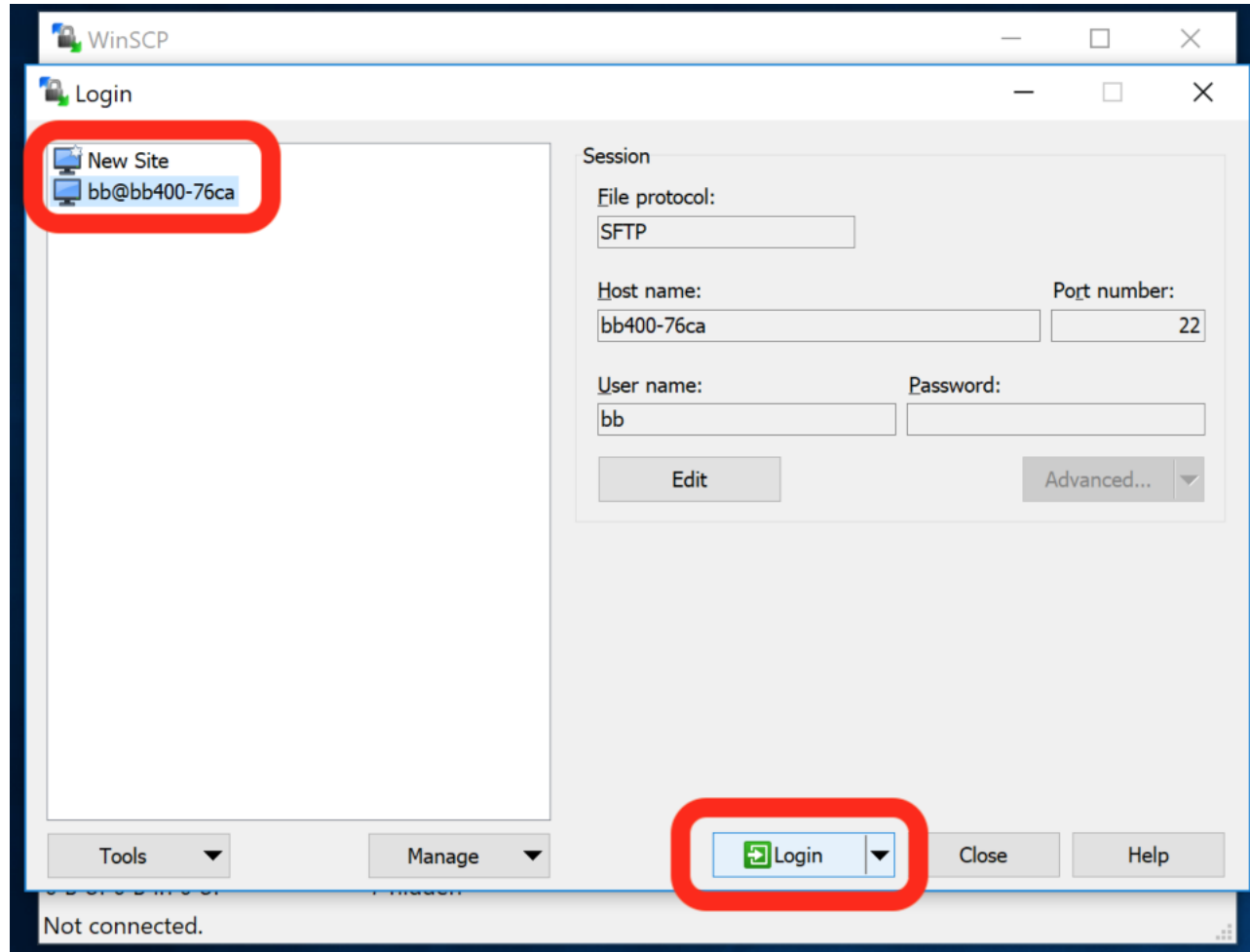
Сервис 1: <ul style="list-style-type: none"><li>• delReq()</li></ul>	Сервис 2: <ul style="list-style-type: none"><li>• setRequest()</li></ul>
<b>Имплементация</b>	какой это сервис - что за паттерн (ссылка на подробную техдоку): CRUD/доменный/интеграционный/агрегационный/шина событий/микросервис/...
<b>CI/CD</b> (деплоймент /билды)	build: ... deploy: ...

# 1. Стенды + CI/CD



Найти, где разворачивается и собирается сервис (куда он деплоится и куда пишет логи - обычно папка logs).

# WinSCP





# PuTTY

```
[root@putty.org.ru home]$ netstat -tupln
(No info could be read for "-p": geteuid()=500 but you should be root.)
Active Internet connections (only servers)

```

Proto	Recv-Q	Send-Q	Local Address	Foreign Address	State	PID/Program name
tcp	0	0	0.0.0.0:52168	0.0.0.0:*	LISTEN	-
tcp	0	0	0.0.0.0:111	0.0.0.0:*	LISTEN	-
tcp	0	0	0.0.0.0:22	0.0.0.0:*	LISTEN	-
tcp	0	0	127.0.0.1:631	0.0.0.0:*	LISTEN	-
tcp	0	0	127.0.0.1:25	0.0.0.0:*	LISTEN	-
tcp	0	0	:::111	:::*	LISTEN	-
tcp	0	0	:::22	:::*	LISTEN	-
tcp	0	0	:::1:631	:::*	LISTEN	-
udp	0	0	0.0.0.0:703	0.0.0.0:*	-	-
udp	0	0	0.0.0.0:56385	0.0.0.0:*	-	-
udp	0	0	0.0.0.0:68	0.0.0.0:*	-	-
udp	0	0	0.0.0.0:5353	0.0.0.0:*	-	-
udp	0	0	0.0.0.0:111	0.0.0.0:*	-	-
udp	0	0	0.0.0.0:631	0.0.0.0:*	-	-
udp	0	0	0.0.0.0:652	0.0.0.0:*	-	-
udp	0	0	0.0.0.0:36523	0.0.0.0:*	-	-
udp	0	0	:::111	:::*	-	-
udp	0	0	:::652	:::*	-	-

```
[root@putty.org.ru home]$ █
```

# Kibana

The screenshot displays the Kibana dashboard interface. At the top, there is a navigation bar with the Logz.io logo and various tool icons: Log Shipping, Alerts, Cognitive Insights, and ELK Apps. The user is logged in as 'Logz.io DanielDev1 (daniel...)'.

Below the navigation bar, there are tabs for 'Discover', 'Visualize', 'Dashboard', and 'Settings'. A search bar is present with the text 'Search...'. To the right of the search bar are icons for 'Create Alert', 'Contribute', and other actions. A 'Today' filter is also visible.

The main content area is divided into two sections. On the left is a sidebar with 'Selected Fields' and 'Available Fields'. The 'Available Fields' list includes: @timestamp, action, bytes, dstaddr, dstport, end, logGroupName, logStreamName, logstatus, message, packets, protocol, srcaddr, srcport, start, tags, and type.

The main visualization area shows a bar chart titled 'February 19th 2017, 00:00:00.000 - February 19th 2017, 23:59:59.999 — by 30 minutes'. The y-axis is labeled 'Count' and ranges from 0 to 2,000. The x-axis is labeled '@timestamp per 30 minutes' and shows time intervals from 02:00 to 23:00. The chart shows a series of green bars representing the count of events per 30-minute interval. The counts fluctuate between approximately 1,000 and 2,000.

Below the chart, there is a table of log messages. The table has two columns: 'Time' and 'message'. The messages are filtered to show events from February 19th 2017, 09:33:15.000. The messages are as follows:

Time	message
February 19th 2017, 09:33:17.000	2 011173820421 eni-b8a0484a 182.140.215.145 172.31.51.205 48706 23 6 1 40 1487489597 1487489656 REJECT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 172.31.56.229 54.210.40.1 45202 8071 6 12 9572 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 52.20.49.54 172.31.56.229 8071 44170 6 63 9854 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 172.31.56.229 52.20.49.54 44174 8071 6 12 12002 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 172.31.56.229 54.210.40.1 44962 8071 6 8 10294 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 52.20.49.54 172.31.56.229 8071 44172 6 13 7254 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 172.31.56.229 54.210.40.1 45020 8071 6 11 10515 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 172.31.56.229 54.210.40.1 45198 8071 6 16 17162 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 54.210.40.1 172.31.56.229 8071 45076 6 64 9906 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 54.210.40.1 172.31.56.229 8071 45020 6 13 7254 1487489595 1487489653 ACCEPT 0
February 19th 2017, 09:33:15.000	2 011173820421 eni-56475ca5 172.31.56.229 54.210.40.1 45076 8071 6 36 158810 1487489595 1487489653 ACCEPT 0

# Jira

The screenshot shows the Jira search results page. The top navigation bar includes 'Jira', 'Dashboards', 'Projects', 'Issues', 'Boards', 'Portfolio', and a 'Create' button. A search bar is on the right. The left sidebar contains 'FILTERS' and 'FAVOURITE FILTERS'. The main content area shows a search for 'Contains text' with 10 results. A dropdown menu is open over the 'Status' column, showing commit counts for each issue's status.

T	Key	Summary	Assignee	P	Status	Development	dated
	TIS-77	Add screenshare for video chat	Alana Grant	✓	CLOSED	1 commit	Jan/18
	TIS-73	Fix audio in video chat	Alana Grant	↑	CLOSED	UNDER REVIEW	Jan/18
	TIS-69	Add a String anonymizer to TextUtils	Max Taylor	⬆	CLOSED	MERGED ✓ 🌿	Feb/18
	TIS-68	Homepage footer uses an inline style - should use a class	Kevin Campbell	⬆	OPEN	3 commits !	Feb/18
	TIS-67	Developer Toolbox does not display by default	Jennifer Evans	⬆	CODE REVIEW	UNDER REVIEW ✓ 🌿	Feb/18
	TIS-66	Update promotion to include groups of 20 or more	Jennifer Evans	⬆	CLOSED	MERGED	Dec/17
	TIS-64	A demo bug	Kevin Campbell	⬆	CLOSED	5 commits ✓	Dec/17
	TIS-58	Add feedback button to the plugin sample code	Kevin Campbell	✓	CLOSED	UNDER REVIEW	Dec/17
	TIS-57	Buttons need to be red	Alana Grant	⬆	OPEN	UNDER REVIEW 🌿	Dec/17
	TIS-47	UI should allow users to book on large or personal space craft	Kevin Campbell	⬆	DRAFT	3 commits	Feb/18

<https://bigbrassband.atlassian.net/wiki/spaces/GITCLOUD/pages/643596299/JQL+Searching+for+Commits+and+Pull+Requests>

# CI/CD

Deployment projects / Bamboo

## Release: bamboo-5

Approved Broken

Status Commits 1023 Issues 110 Variables

### Related JIRA issues

If a commit message includes a JIRA issue key, the JIRA issue will be displayed in the list below. There must be an [application link between Bamboo and JIRA](#).

Comparison is available only for releases created from the same branch as this release.

