

Von **DAX-Konzern**  
bis **Kirche**

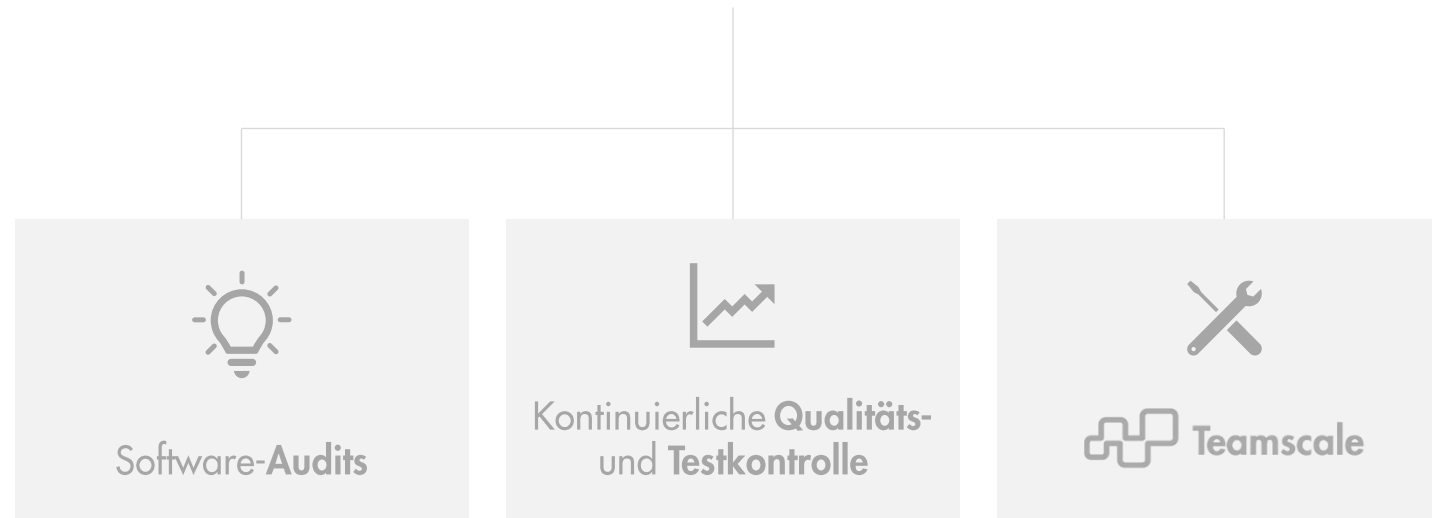
Erfahrungen aus  
10 Jahren Analyse  
komplexer  
Softwaresysteme

Nils Göde

COSE

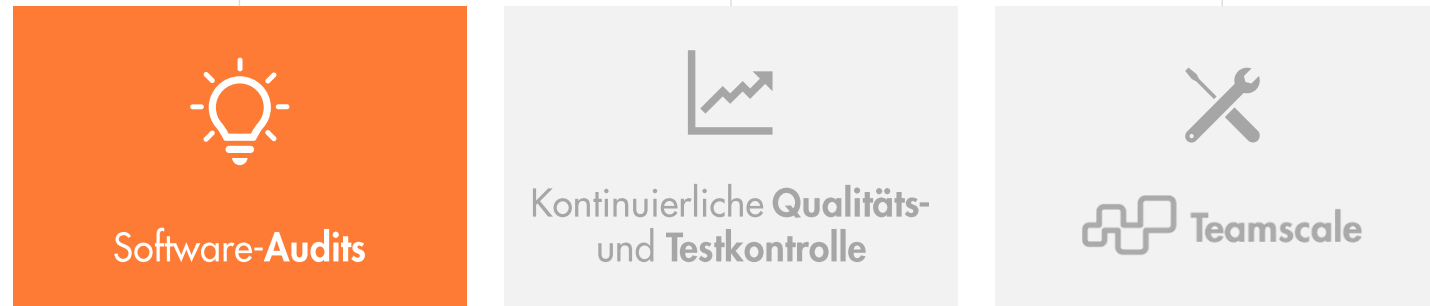


# Zukunftsfähigkeit





# Zukunftsfähigkeit



# Warum?

Überblick **Softwareportfolio**



**Investition**



**Migration** und Umbau



Bewegung in die **Cloud**



**Professionalisierung**



**Abnahme** Dienstleister



**Integration** von Systemen



...

## Warum?



**20+**  
Auditoren



**10+**  
Länder



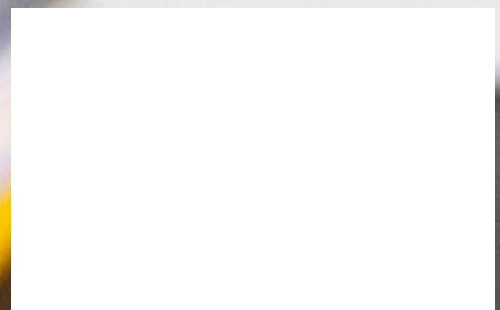
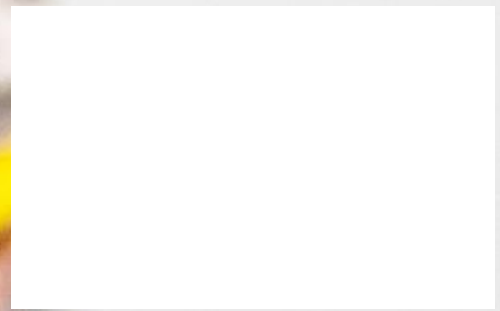
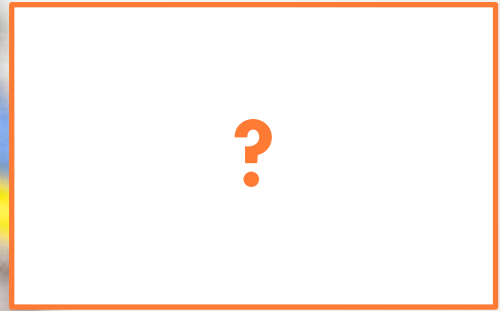
**25+**  
Sprachen



**400+**  
Interviews



**3000+**  
Seiten





» In welchen **Programmiersprachen** ist das System implementiert? «

» **Java**, aber auch **JBoss** «



» **JSON** «



» Die Clients sind in **AJAX** «



» Bei uns basiert alles auf **APIs** «

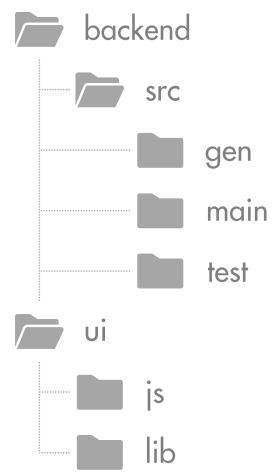


```
> find . -type f | sed -n 's/.*\./p' | sort | uniq -c
  50 c
 861 class
  12 cs
  97 h
9416 java
 303 js
  64 jsp
  32 pc
  75 pl
  24 py
 588 sh
... ..
```