This release ▶ Previous release Compare

❌	BDEV-85	XSS in Remove Plans action	Resolved	Marcin	5.1
❌	BDEV-8	jsvn.bat refers to 1.8.5	Resolved	Daniel	5.9
❌	BDEV-86	Artifact definition name change not reflected on "Deployment project summary" page	Resolved	Alexey	5.10
✅	BDEV-868	Inactivity check loop should not be blocked by other git repo use	Open	Unassigned	
✅	BDEV-86	As a bamboo administrator, I want to manage bamboo artifact handlers through REST endpoint	Resolved	Chandler	
✅	BDEV-8917	Upgrade Platform to most recent version (including AppLinks v5.x)	Resolved	Unassigned	5.1
❌	BDEV	Update the version of commons-httpclient	Resolved	Krystian	5.1

Заполняем “Карточку” сервиса раздел “Стенды”:

Стенды		
test	кластер: <ul style="list-style-type: none"><li>• ...</li></ul> ноды: <ul style="list-style-type: none"><li>• ...</li></ul> пользователь: <ul style="list-style-type: none"><li>• ...</li></ul>	БД сервиса + <u>стенды вызываемых компонент.</u> мастер: <ul style="list-style-type: none"><li>• ...</li></ul> реплика: <ul style="list-style-type: none"><li>• ...</li></ul>
stage		
prod		



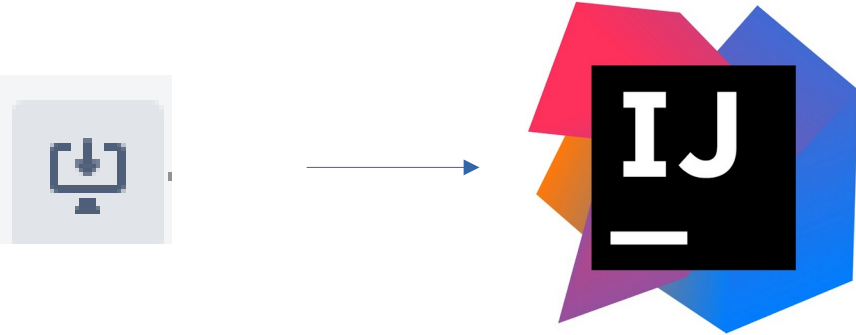
Заполняем “Карточку” сервиса разделы “Логи” и “CI/CD”:

<u>Логи</u> (куда пишутся)	
----------------------------	--

<b>CI/CD</b> (деплоймент /билды)	build: ... deploy: ...
-------------------------------------	---------------------------

# 2. Код + Репозиторий

Найти код и затащить его к себе в IDEA.

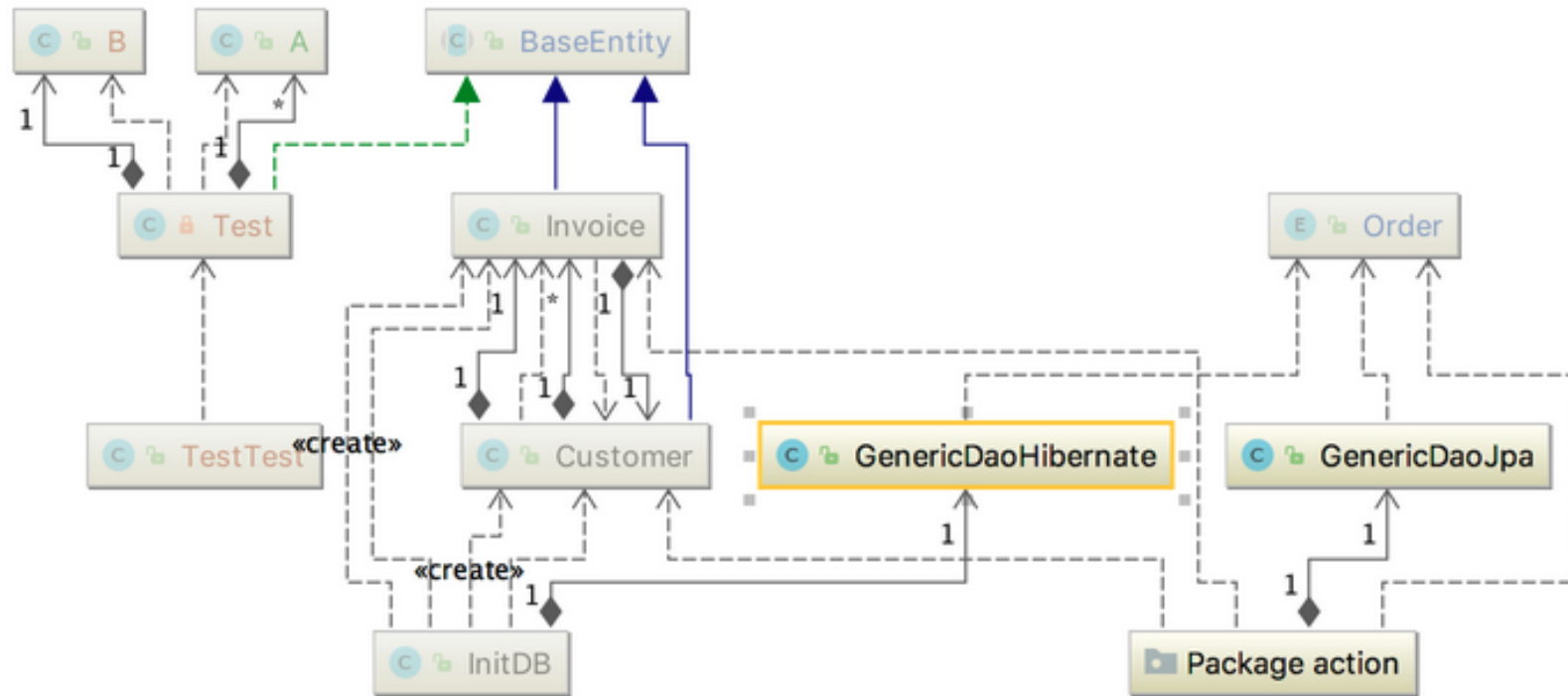


## Строим UML-диаграмму в IDEA (Ultimate):

### View diagram on a package

1. In the **Project** tool window, right-click a package for which you want to create a diagram and select **Diagrams | Show Diagram** `Ctrl+Alt+Shift+U` ).
2. In the list that opens, select **Java Class Diagram**. IntelliJ IDEA generates a UML diagram for classes and their dependencies.

# Ожидание



# Реальность

The screenshot displays an IDE interface with the following components:

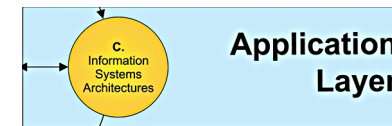
- Code Editor:** Shows the `Resource.java` file with the following code:

```
boolean isOpen();  
  
/**  
 * Return a URL handle for this resource.  
 * @throws IOException if the resource ca  
 * i.e. if the resource is not available  
 */  
URL getURL() throws IOException;  
  
/**  
 * Return a URI handle for this resource.  
 * @throws IOException if the resource ca  
 * i.e. if the resource is not available  
 */  
URI getURI() throws IOException;  
  
/**  
 * Return a File handle for this resource  
 * @throws IOException if the resource ca  
 * file path, i.e. if the resource is not  
 */  
File getFile() throws IOException;  
  
/**  
 * Determine the last-modified timestamp  
 * @throws IOException if the resource ca  
 * (in the file system or as some other k  
 */  
Long lastModified() throws IOException;  
  
/**  
 * Create a resource relative to this res  
 * @param relativePath the relative path
```
- Project Structure:** Shows a tree view of the project structure, including `org.springframework.core` and `org.springframework.io`.
- Dependency Graph:** A complex network diagram showing relationships between classes and packages. Nodes are represented by colored boxes (blue, yellow, red) and connected by lines. A central red node is highly connected.
- Navigation:** Includes tabs for `Visualization`, `Filtering`, and `Highlighting`. Below these are buttons for `Create / Update Diagram`, `Module View`, `Package View`, `Package and Class View`, and `Class View`.
- IDE Elements:** The bottom status bar shows `Frameworks detected: OSGi, Spring frameworks are detected in the project Configure (35 minutes ago)`, `81:33`, `UTF-8`, `Git: master`, and `319M of 505M`.

Заполняем “Карточку” сервиса раздел “Репозиторий”:

<u>Репозиторий</u>	...
--------------------	-----

# 3. API



Ищем “внешние” API (REST, SOAP, Kafka, ...).

- @WebServiceClient – SOAP
- @RestController – REST
- @KafkaListener – Kafka
- @RabbitListener – RabbitMQ
- ...

Ищем “внешние” API (REST, SOAP, Kafka, ...).

Смотрим **build.gradle** или **pom.xml**

→ Какие стандартные зависимости подключены



Заполняем “Карточку” сервиса раздел “API”:

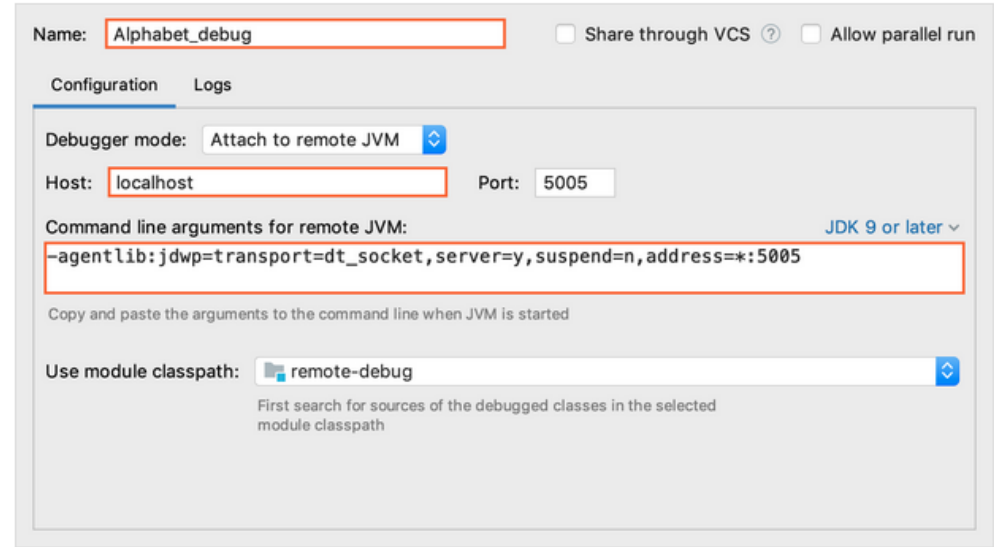
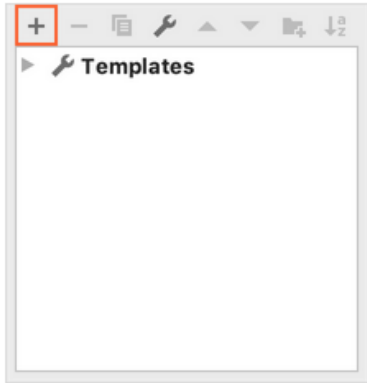
API сервиса		
Команды	Очереди	События
<u>Swagger:</u> Синхронные: <ul style="list-style-type: none"><li>• getHTTPs()</li></ul> Асинхронные: <ul style="list-style-type: none"><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• getRequest()</li></ul>	<ul style="list-style-type: none"><li>• SomeEvent_1</li></ul>

# 4. Debug

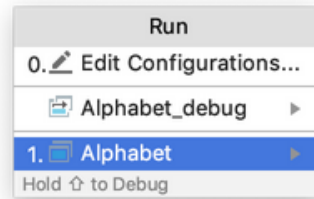


Удаленное подключение к хостам сервиса для перехвата сообщений.  
Смотрим, что к нам вообще приходит и куда идёт дальше (debug).

In the **Run/Debug Configurations** dialog, click the **Add New Configuration** button + and select **Remote**.

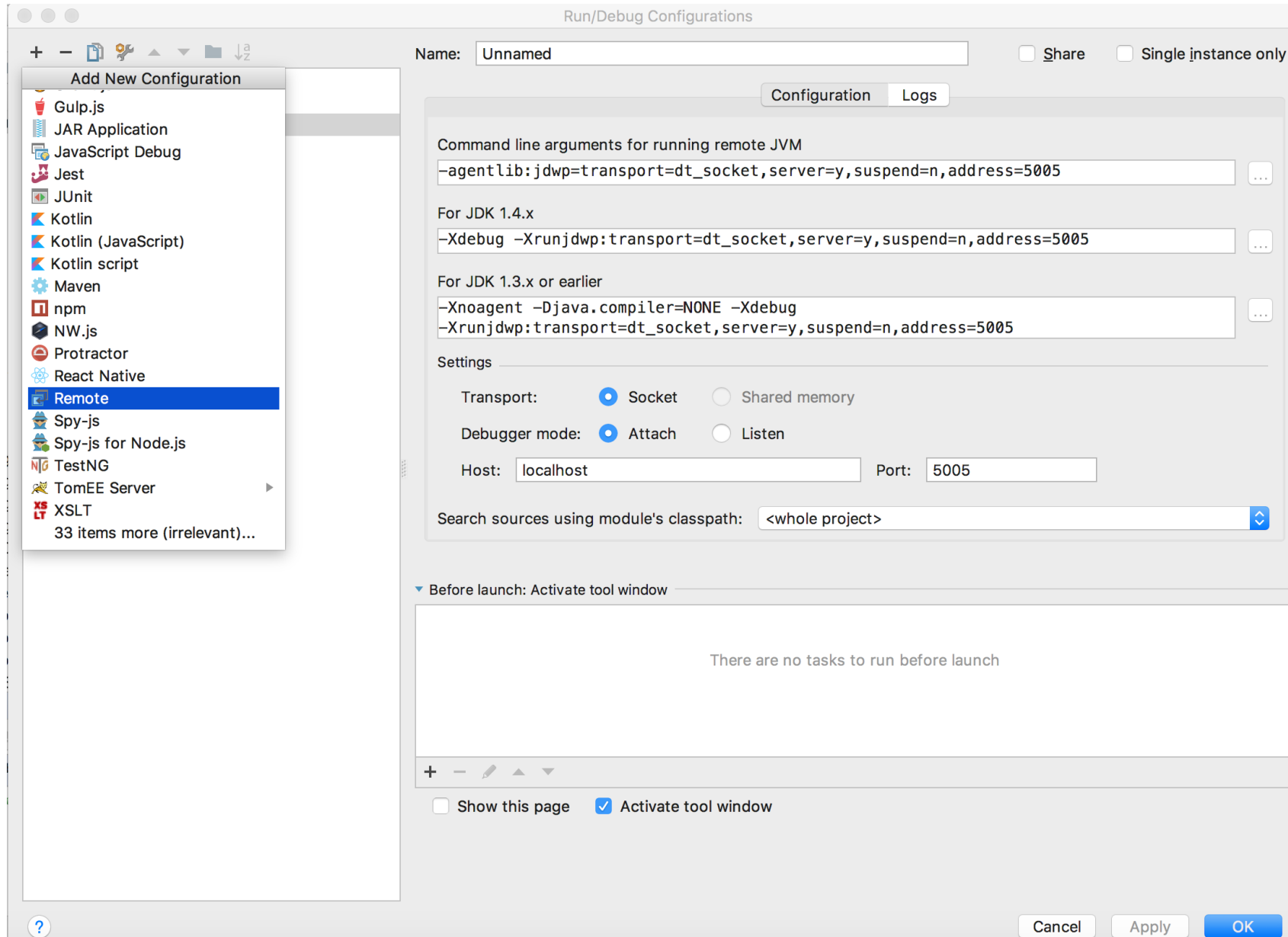


- Press **Alt+Shift+F10** and select **Alphabet** .



In the program output, the first line will be:

```
Listening for transport dt_socket at address: 5005
```



# BreakPoint

The screenshot shows the IntelliJ IDEA IDE with a Scala project named 'claper'. The main editor displays the file 'Claper.scala' with the following code:

```
4 import shapeless.Labeled._
5
6 final case class ClaperError(message: String) {
7   def msg: String = message
8 }
9
10 trait Claper[A] {
11   import Claper.Or
12   def parse(args: Seq[String]): ClaperError Or A
13 }
14
15 object Claper {
16   type Or[A, B] = Either[A, B]
17
18   def apply[A](
19     implicit
20     st: Lazy[Claper[A]]
21   ): Claper[A] = st.value
22
23   implicit def genericParser[A, R <: HList, D <: HList](
24     implicit
25     defaults: Default.AsOptions.Aux[A, D],
26     generic: LabeledGeneric.Aux[A, R],
27     parser: Lazy[UnderlyingClaper[R, D]]
28   ): Claper[A] = {
```

A red checkmark icon indicates a breakpoint is set on line 7. The debugger is active, showing the current state of the program. The 'Frames' pane shows the current frame is 'pool-15...' and the 'Variables' pane shows the current state of the 'this' object:

```
this = {ClaperError@10011} "ClaperError(Test message)"
message = "Test message"
```

The 'Frames' pane also shows the call stack, with the current frame being 'msg:7, ClaperError (io.mattroberts)'. The 'Variables' pane shows the state of the 'this' object and the 'message' variable.

# BreakPoint

```
import java.util.Scanner;

/**
 * Created by nate on 10/21/17
 */
public class Foo {
    public static void main(String[] args) { // TODO code application logic here args: {}

        // getting the number of rows and columns for the maze from the user
        Scanner scanner = new Scanner(System.in); scanner: "java.util.Scanner[delimiters=\p{javaWhitespace}+][position=3][match valid=tr
        System.out.print("How many rows are in the maze? ");
        int rows = scanner.nextInt(); rows: 3
        int[][] maze = new int[rows][]; maze: int[3][]@630
        System.out.print("How many columns are in the maze? ");
        int columns = scanner.nextInt(); columns: 4 scanner: "java.util.Scanner[delimiters=\p{javaWhitespace}+][position=3][match valid
        maze[rows] = new int[columns]; maze: int[3][]@630 rows: 3 columns: 4

        // getting the data/danger levels for each row from the user
        for (int c = -1; c < maze[rows].length; c++) {
            System.out.print("Enter the danger in row " + (c + 1) + ", " + "separated by spaces: ");
            maze[rows][c] = scanner.nextInt();
        }
        System.out.println(maze[rows][columns] + "\n");
    }
}

Foo > main()
```

Variables

- args = {String[0]@503}
- scanner = {Scanner@623} "java.util.Scanner[delimiters=\p{javaWhitespace}+][position=3][match valid=tru ... View
- rows = 3
- maze = {int[3][]@630}
- All elements are null
- columns = 4
- maze[rows].length = java.lang.IndexOutOfBoundsException : Invalid array range: 3 to 3
- maze[rows] = java.lang.IndexOutOfBoundsException : Invalid array range: 3 to 3

# Ожидание

```
package test.java;

public class HelloWorld {
    public static void main(String[]args) {
        System.out.println("Hello World");
    }
}
```

Run: Hello World [build] ×

- > Task :check UP-TO-DATE
- > Task :build UP-TO-DATE

Deprecated Gradle features were used in this build, making it incompatible with Gradle 5.0.  
See [https://docs.gradle.org/4.8/userguide/command\\_line\\_interface.html#sec:command\\_line\\_warnings](https://docs.gradle.org/4.8/userguide/command_line_interface.html#sec:command_line_warnings)


BUILD SUCCESSFUL in 0s  
4 actionable tasks: 4 up-to-date  
2:39:53 PM: Task execution finished 'build'.

Application Servers Terminal Build **4: Run** 5: Debug 6: TODO

Compilation completed with 0 errors and 0 warnings in 34 ms (55 minutes ago)

Material Oceanic 8:1 LF UTF-8

# Реальность



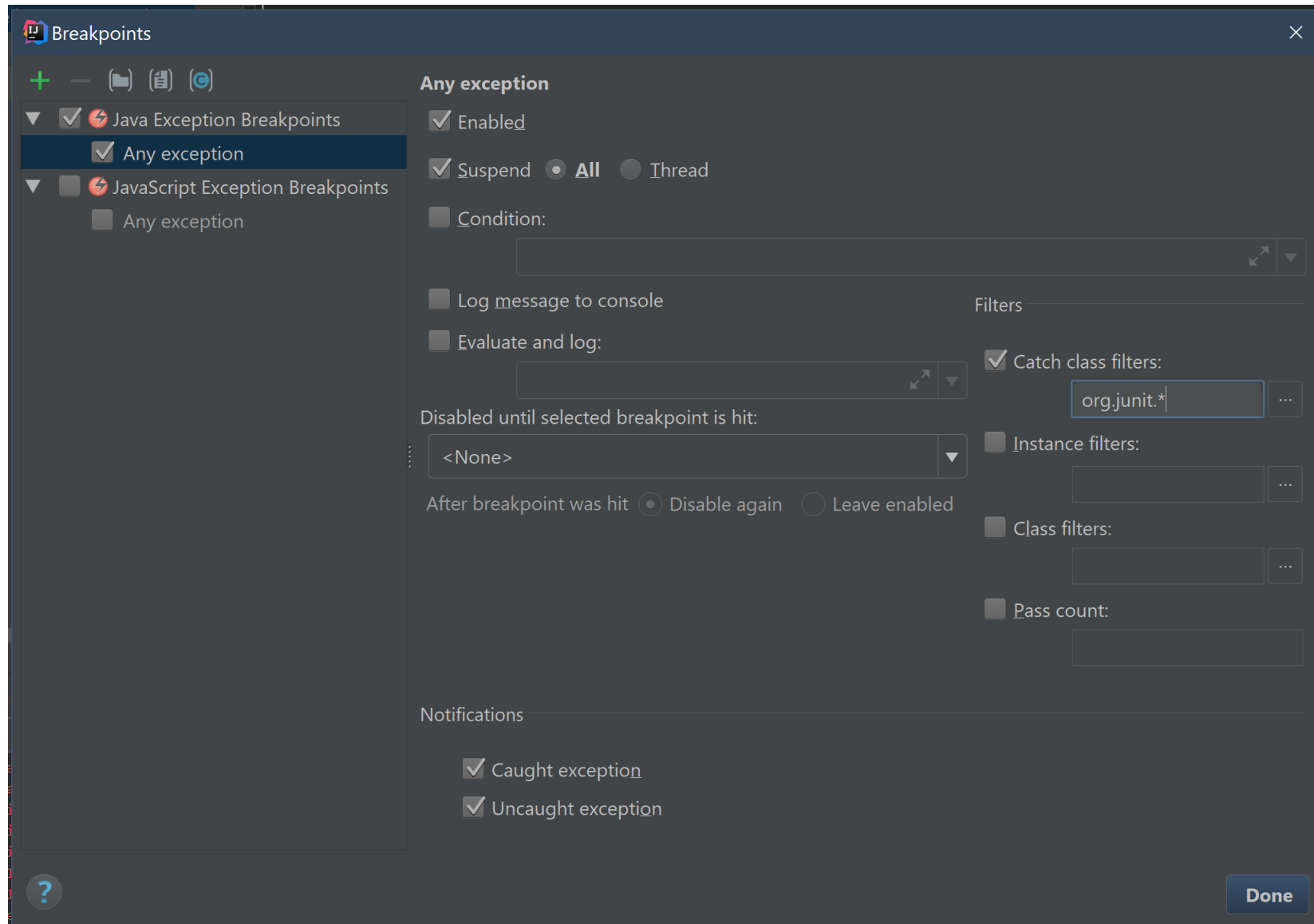
```
value.serializer = class org.apache.kafka.common.serialization.ByteArraySerializer
(Org.apache.kafka.clients.producer.ProducerConfig:180)
[2017-05-12 12:01:47,841] INFO Kafka version : 0.10.2.1-cp1 (org.apache.kafka.common.utils.AppInfoParser:83)
[2017-05-12 12:01:47,841] INFO Kafka commitId : 078e7dc02a100018 (org.apache.kafka.common.utils.AppInfoParser:83)
[2017-05-12 12:01:47,844] INFO interceptor=created for client=confluent.monitoring.interceptor.consumer-4 (io.confluent.monitoring.clients.interceptor.MonitoringInterceptor:100)
[2017-05-12 12:01:48,006] ERROR Task es-poem-sink-0 threw an uncaught and unrecoverable exception (org.apache.kafka.connect.runtime.WorkerSinkTask:119)
org.apache.kafka.connect.errors.ConnectException: Cannot create mapping {"poem":{"type":"string"}} -- {"root": "mapper_parsing_exception", "reason": "Root mapping definition has unsupported parameters: [type : string]"}
    at io.confluent.connect.elasticsearch.Mapping.createMapping(Mapping.java:65)
    at io.confluent.connect.elasticsearch.ElasticsearchWriter.write(ElasticsearchWriter.java:201)
    at io.confluent.connect.elasticsearch.ElasticsearchSinkTask.put(ElasticsearchSinkTask.java:119)
    at org.apache.kafka.connect.runtime.WorkerSinkTask.deliverMessages(WorkerSinkTask.java:429)
    at org.apache.kafka.connect.runtime.WorkerSinkTask.poll(WorkerSinkTask.java:250)
    at org.apache.kafka.connect.runtime.WorkerSinkTask.iteration(WorkerSinkTask.java:179)
    at org.apache.kafka.connect.runtime.WorkerSinkTask.execute(WorkerSinkTask.java:148)
    at org.apache.kafka.connect.runtime.WorkerTask.doRun(WorkerTask.java:139)
    at org.apache.kafka.connect.runtime.WorkerTask.run(WorkerTask.java:182)
    at java.util.concurrent.Executors$RunnableAdapter.call(Executors.java:511)
    at java.util.concurrent.FutureTask.run(FutureTask.java:266)
    at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1142)
    at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:617)
    at java.lang.Thread.run(Thread.java:745)
[2017-05-12 12:01:48,008] ERROR Task is being killed and will not recover until manually restarted (org.apache.kafka.connect.runtime.WorkerSinkTask:119)
[2017-05-12 12:01:48,008] ERROR Task es-poem-sink-0 threw an uncaught and unrecoverable exception (org.apache.kafka.connect.runtime.WorkerSinkTask:119)
org.apache.kafka.connect.errors.ConnectException: Exiting WorkerSinkTask due to unrecoverable exception.
    at org.apache.kafka.connect.runtime.WorkerSinkTask.deliverMessages(WorkerSinkTask.java:451)
    at org.apache.kafka.connect.runtime.WorkerSinkTask.poll(WorkerSinkTask.java:250)
    at org.apache.kafka.connect.runtime.WorkerSinkTask.iteration(WorkerSinkTask.java:179)
```