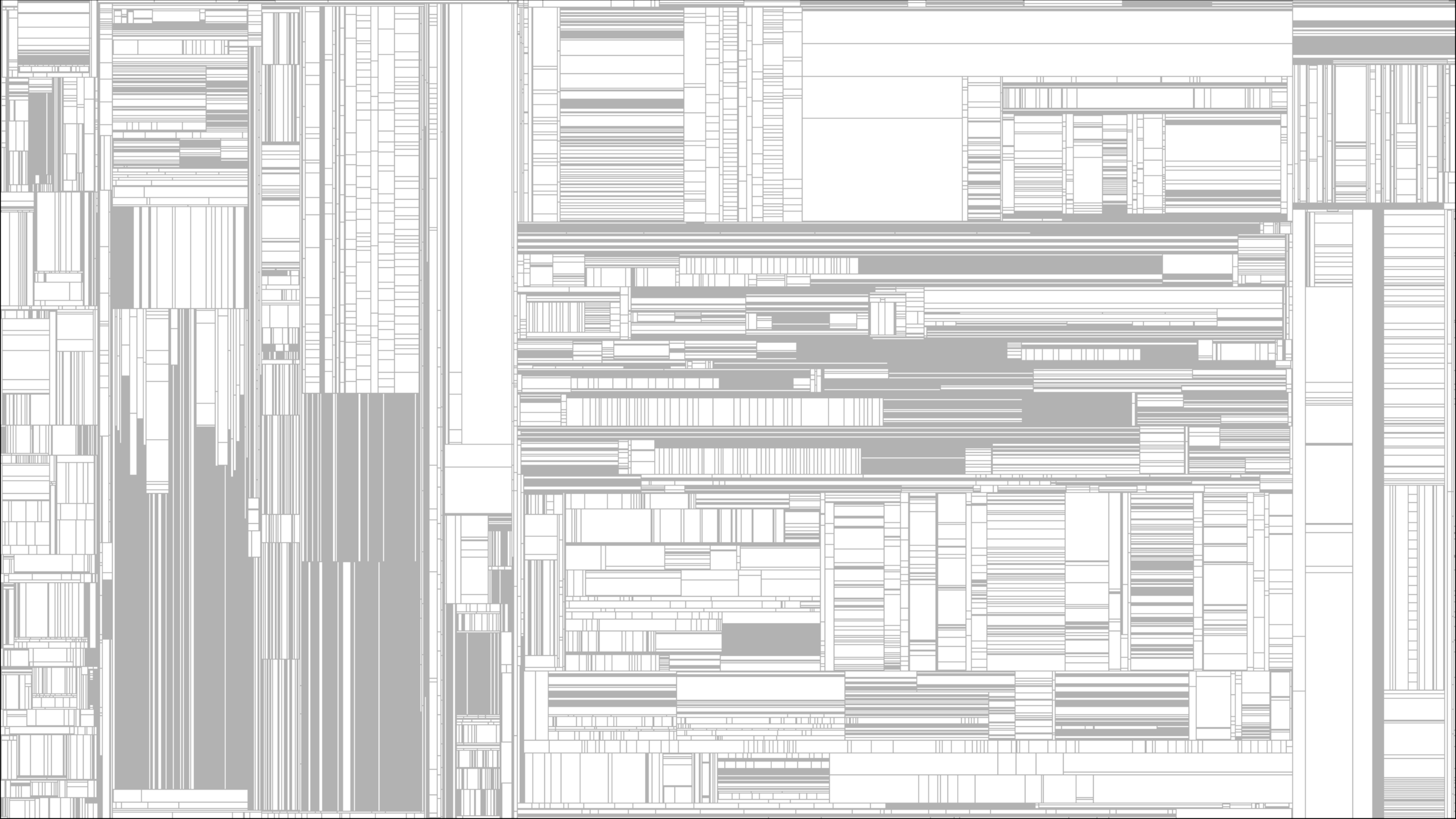
```
> find . -type f -print0 | xargs -0 -n100 wc -l | awk -F ' +|\\.' \
    '/\./ { sumlines[$NF] += $2 }
    END { for (ext in sumlines) print ext, sumlines[ext] }'
```

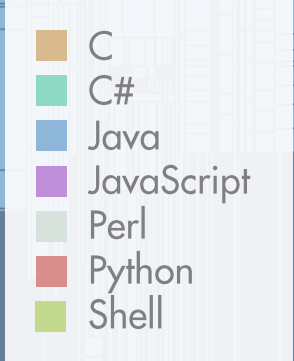
|      |         |
|------|---------|
| c    | 8142    |
| cs   | 1232    |
| h    | 5562    |
| java | 1494397 |
| js   | 254088  |
| pc   | 8528    |
| pl   | 23894   |
| py   | 9321    |
| sh   | 35607   |
| ...  |         |