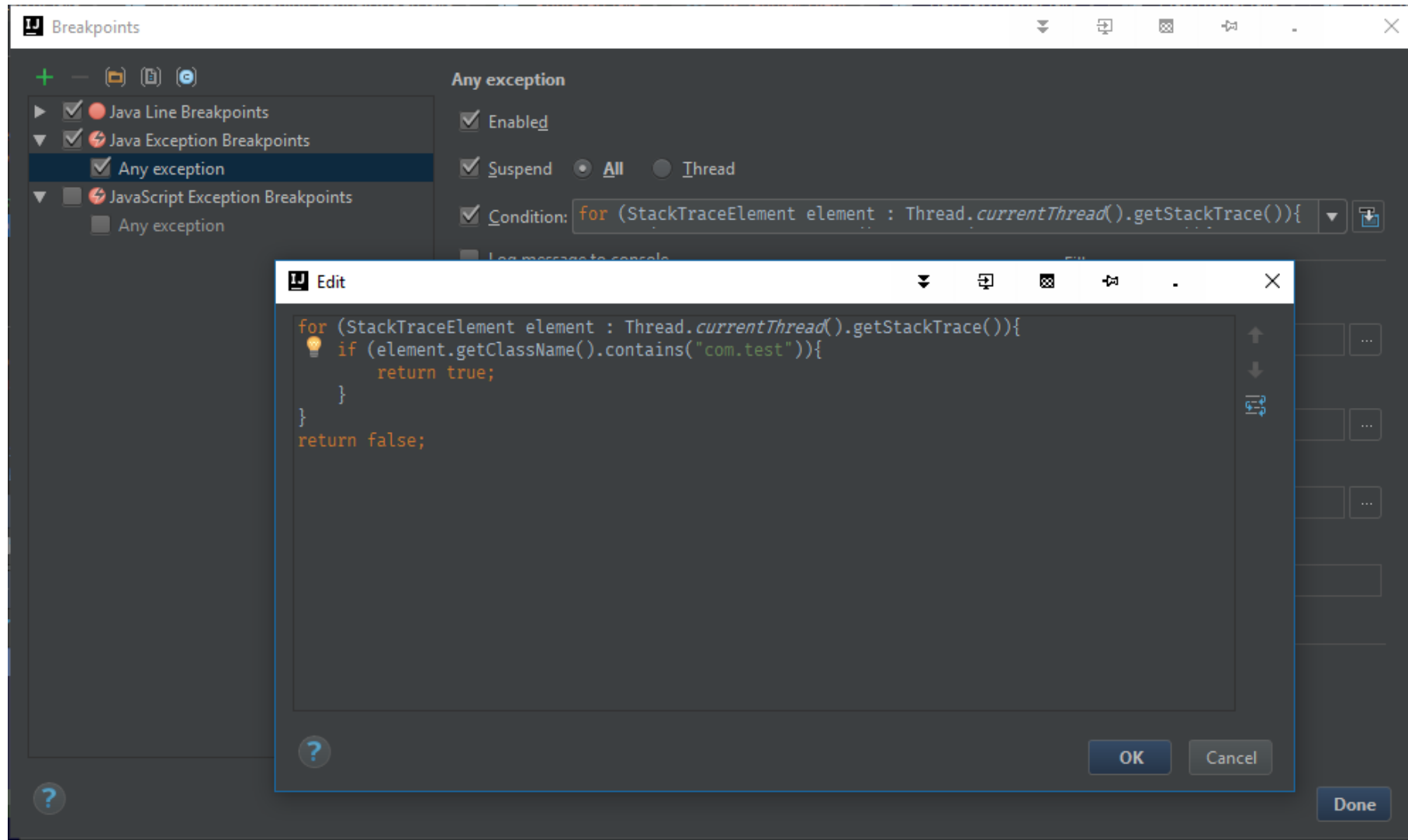
# Реальность (2)

```
INFO: Request received from: 0:0:0:0:0:0:1 for http://localhost:8080/TestWeb/login.jsp
Dec 30, 2014 12:45:28 AM org.apache.catalina.core.ApplicationContext log
SEVERE: Error thrown by readFile method
java.io.FileNotFoundException: d:\test.xml (The system cannot find the file specified)
    at java.io.FileInputStream.open(Native Method)
    at java.io.FileInputStream.<init>(FileInputStream.java:131)
    at java.io.FileInputStream.<init>(FileInputStream.java:87)
    at java.io.FileReader.<init>(FileReader.java:58)
    at Filters.LogFilter.readFile(LogFilter.java:28)
    at Filters.LogFilter.doFilter(LogFilter.java:19)
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:243)
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:210)
    at org.apache.catalina.core.StandardWrapperValve.invoke(StandardWrapperValve.java:222)
    at org.apache.catalina.core.StandardContextValve.invoke(StandardContextValve.java:123)
    at org.apache.catalina.authenticator.AuthenticatorBase.invoke(AuthenticatorBase.java:472)
    at org.apache.catalina.core.StandardHostValve.invoke(StandardHostValve.java:171)
    at org.apache.catalina.valves.ErrorReportValve.invoke(ErrorReportValve.java:99)
    at org.apache.catalina.valves.AccessLogValve.invoke(AccessLogValve.java:936)
    at org.apache.catalina.core.StandardEngineValve.invoke(StandardEngineValve.java:118)
    at org.apache.catalina.connector.CoyoteAdapter.service(CoyoteAdapter.java:407)
    at org.apache.coyote.http11.AbstractHttp11Processor.process(AbstractHttp11Processor.java:1004)
    at org.apache.coyote.AbstractProtocol$AbstractConnectionHandler.process(AbstractProtocol.java:589)
    at org.apache.tomcat.util.net.JIoEndpoint$SocketProcessor.run(JIoEndpoint.java:310)
    at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1142)
    at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:617)
    at java.lang.Thread.run(Thread.java:745)
```

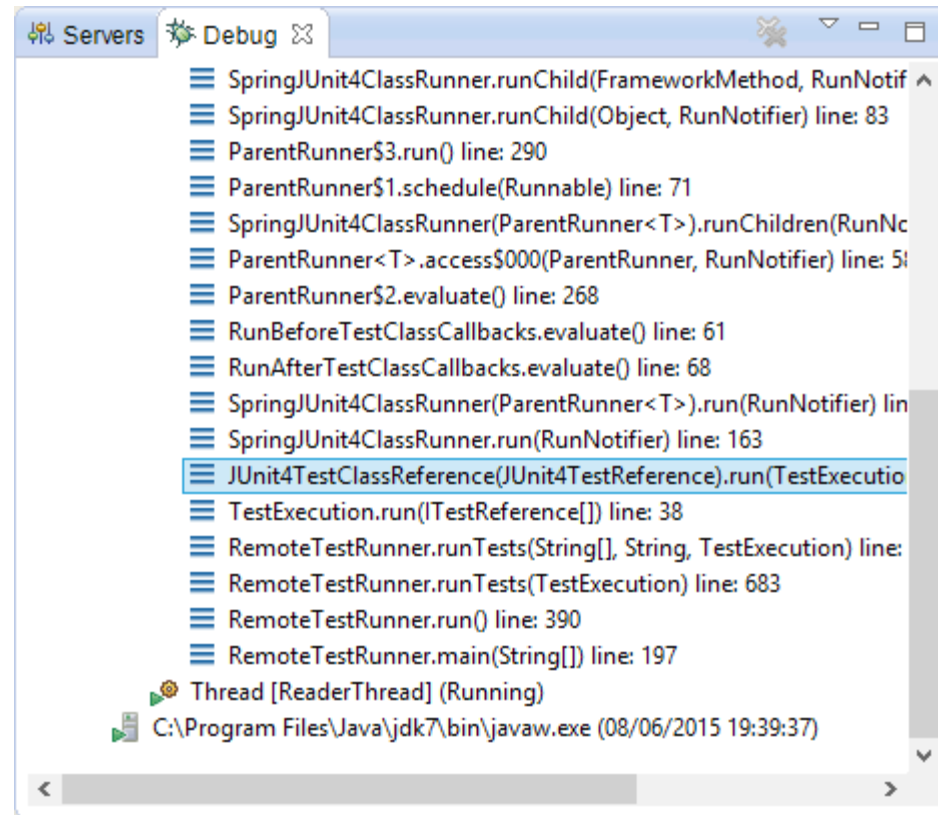
# BreakPoint Level up



# Level up (2)



# Поход на StackTrace



```
Servers Debug
SpringJUnit4ClassRunner.runChild(FrameworkMethod, RunNotif
SpringJUnit4ClassRunner.runChild(Object, RunNotifier) line: 83
ParentRunner$3.run() line: 290
ParentRunner$1.schedule(Runnable) line: 71
SpringJUnit4ClassRunner(ParentRunner<T>).runChildren(RunNc
ParentRunner<T>.access$000(ParentRunner, RunNotifier) line: 51
ParentRunner$2.evaluate() line: 268
RunBeforeTestClassCallbacks.evaluate() line: 61
RunAfterTestClassCallbacks.evaluate() line: 68
SpringJUnit4ClassRunner(ParentRunner<T>).run(RunNotifier) lin
SpringJUnit4ClassRunner.run(RunNotifier) line: 163
JUnit4TestClassReference(JUnit4TestReference).run(TestExecutio
TestExecution.run(ITestReference[]) line: 38
RemoteTestRunner.runTests(String[], String, TestExecution) line:
RemoteTestRunner.runTests(TestExecution) line: 683
RemoteTestRunner.run() line: 390
RemoteTestRunner.main(String[]) line: 197
Thread [ReaderThread] (Running)
C:\Program Files\Java\jdk7\bin\javaw.exe (08/06/2015 19:39:37)
```

# Git Log

The screenshot displays the IntelliJ IDEA interface. The top toolbar includes icons for file operations, navigation, and Git. The left sidebar shows the Project view with a tree structure: IntentionPowerPak [intellij.java] -> src -> com.siyeh -> ipp -> IntentionPowerPackBun. The main editor window shows the code for CoverageDataManagerImpl.java, with lines 79-92 visible. The code includes a private final VirtualFileContentsChangedAdapter myContentListener and two @Override methods: onFileChange and onBeforeFileChange. The bottom panel is split into two sections: Version Control (Log) and a diff view. The Log section shows a list of commits with their descriptions and dates. The diff view shows the changes in the file SearchEverywhereUsageTrigger, with line numbers 25-32 and the corresponding code changes.

```
private final VirtualFileContentsChangedAdapter myContentListener = new
VirtualFileContentsChangedAdapter() {
    @Override
    protected void onFileChange(@NotNull VirtualFile fileOrDirectory) {
        if (myCurrentSuiteRoots != null && VfsUtilCore.isUnder(fileOrDirectory
        .getPath(), myCurrentSuiteRoots)) {
            myCurrentSuitesBundle.restoreCoverageData();
            updateCoverageData(myCurrentSuitesBundle);
        }
    }
    @Override
    protected void onBeforeFileChange(@NotNull VirtualFile fileOrDirectory) { }
};
```

Version Control: Local Changes Log

git: make "commit autor Kirill Likhodedo\ 2019-03-11 15:00:00  
code cleanup [IDEA-208](#) Nikita Skvortso\ 2019-03-14 15:00:00  
register external models Nikita Skvortso\ 2019-03-14 15:00:00  
IDEA-[CR-44901](#): [groov Daniil Ovchinnik 2019-03-12 15:00:00  
IDEA-[CR-44949](#): [PY-34](#) Anton Bragin 2019-03-06 15:00:00  
IDEA-[CR-44898](#): [groov Daniil Ovchinnik 2019-03-12 15:00:00  
clean origin/191.6183 Gregory.Shrago 2019-03-14 00:00:00  
pass component tooltio Gredorv.Shrago 2019-03-14 00:00:00

src/com/intellij/ide/actions 4 files  
searcheverywhere 2 files  
statistics 1 file  
SearchEverywhereUsageTrigger

**IDEA-208969** Search Everywhere: Use addInputEvent method for correct collecting statistics  
3e1c244e Mikhail Sokolov

7a8aacf  
3e1c244 (SearchEverywhereUsa...  
25 25 public static final Str  
26 26  
27 27 public static final Str  
28 28 public static final Str  
29 28  
30 29 public static void tr  
31 30 trigger(project, feat  
32 31  
33 34

# Annotations

## Enable annotations

- Right-click the gutter in the editor or in the Differences Viewer and select **Annotate** from the context menu.

You can assign a custom shortcut to the **Annotate** command: in the **Settings/Preferences** dialog `Ctrl+Alt+S` choose **Keymap** on the left and go to **Version Control | Git | Annotate**.

# Annotations

199	01/09/2005	Zhuravlev		label.base.renderer.
200	<b>25/03/2020</b>	<b>Gasparyan</b>	*	label.base.renderer.
201	17/10/2008	Zhuravlev		label.base.renderer.
202	02/11/2012	Zhuravlev		label.base.renderer.
203	01/09/2005	Zhuravlev		label.base.renderer.
204	<b>06/04/2017</b>	<b>Ushakov</b>		label.base.renderer.
205	17/10/2008	Zhuravlev		label.base.renderer.
206	17/10/2008	Zhuravlev		label.base.renderer.
207	17/10/2008	Zhuravlev		label.base.renderer.
208	15/12/2011	Zhuravlev		label.base.renderer.
209	17/10/2008	Zhuravlev		label.base.renderer.
210	<b>28/01/2015</b>	<b>Ushakov</b>		label.base.renderer.
211	<b>28/04/2015</b>	<b>Ushakov</b>		label.base.renderer.
212	20/11/2017	Ushakov		label.base.renderer.
213	17/10/2008	Zhuravlev		label.base.renderer.

# History for Selection

History for Selection

Side-by-side viewer | Ignore whitespaces and empty lines | Highlight words | 1 difference

Revision 02f1a7048426b28dccb983ba5691c632ebe1d29 (Read-only) | Revision e626356429e94652345c3b40b01d67d3bd6c3b61 (Read-only)

```
_arena_data['task_count'] += 1
```

```
1 1 if task_id in course_cache.simtest_tasks:
2 2     continue # tasks from simtests are not counted
3 3 _arena_data['task_count'] += 1
```

Changes only

Version	Date	Author	Commit Message
85b8c07	29/07/2017, 12:51		
<b>e626356</b>	<b>20/11/2015, 11:26</b>		<b>Not counting simtest tasks in user progress per arena.</b>
ab05525	28/08/2015, 09:56		
b3245e2	20/08/2015, 12:09		
3597994	27/05/2015, 21:20		
38f9159	17/05/2015, 13:59		
1f6ad66	17/05/2015, 23:53		

Commit Message:  
Not counting simtest tasks in user progress per arena.



Заполняем “Карточку” сервиса раздел “API”:

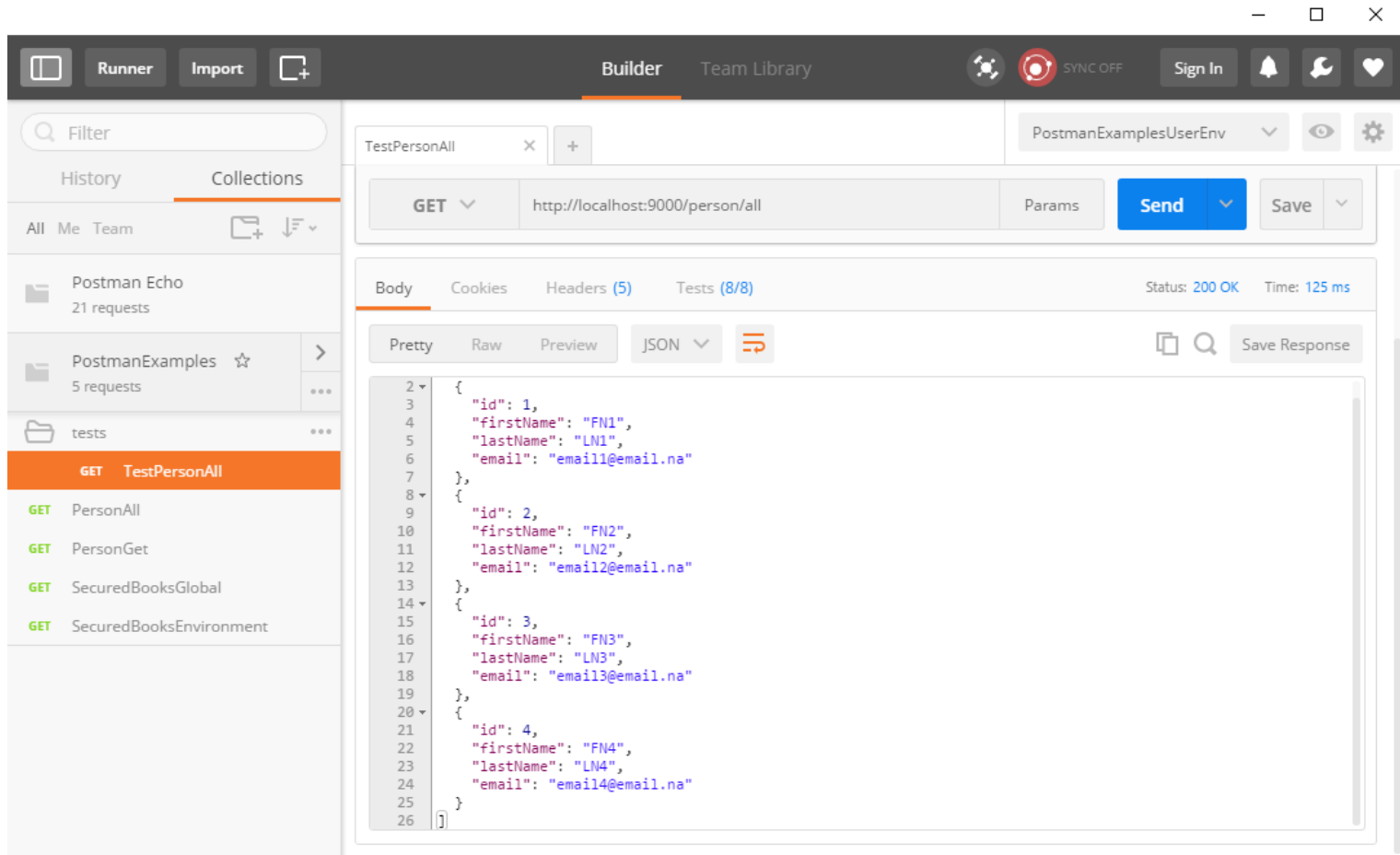
API сервиса		
<i>Команды</i>	<i>Очереди</i>	<i>События</i>
<u>Swagger:</u> Синхронные: <ul style="list-style-type: none"><li>• getHTTPs()</li></ul> Асинхронные: <ul style="list-style-type: none"><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• getRequest()</li></ul>	<ul style="list-style-type: none"><li>• SomeEvent_1</li></ul>

# 5. Debug утилитами

По выясненным примерам и формату сообщений можем через Postman или SOAP UI погонять сервис.