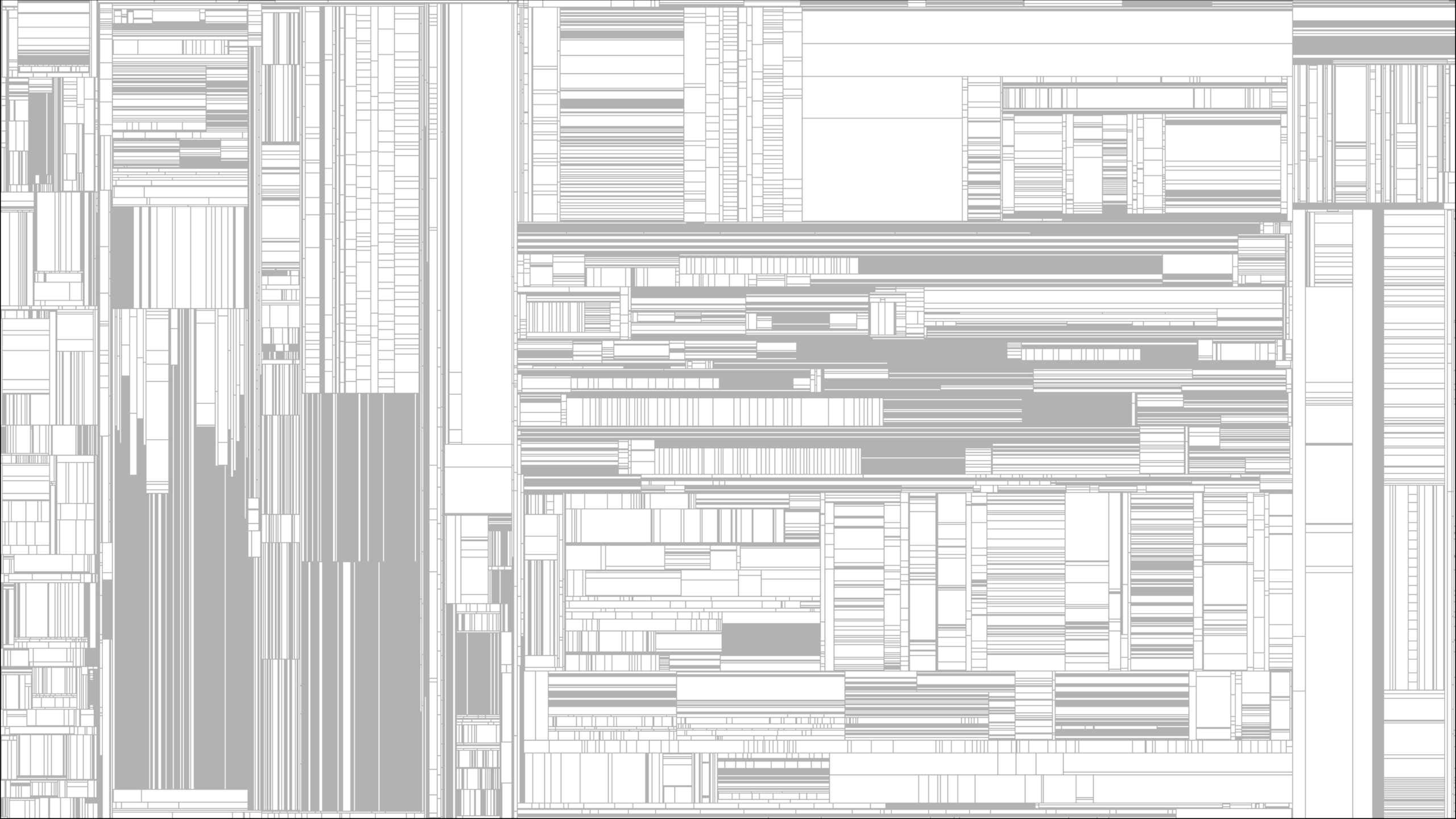




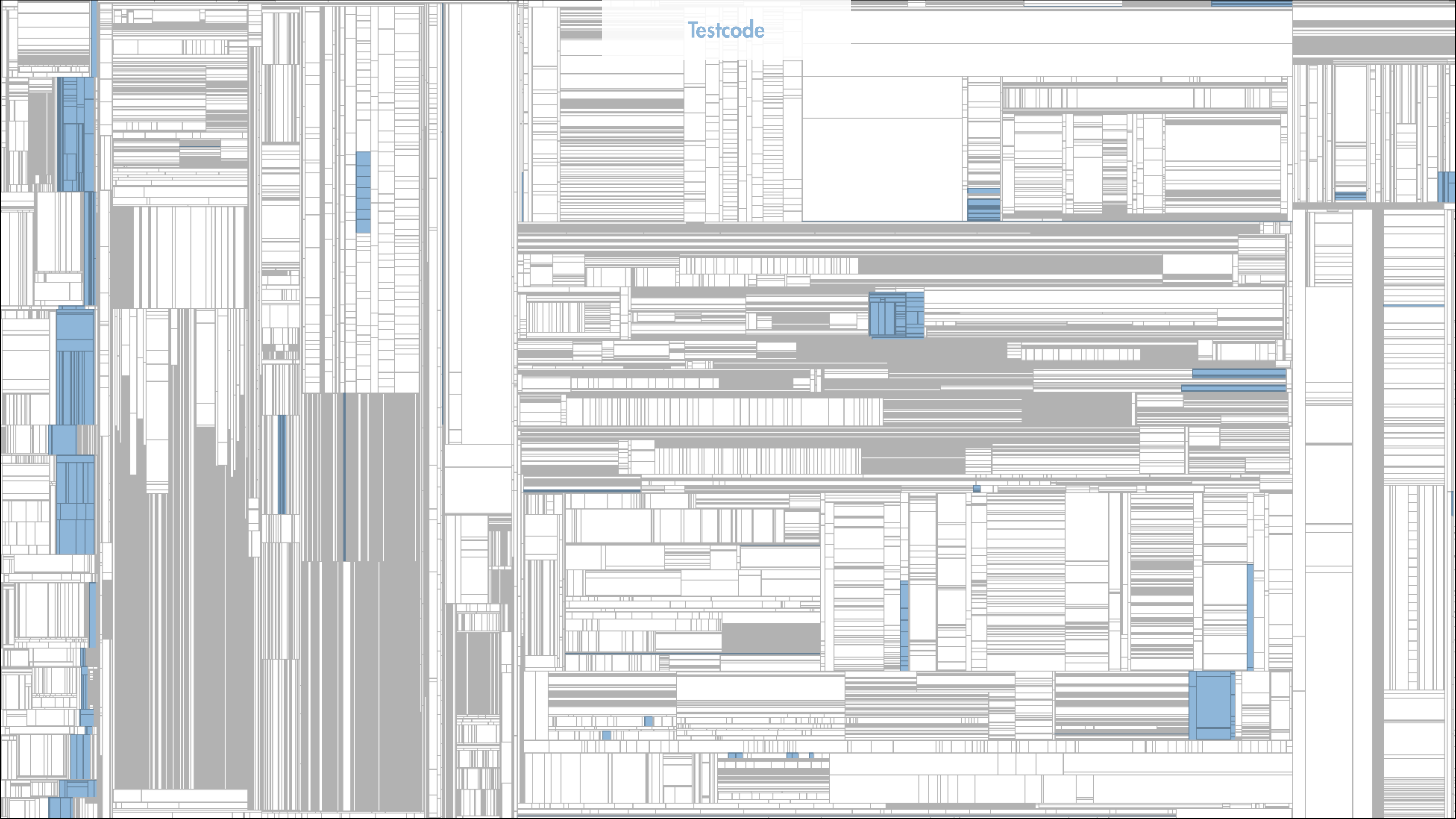






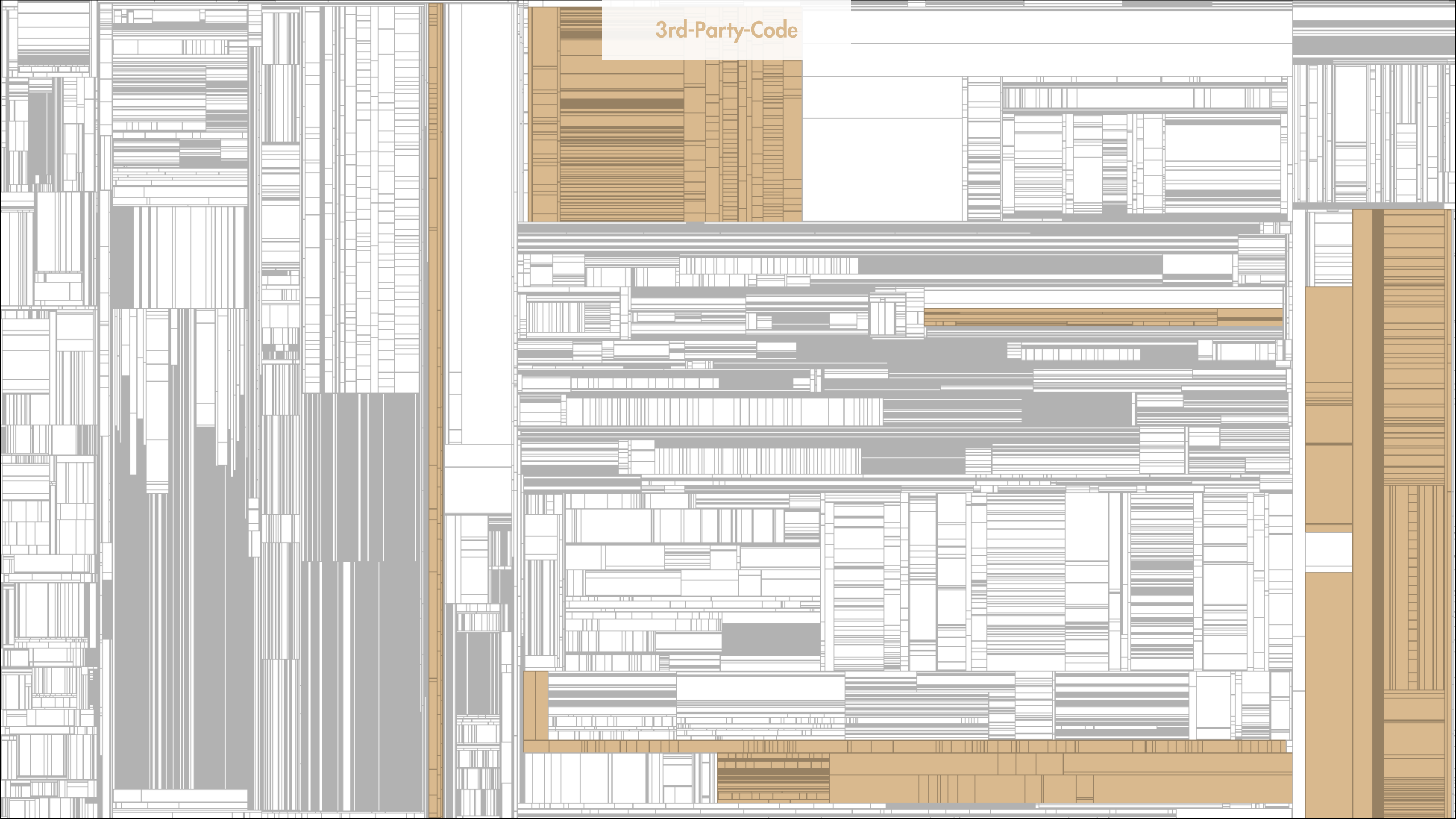


Testcode

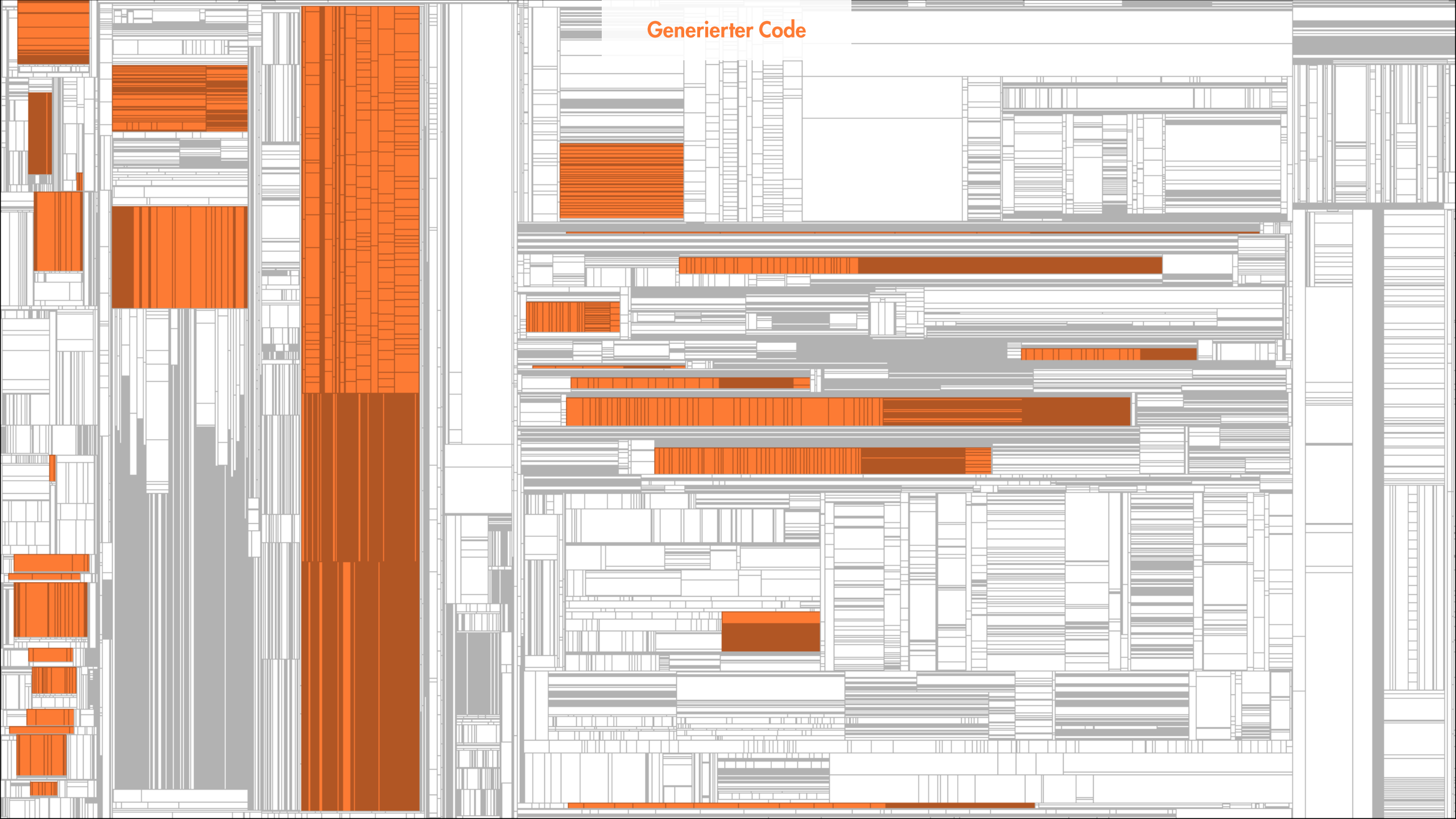




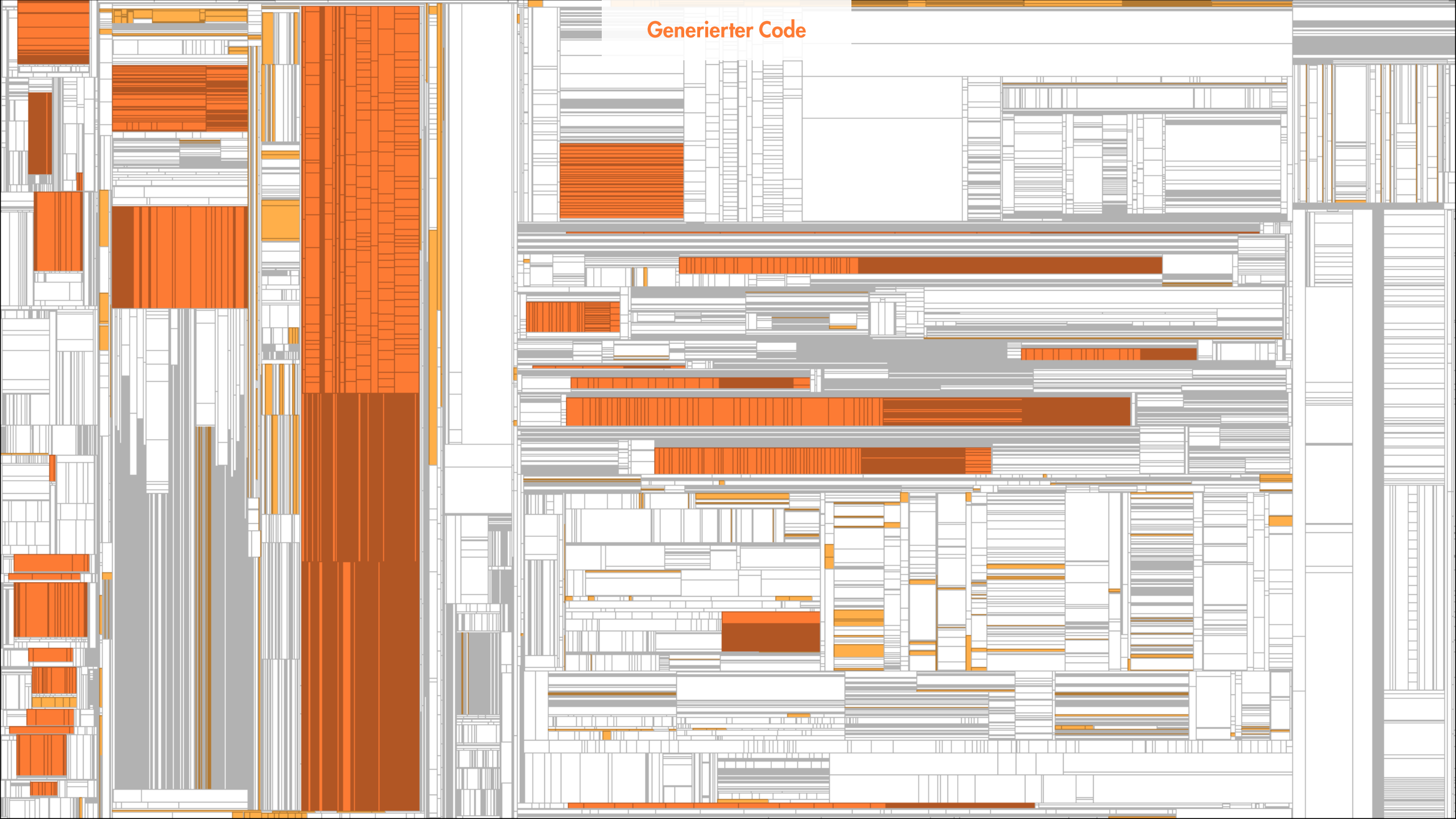
3rd-Party-Code

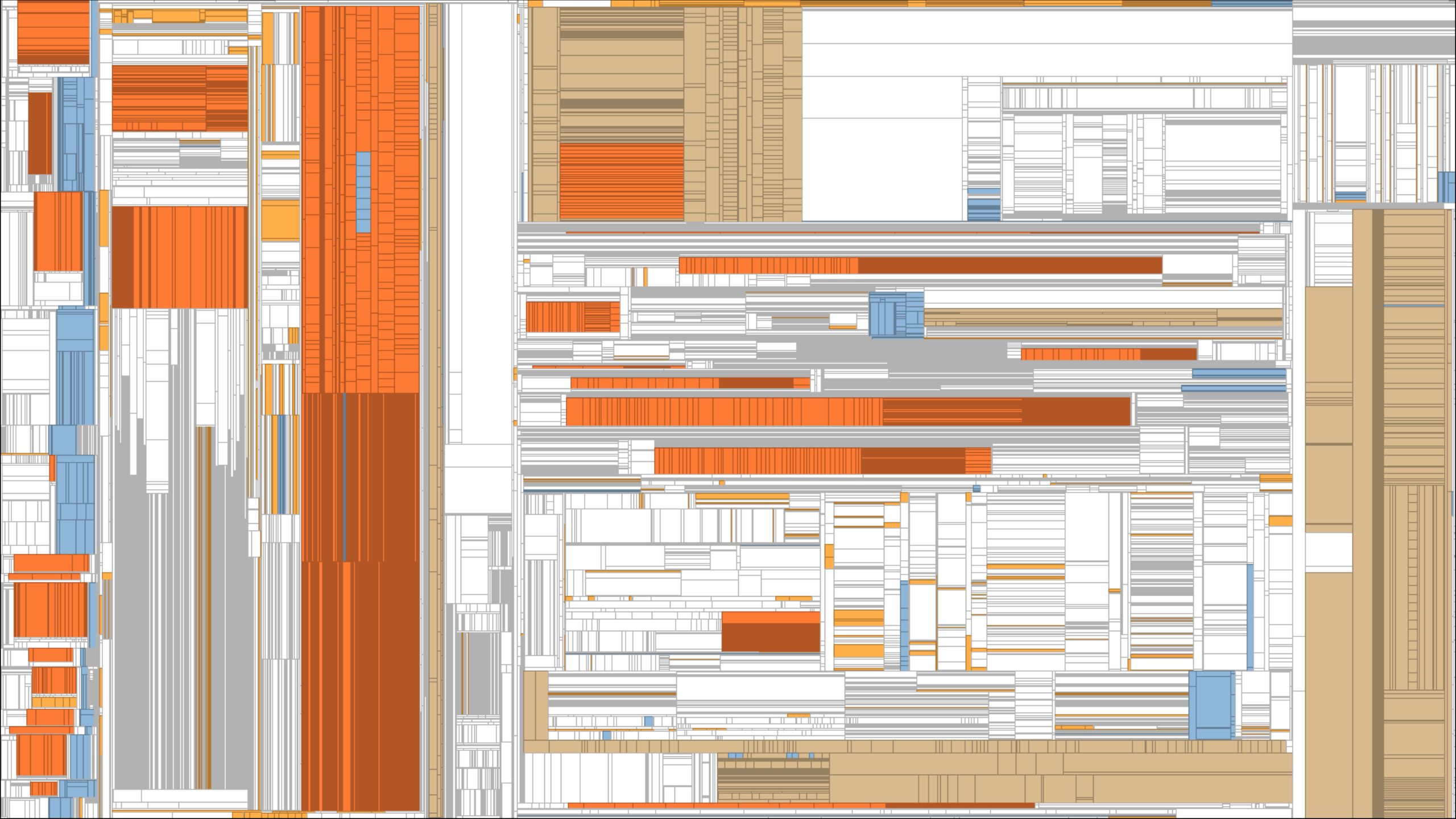


# Generierter Code



# Generierter Code







## Verzeichnisorganisation



| Technologie    | Version | Lizenz       | ... |
|----------------|---------|--------------|-----|
| Apache Commons | 1.9.0   | Apache 2.0   | ... |
| Angular        | 9       | MIT          | ... |
| dom4j          | 2.1.3   | Apache-style | ... |
| ...            | ...     | ...          | ... |

```
dependencies {
    // Include all jar-files in the 'lib' folder as dependencies
    implementation fileTree(dir: 'lib', includes: ['*.jar'])

    implementation group: 'org.apache.commons', name: 'commons-csv', version: '1.9.0'
    implementation 'com.h2database:h2-mvstore:1.4.200'

    implementation group: 'org.apache.tika', name: 'tika-core', version: '1.24.1'

    // required for reading write-protected PDFs - see
    // https://github.com/JabRef/jabref/pull/942#issuecomment-209252635
    implementation 'org.bouncycastle:bcprov-jdk15on:1.65.01'

    implementation 'commons-cli:commons-cli:1.4'

    // For Java 9+ compatibility, we include a bundled version of the libreoffice
    // See https://bugs.documentfoundation.org/show_bug.cgi?id=117331#c8 for bac
    // information
    // Use the task bundleLibreOffice to update the bundled jar
    // DO NOT CHANGE THE libreoffice PREFIX
    libreoffice 'org.libreoffice:juh:6.4.3'
    libreoffice 'org.libreoffice:jurt:6.4.3'
    libreoffice 'org.libreoffice:ridl:6.4.3'
    libreoffice 'org.libreoffice:unoil:6.4.3'
}
```

```
package com.itextpdf.server.utility;

import java.io.ByteArrayInputStream;
import java.io.ByteArrayOutputStream;
import java.io.IOException;
import java.io.InputStream;


import com.itextpdf.text.Document;
import com.itextpdf.text.DocumentException;
import com.itextpdf.text.pdf.PdfContentByte;
import com.itextpdf.text.pdf.PdfImportedPage;
import com.itextpdf.text.pdf.PdfReader;
import com.itextpdf.text.pdf.PdfWriter;

public class MyPdfWriter {
    public static void write() {
```

- dom4j
- iText PDF
- Windows Forms
- Angular
- MySQL
- SAP Advantage Data Server
- TypeScript
- Java
- Visual Objects



EN ▼ 🔍


☰

## Open Source AGPL license

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**Gebraucht: Sehr gut** | Details  
Verkauft von Regateo

In den Einkaufswagen

Auf die Liste

SAP | Community | Topics | Answers | Blogs | Events | Programs | Resources | What