# Postman



<https://learning.postman.com/docs/getting-started/introduction/>

# SoapUI

The screenshot displays the SoapUI 5.0.0 application window. The interface is divided into several sections:

- Navigator:** Located on the left, it shows a tree view of the project structure. The 'TestProject' is expanded to show 'Service1Soap', which contains 'GetSum1' and 'GetSum2'. 'GetSum1' is further expanded to show 'Request 1'. Below this, 'TestSuite 1' is expanded to show 'TestCases (1)', which contains 'TestCases (1)'. This 'TestCases (1)' is expanded to show 'Properties (1)', which contains a property named 'aValue' with the value '1'. This property is highlighted with a red box.
- Test Request:** The main central area shows the configuration for a test request. The URL is 'http://localhost:4293/Service1.asmx'. The request body is shown in XML format:

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Header/>
  <soap:Body>
    <soap1:GetSum1>
      <soap1:a>${#TestCase#aValue}</soap1:a>
      <soap1:b>2</soap1:b>
      <soap1:c>4</soap1:c>
    </soap1:GetSum1>
  </soap:Body>
</soap:Envelope>
```
- Properties:** At the bottom left, there is a 'Properties' tab.
- Bottom Panel:** This panel shows the status of the test request. It includes tabs for 'Auth', 'Headers (0)', 'Attachments (0)', 'WS-A', 'WS-RM', 'JMS Headers', and 'JMS Property (0)'. Below these, it shows 'Assertions (2)' and 'Request Log (12)'. The response time is '18ms (356 bytes)'. At the bottom, there are links to various logs: 'SoapUI log', 'http log', 'jetty log', 'error log', 'wsrm log', 'memory log', and 'script log'.

<https://www.soapui.org/getting-started/soap-test/>

Заполняем “Карточку” сервиса раздел “Метрики”:

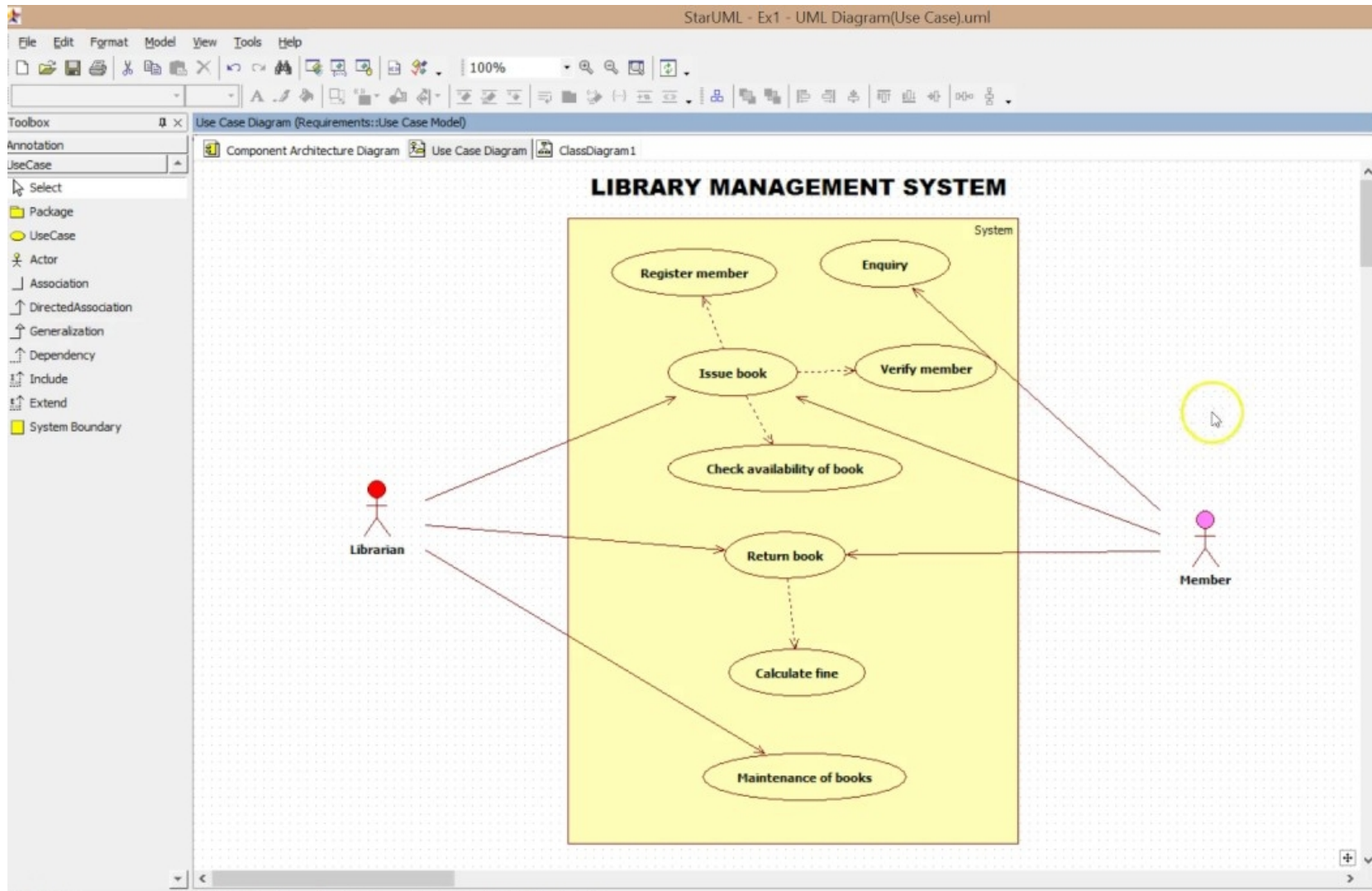
<b>Метрики</b> (что логируем, за чем следим)
<ul style="list-style-type: none"><li>• кол-во _____</li><li>• ошибки</li><li>• ...</li></ul>

# 6. Сам себе техпис

Строим очень верхнеуровневую диаграмму, где есть большой чёрный ящик + внешние API.

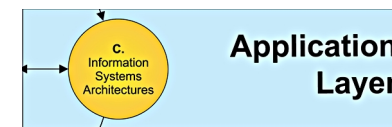


# UML



<https://www.edx.org/course/uml-class-diagrams-for-software-engineering>

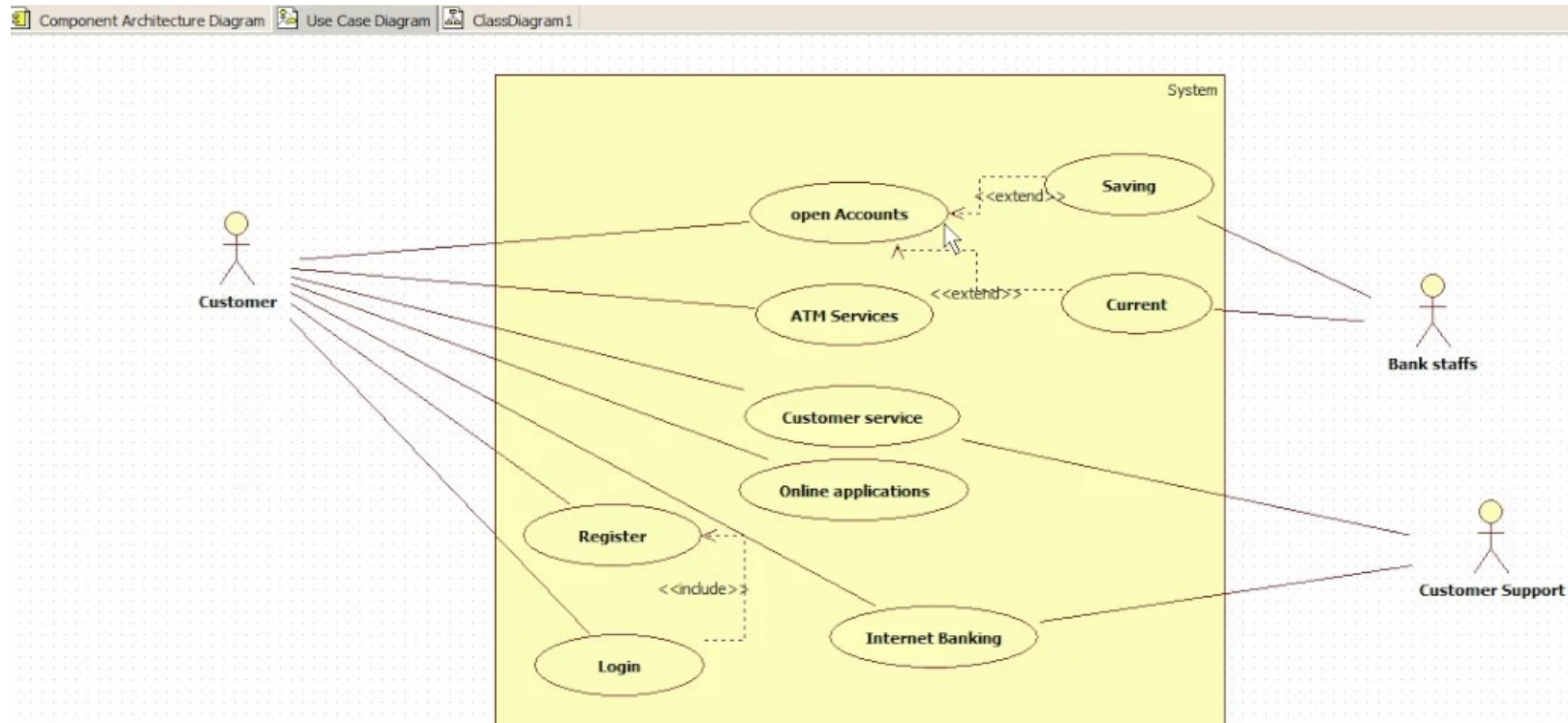
# 7. Сам себе техпис (2)



Узнаем, а зачем эти методы (API) нужны и что за внешние системы.  
Дополняем диаграмму.



# UML

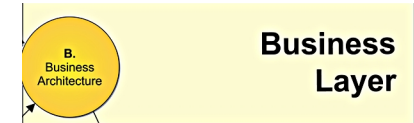


Заполняем “Карточку” сервиса раздел “Зависимости”:

<b>Зависимости</b>	
<i>Вызывает сервис:</i>	<i>Слушает сервис:</i>

# 8. User Stories

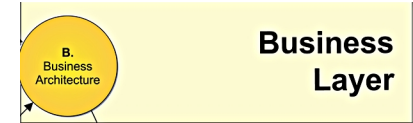
Узнаем, что за user-story это чудо реализовывает, какие есть сценарии использования и т.д.



Заполняем “Карточку” сервиса разделы “Описание” и “Возможности”:

<b>Название сервиса:</b>	<b>Сервис</b>
Описание:	Сервис реализует ...
<b>Возможности:</b>	
User-story (бизнесовые возможности)	

# 9. Jira



Идём в Jira и ищем задачи (сопоставляем имя ветки и тикет), которые относятся к данной системе.

# Jira

The screenshot shows the Jira interface for an Epic titled "Epic stuff" in project "xyz / XYZ-1". The top navigation bar includes "JIRA", "Dashboards", "Projects", "Issues", "Boards", and "Create". A search bar is on the right. The left sidebar contains navigation options like "Backlog", "Active sprints", "Releases", "Reports", "Issues", "Components", "PROJECT SHORTCUTS", "SOURCE CODE", "Invite your team", and "Project settings".

**Epic stuff** (xyz / XYZ-1)

[Edit](#) [Comment](#) [Assign](#) [To Do](#) [In Progress](#) [Done](#) [Admin](#)

**Details**

Type: **Epic** Status: **TO DO** (View workflow)  
Priority: **Medium** Resolution: **Unresolved**  
Labels: **None**

**Description**  
aaaaaa

**Attachments**  
Drop files to attach, or browse.

**Issue links**

**0 issues in this epic**  
There are no issues in this epic.

**Activity**  
All Comments Work log History Activity  
John Doe created issue - 4 days ago

**People**

Assignee: **Unassigned**  
[Assign to me](#)  
Reporter: **John Doe**  
Votes: **0**  
Watchers: **1** Stop watching this issue

**Dates**

Created: **4 days ago**  
Updated: **1 minute ago**

**Development**

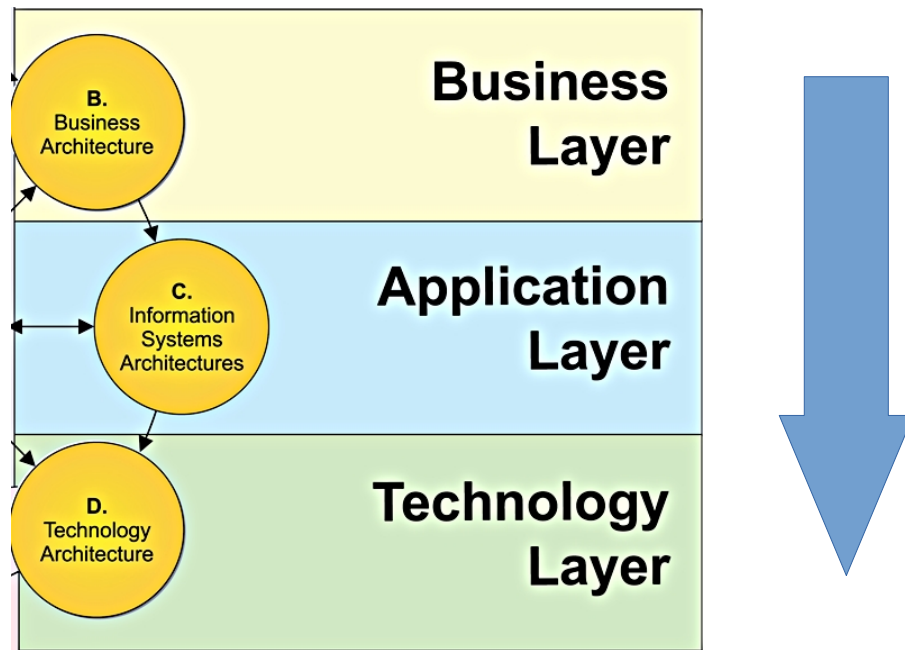
**1 branch**  
**3 commits** Latest Yesterday

**Agile**  
[View on Board](#)

**HipChat discussions**  
Do you want to discuss this issue? Connect to HipChat.  
[Connect](#) [Dismiss](#)

# 10. Пишем новый код

Отлично, теперь мы уже знаем достаточно много, чтобы попробовать себя в написании нового кода.



# 11. Задачи (возрастание сложности)



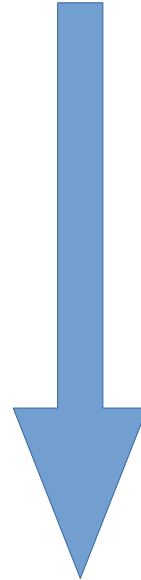
# 11. Задачи (возрастание сложности)

→ Добавить новый параметр в API



# 11. Задачи (возрастание сложности)

- Добавить новый параметр в API
- Рефакторинг



# SonarQube

The screenshot displays the SonarQube web interface. At the top, there is a navigation bar with tabs for 'sonarqube', 'Projects', 'Issues', 'Rules', 'Quality Profiles', 'Quality Gates', 'Administration', and 'More'. A search bar on the right allows searching for projects, sub-projects, and files. Below the navigation bar, the main content area shows a project overview for 'Example of SonarQube Scanner Usage'. The project status is 'Passed'. The overview includes the following metrics: 21 Bugs (E), 0 Vulnerabilities (A), 6 Code Smells (A), 3.5% Coverage, and 25.6% Duplications. The last analysis was performed on August 17, 2018, at 6:58 PM. The project is associated with 600 files (XS) in XML and Python. On the left side, there are filters for 'Quality Gate' (Passed: 1, Warning: 0, Failed: 0) and 'Reliability (Bugs)' (A: 0, B and worse: 1, C and worse: 1, D and worse: 1, E: 1).

<https://docs.sonarqube.org/latest/setup/get-started-2-minutes/>

# SonarQube

The screenshot displays the SonarQube web interface for a project named "Java :: Simple Project :: SonarQube Scanner for Gradle". The browser address bar shows the URL: `localhost:9000/component_issues?id=org.sonarqube%3Ajava-gradle-simple#resolved=false`. The page header includes the SonarQube logo, navigation links (Dashboards, Issues, Measures, Rules, Quality Profiles, Quality Gates, More), and a "Log in" button. The main content area shows the project name and version information: "Version 0.1-SNAPSHOT / February 26 2016 12:00 PM".

The "Issues" tab is active, showing a summary table on the left and a code editor on the right. The summary table includes filters for Severity and Resolution. The code editor displays the file `src/main/java/example/Greeting.java` with 12 lines, 20min debt, 2 issues, and 60.0% coverage. Two issues are highlighted in red boxes:

- Issue 1: "Replace this usage of System.out or System.err by a logger." (Major, Open, Not assigned, Not planned, 10min debt, 2 hours ago, L5, bad-practice). This issue is located on line 5 of the code.
- Issue 2: "Replace this usage of System.out or System.err by a logger." (Major, Open, Not assigned, Not planned, 10min debt, 2 hours ago, L9, bad-practice). This issue is located on line 9 of the code.

The code editor shows the following code:

```
1 package example;
2
3 public class Greeting {
4     public void coveredByUnitTest() {
5         System.out.println("Hello, world.");
6     }
7
8     public void notCoveredByUnitTest() {
9         System.out.println("Hello, world.");
```

# Логи <3

Если нет логов, то добавляем их.

It is very easy to inject logger using Lombok annotation `@Slf4j`.

```
@Path("/authentication")
@Slf4j
public class AuthenticationService extends SpringApplication {

    private Logger logger = LogManager.getLogger(AuthenticationService.class);

    @Path("/greet")
    @GET
    @Produces(MediaType.TEXT_PLAIN)
    public Response greet(){
        log.info("Welcome to Tarkshala Scholar APIs");
        log.error("THIS is error log");
        log.debug("THIS is debug log");
        return getBean(AuthenticationServiceHandler.class).greet();
    }
}
```

# Логи “курильщика”

```
TryCatchDemo.java x
package com.tutorialkart.java;

public class TryCatchDemo {

    public static void main(String[] args) {
        new TryCatchDemo().routine();
        System.out.println("End of main");
    }

    public void routine(){
        System.out.println("In routine..");
        try {
            int c = 4/0;
            System.out.println("This statement is not printed if an exception occurs at the line above.");
        } catch (ArithmeticException e) {
            System.out.println("Exception is handled in ArithmeticException catch block.");
        } catch (Exception e) {
            System.out.println("Exception is handled in Exception catch block");
        }
        System.out.println("Continuing with rest of statements after try-catch block.");
    }
}
```

# Сквозной ID

1 hit

New Save Open Share

\*

default\*

Selected Fields

? \_source

Available Fields

- t \_id
- t \_index
- # \_score
- t \_type
- t description
- ? id
- t name
- t tags

**\_source**

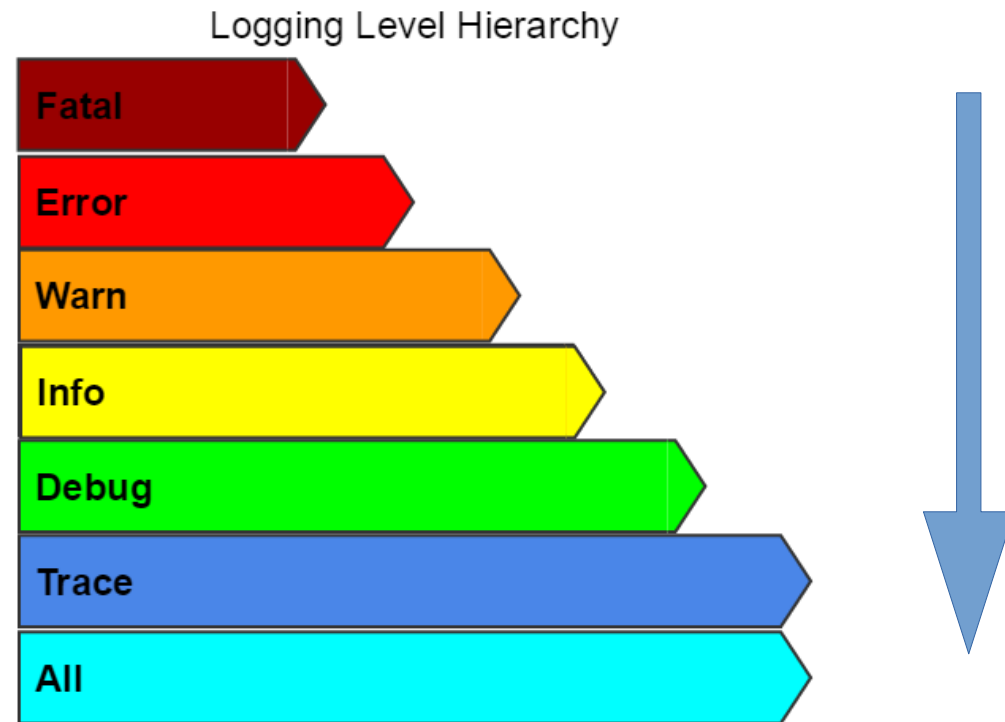
id: 7a15b39f-a7dc-49a1-adb9-a2e285fa0e65 name: Dell XPS 13 description: Latest Dell XPS 13 tags: laptops, windows \_id: 7a15b39f-a7dc-49a1-adb9-a2e285fa0e65

\_type: product \_index: default \_score: 1

[Link to /default/product/7a15b39f-a7dc-49a1-adb9-a2e285fa0e65](#)

Field	Value
t _id	7a15b39f-a7dc-49a1-adb9-a2e285fa0e65
t _index	default
# _score	1
t _type	product
t description	Latest Dell XPS 13
? id	7a15b39f-a7dc-49a1-adb9-a2e285fa0e65