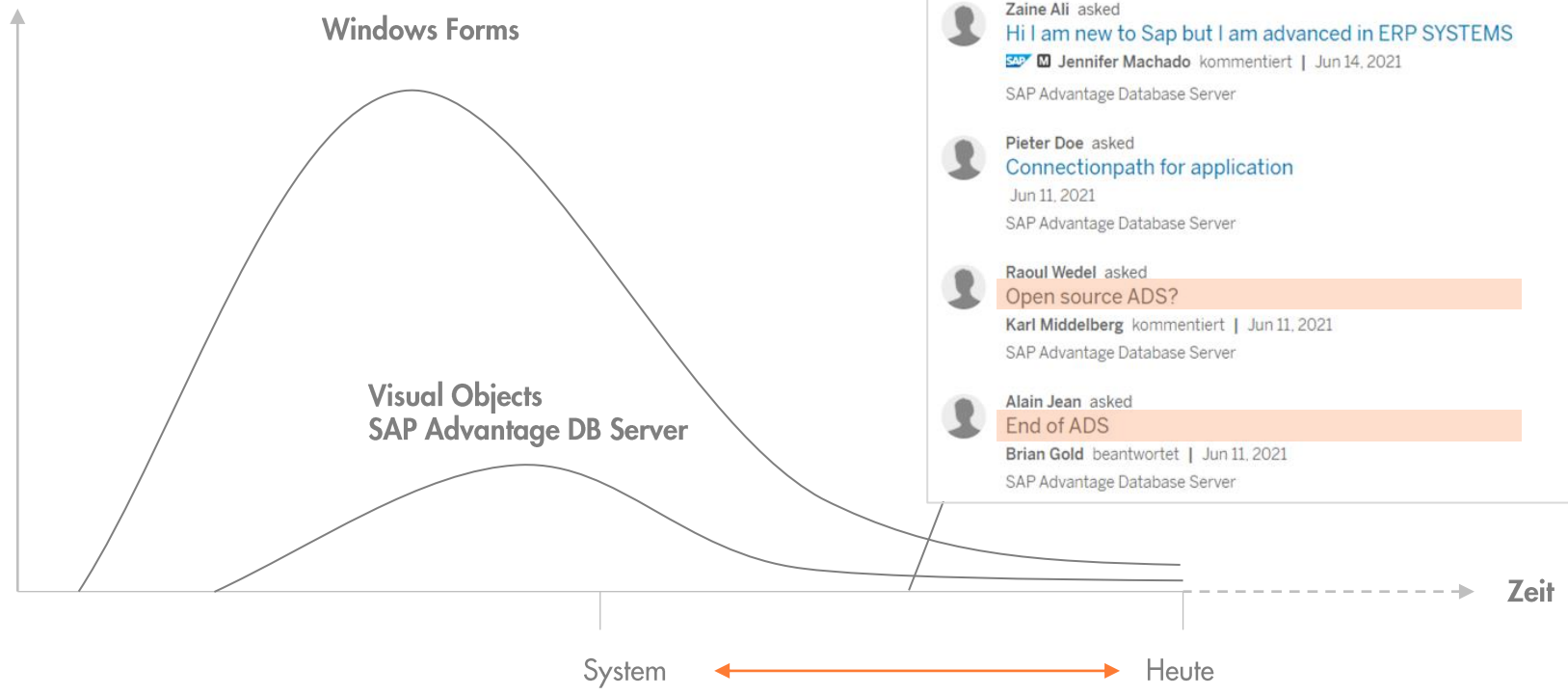
## SAP Advantage Database Server

Follow | Ask a Question | RSS

512 results | Sort by: Updated | Created | Hottest | Votes

|  |   |             |         |
|--|---|-------------|---------|
|  | <b>Jeri Scheere</b> asked<br><b>Advantage Devzone Down</b>                              | 2 Antworten | 1 Vote  |
|  | <b>Jeri Scheere</b> beantwortet   Jun 24, 2021<br>SAP Advantage Database Server         |             |         |
|  | <b>Sebastian B</b> asked<br><b>How to back up indexes in Advantage Database Server?</b> | 1 Antworten | 1 Vote  |
|  | <b>Sebastian B</b> kommentiert   Jun 17, 2021<br>SAP Advantage Database Server          |             |         |
|  | <b>Zaine Ali</b> asked<br><b>Hi I am new to Sap but I am advanced in ERP SYSTEMS</b>    | 0 Antworten | 0 Votes |
|  | <b>Jennifer Machado</b> kommentiert   Jun 14, 2021<br>SAP Advantage Database Server     |             |         |
|  | <b>Pieter Doe</b> asked<br><b>Connectionpath for application</b>                        | 0 Antworten | 1 Vote  |
|  | Jun 11, 2021<br>SAP Advantage Database Server   |             |         |
|  | <b>Raoul Wedel</b> asked<br><b>Open source ADS?</b>                                     | 1 Antworten | 3 Votes |
|  | <b>Karl Middelberg</b> kommentiert   Jun 11, 2021<br>SAP Advantage Database Server      |             |         |
|  | <b>Alain Jean</b> asked<br><b>End of ADS</b>  | 3 Antworten | 0 Votes |
|  | <b>Brian Gold</b> beantwortet   Jun 11, 2021<br>SAP Advantage Database Server           |             |         |

**Verbreitung** ≈  
Verfügbares Personal  
Aktuelles Wissen  
Integrierbarkeit  
Werkzeugunterstützung  
...





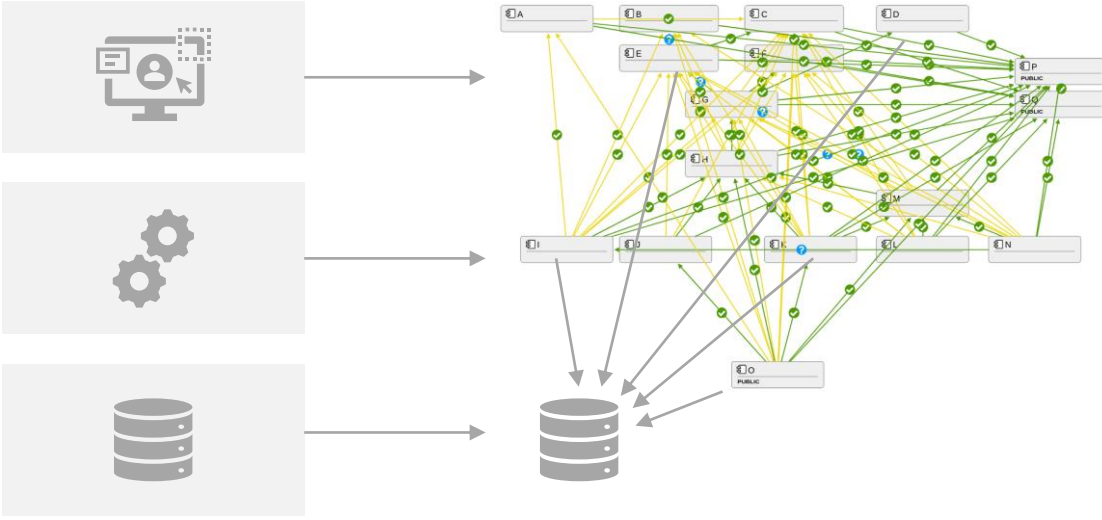
Verzeichnisorganisation



Technologien



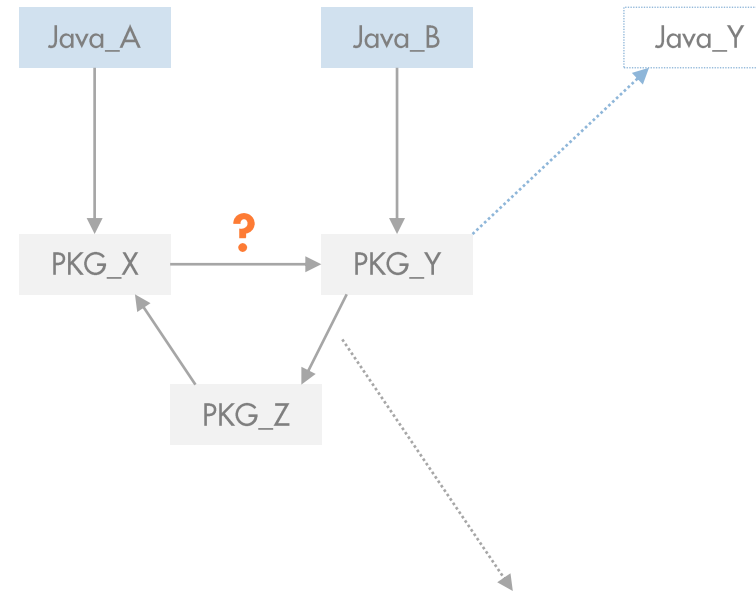




1.200.000+  
Lines of Code

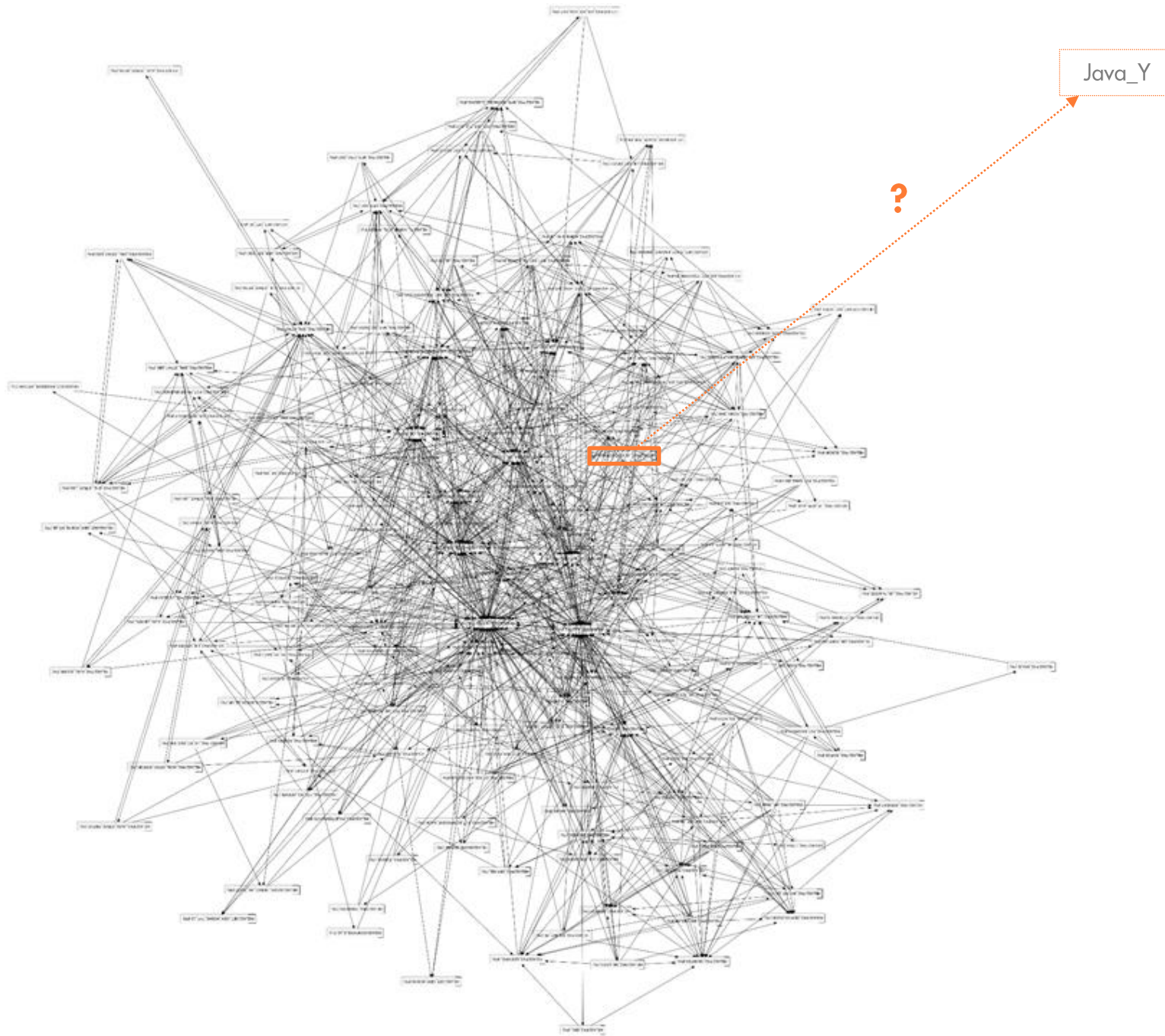


Oracle Database 12c



```
> SELECT * FROM DBA_DEPENDENCIES
```

161  
PL/SQL-Pakete





Verzeichnisorganisation



Technologien



Datenbank-Architektur



```
125     },
126
127     private static void addResourceFile(String name, String resource, ZipOutput
128         ZipEntry zipEntry = new ZipEntry(name);
129         out.putNextEntry(zipEntry);
130         OpenDocumentSpreadsheetCreator.addFromResource(resource, out);
131         out.closeEntry();
132     }
133
134     private static void addFromResource(String resource, OutputStream out) {
135         URL url = OpenDocumentSpreadsheetCreator.class.getResource(resource);
136         try (InputStream in = url.openStream()) {
137             byte[] buffer = new byte[256];
138             synchronized (out) {
139                 while (true) {
140                     int bytesRead = in.read(buffer);
141                     if (bytesRead == -1) {
142                         break;
143                     }
144                     out.write(buffer, 0, bytesRead);
145                 }
146             }
147         } catch (IOException e) {
148             LOGGER.warn("Cannot get resource", e);
149         }
150     }
151 }
152
```

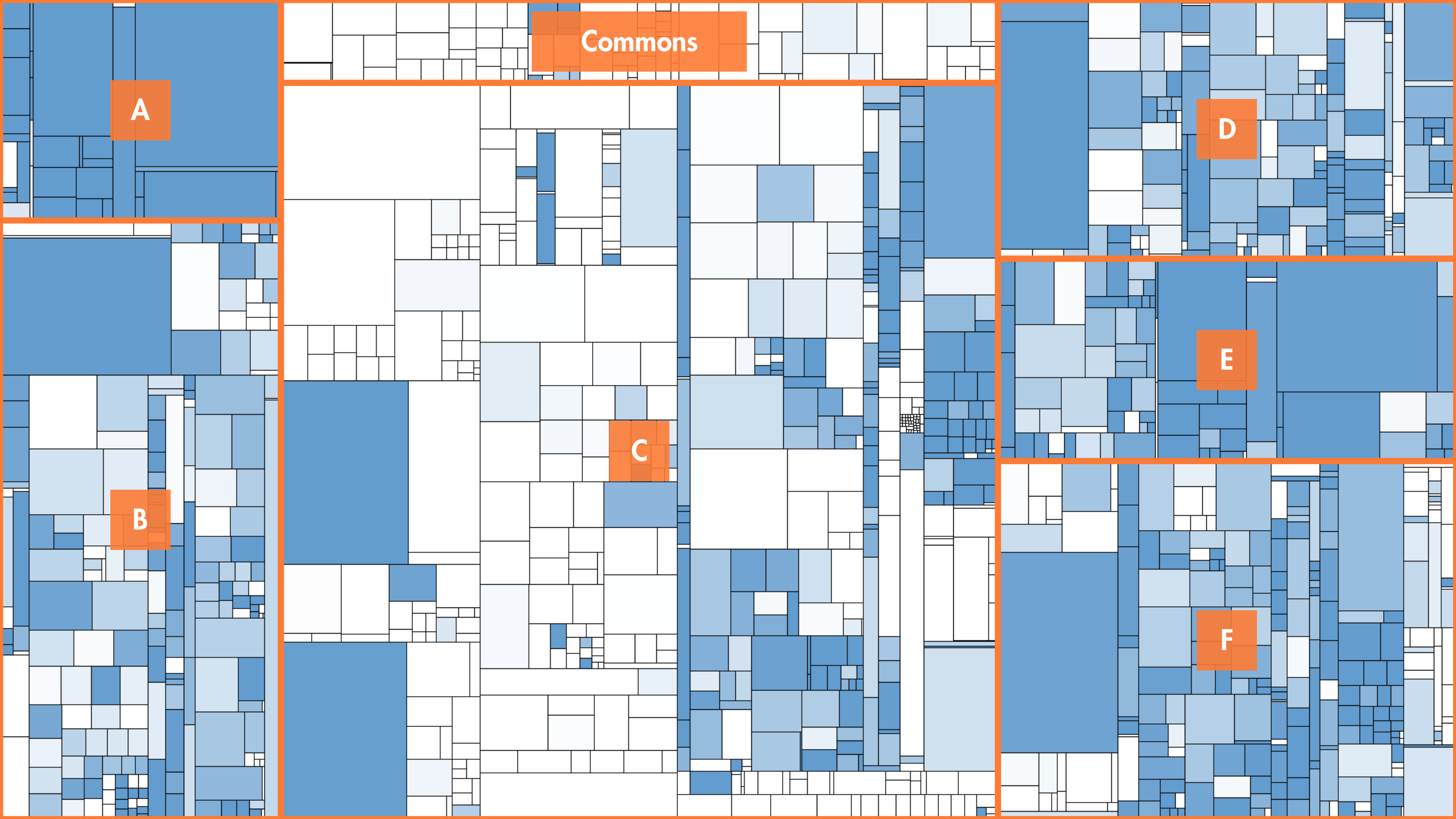
```
105     },
106
107     private static void addResourceFile(String name, String resource, ZipOutput
108         ZipEntry zipEntry = new ZipEntry(name);
109         out.putNextEntry(zipEntry);
110         OpenOfficeDocumentCreator.addFromResource(resource, out);
111         out.closeEntry();
112     }
113
114     private static void addFromResource(String resource, OutputStream out) {
115         URL url = OpenOfficeDocumentCreator.class.getResource(resource);
116         try (InputStream in = url.openStream()) {
117             byte[] buffer = new byte[256];
118             synchronized (out) {
119                 while (true) {
120                     int bytesRead = in.read(buffer);
121                     if (bytesRead == -1) {
122                         break;
123                     }
124                     out.write(buffer, 0, bytesRead);
125                 }
126             }
127         } catch (IOException e) {
128             LOGGER.warn("Cannot get resource", e);
129         }
130     }
131 }
132
```