t name	Dell XPS 13
t tags	laptops, windows

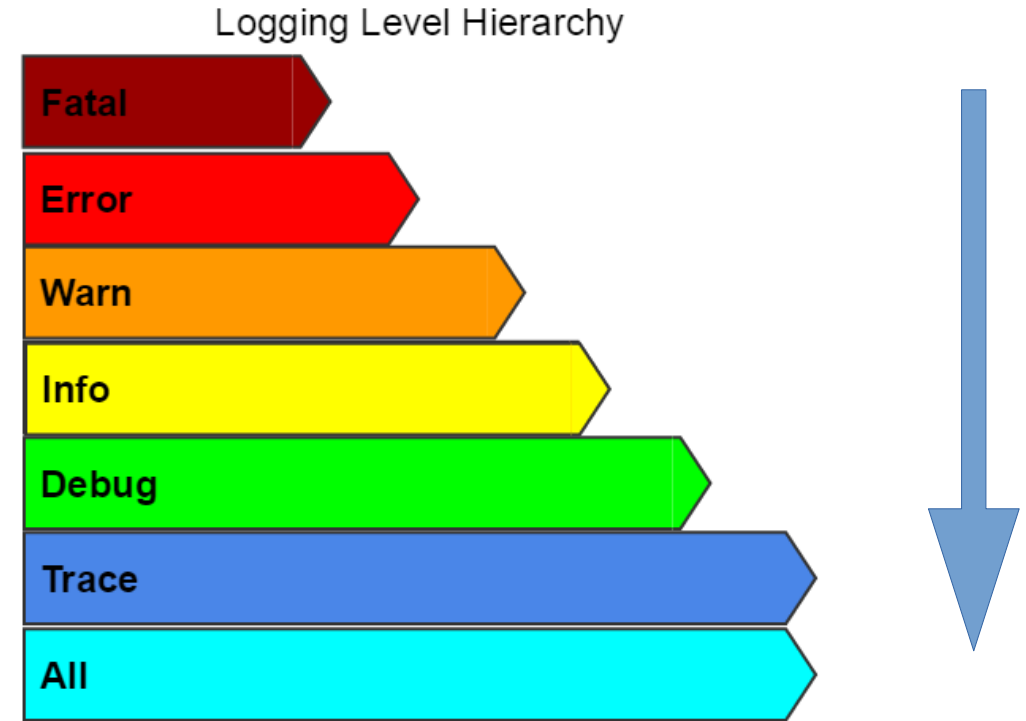
Добавляем логи:





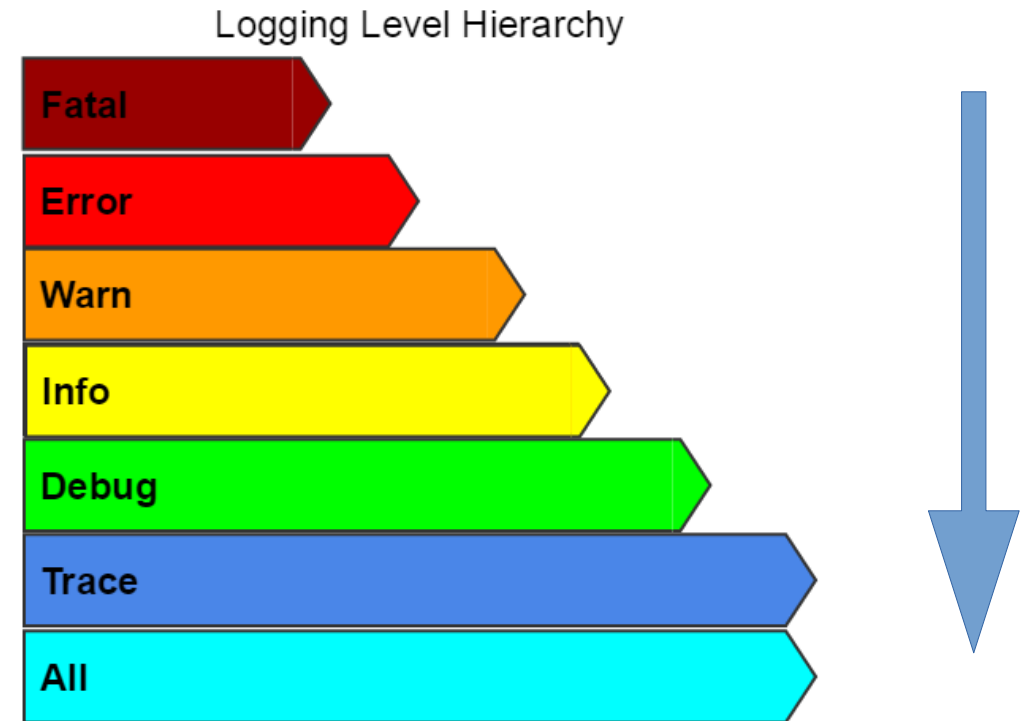
Добавляем логи:

→ Исключения



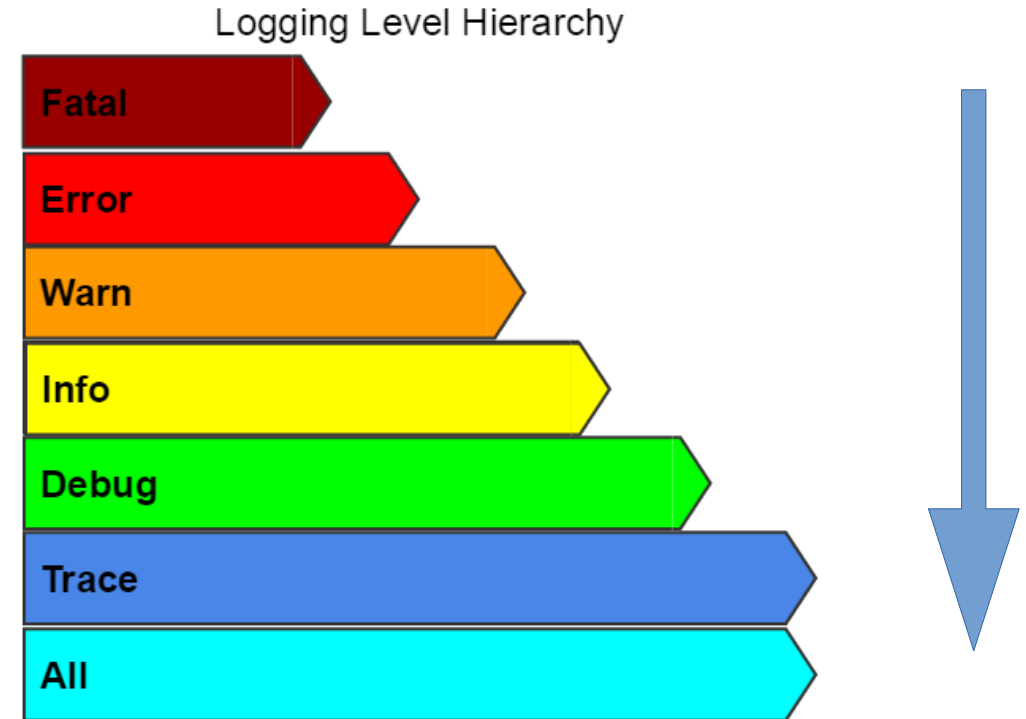
Добавляем логи:

- Исключения
- Ошибки



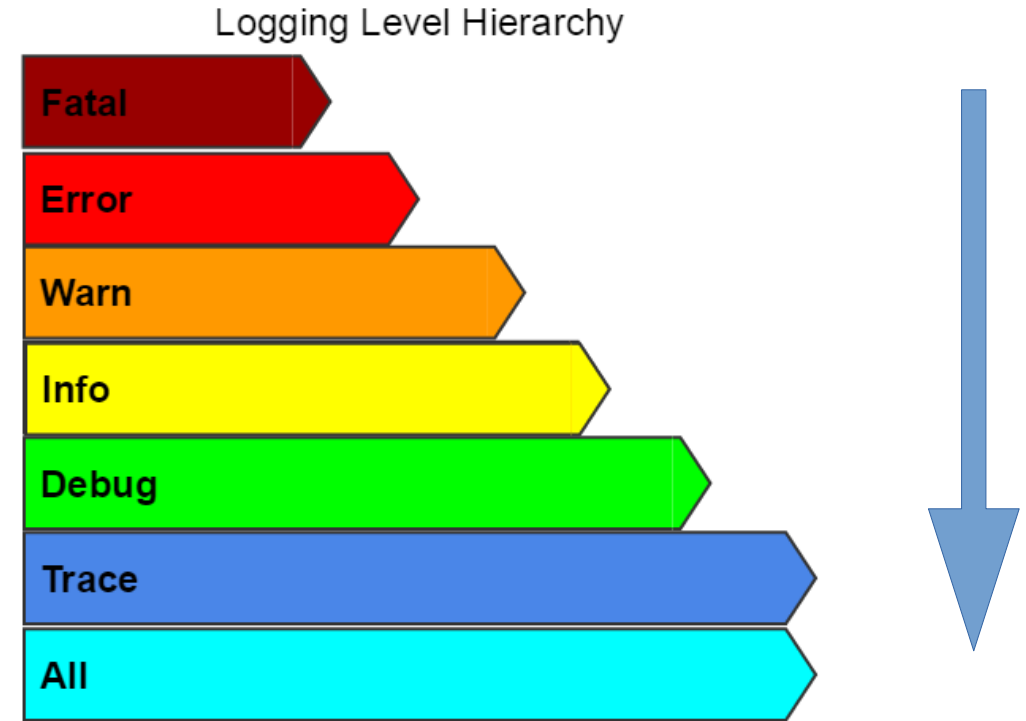
Добавляем логи:

- Исключения
- Ошибки
- Получение/ Отправка



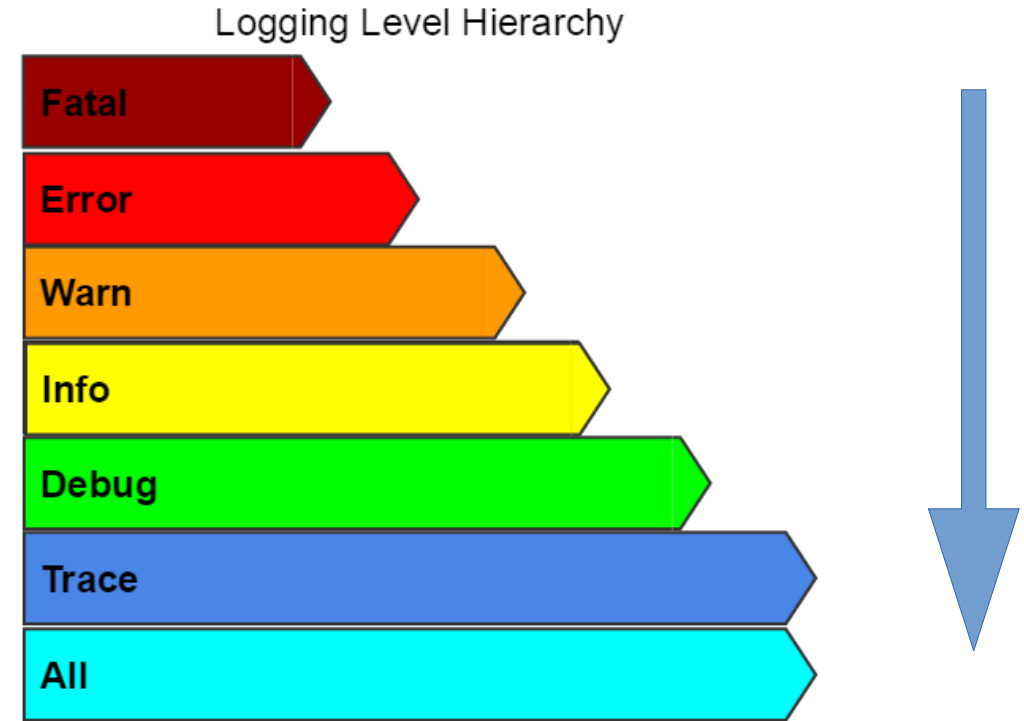
Добавляем логи:

- Исключения
- Ошибки
- Получение/ Отправка
- Ключевые этапы обработки



Добавляем логи:

- Исключения
- Ошибки
- Получение/ Отправка
- Ключевые этапы обработки
- Отладка



Смотрим, есть ли обработка ошибок “крайних” ситуаций + **валидация**:

Смотрим, есть ли обработка ошибок “крайних” ситуаций + **валидация**:

→ Null

Смотрим, есть ли обработка ошибок “крайних” ситуаций + **валидация**:

→ Null

→ Пустые коллекции

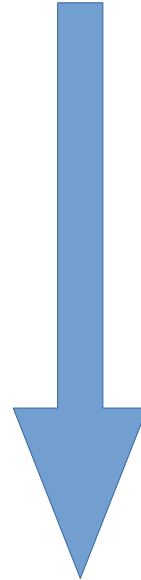


Смотрим, есть ли обработка ошибок “крайних” ситуаций + **валидация**:

- Null
- Пустые коллекции
- Формат данных

# 11. Задачи (возрастание сложности)

- Добавить новый параметр в API
- Рефакторинг
- Повышение версии зависимостей



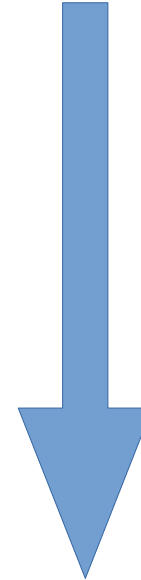
# 11. Задачи (возрастание сложности)

- Добавить новый параметр в API
- Рефакторинг
- Повышение версии зависимостей
- Новое API



# 11. Задачи (возрастание сложности)

- Добавить новый параметр в API
- Рефакторинг
- Повышение версии зависимостей
- Новое API
- Переход на новую технологию (SpringBoot)



# 17. Будьте лучше

Постепенно обновляйте своё описание сервиса.

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+ Swagger

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- + Swagger
- + Confluence

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- + README



# 17. Будьте лучше

Постепенно обновляйте своё описание сервиса.

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- + Confluence
- + READ.ME
- + КОММЕНТЫ В КОДЕ

# 17. Будьте лучше

Постепенно обновляйте своё описание сервиса.

- + Swagger
- + Confluence
- + README
- + КОММЕНТЫ В КОДЕ

**Будьте другом тому, кто придёт после вас.**

An abstract, colorful ink splash or smoke effect in shades of purple, blue, and teal, centered on a white background. The splash is dense and textured, with various shades of purple and blue blending together.

**Спасибо!**

Вопросы?



**Анна Абрамова**

@zvukizvezd