# Klonüberdeckung

0% 100%





Commons

A

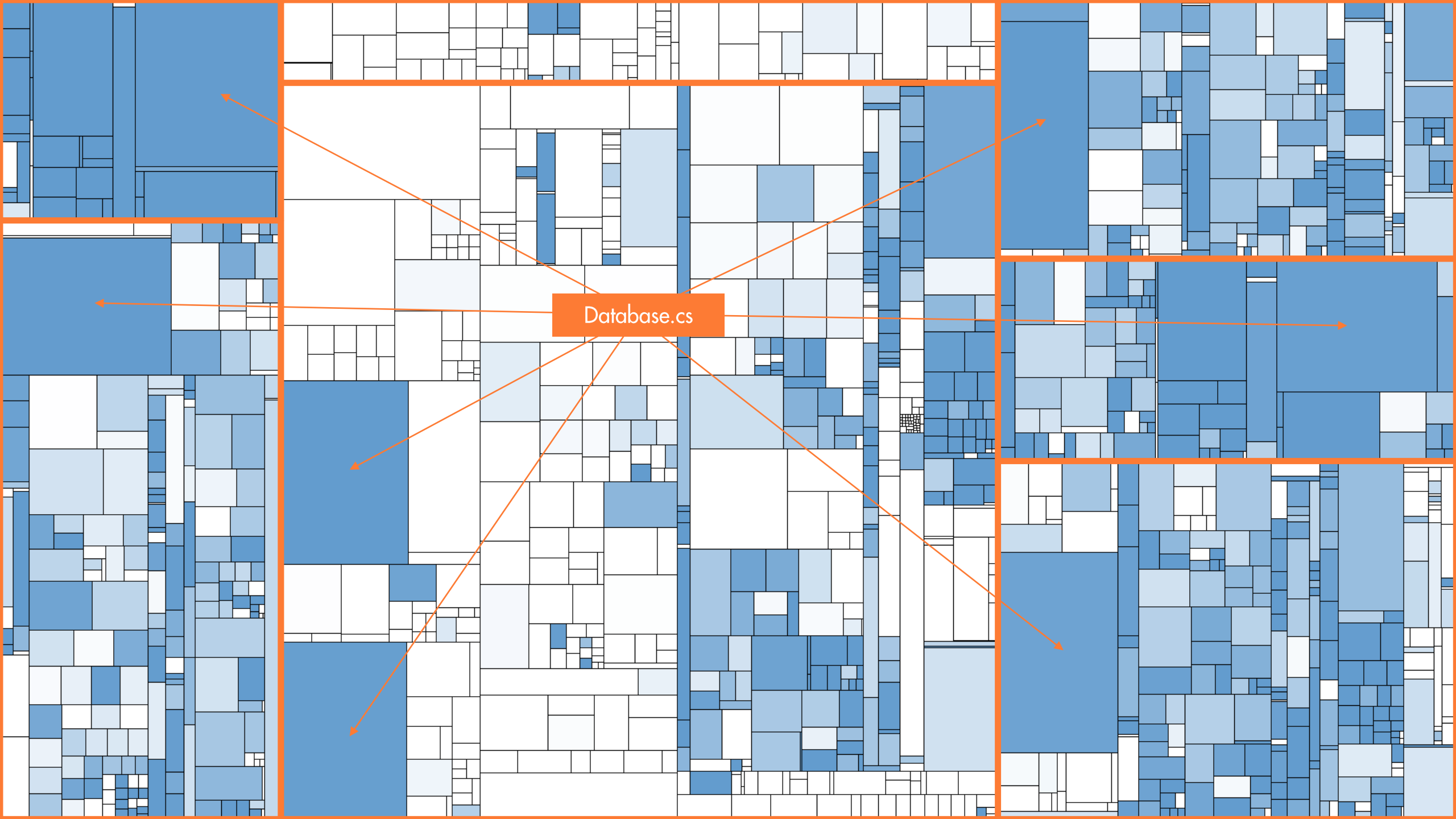
D

B

E

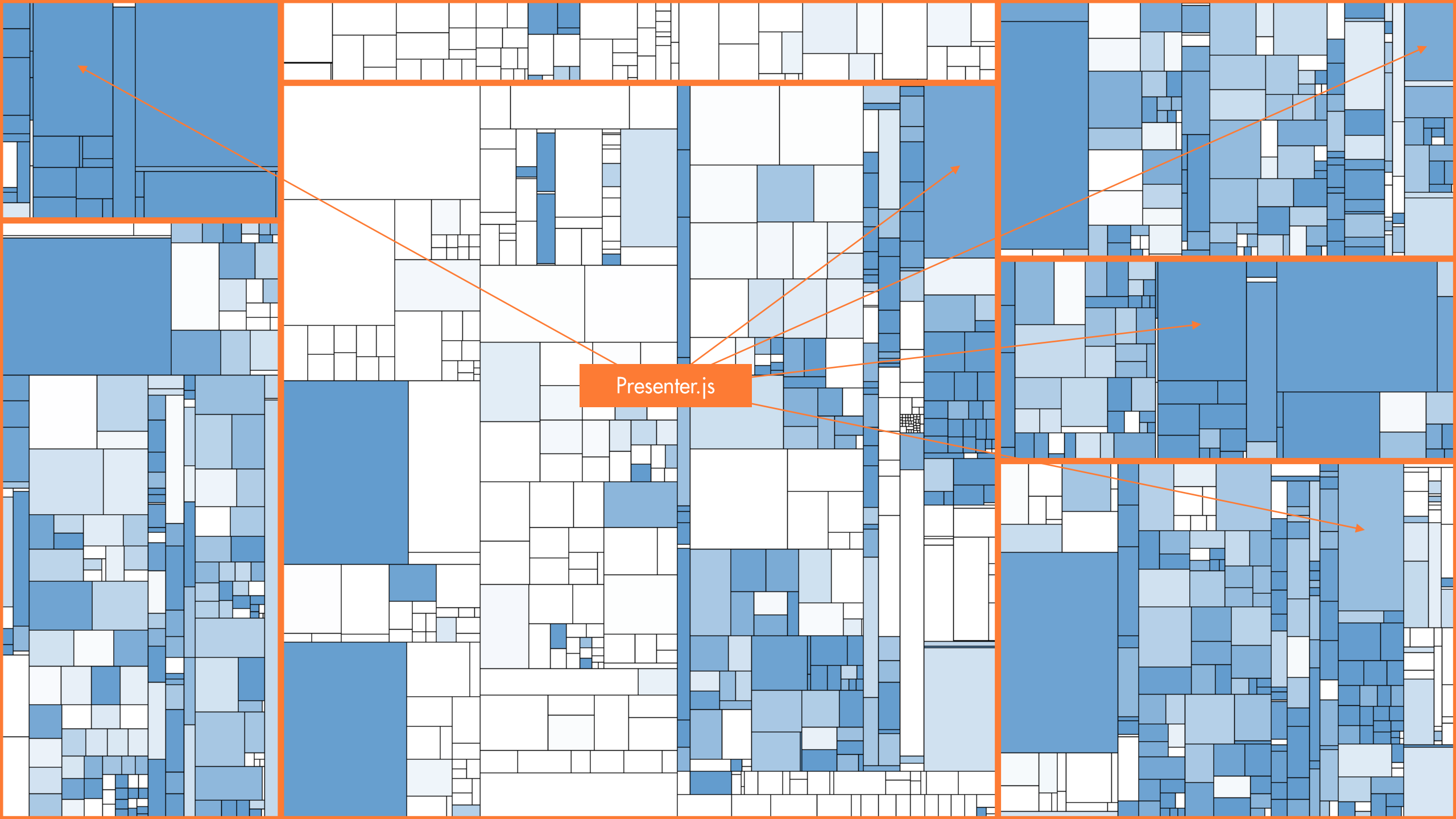
C

F

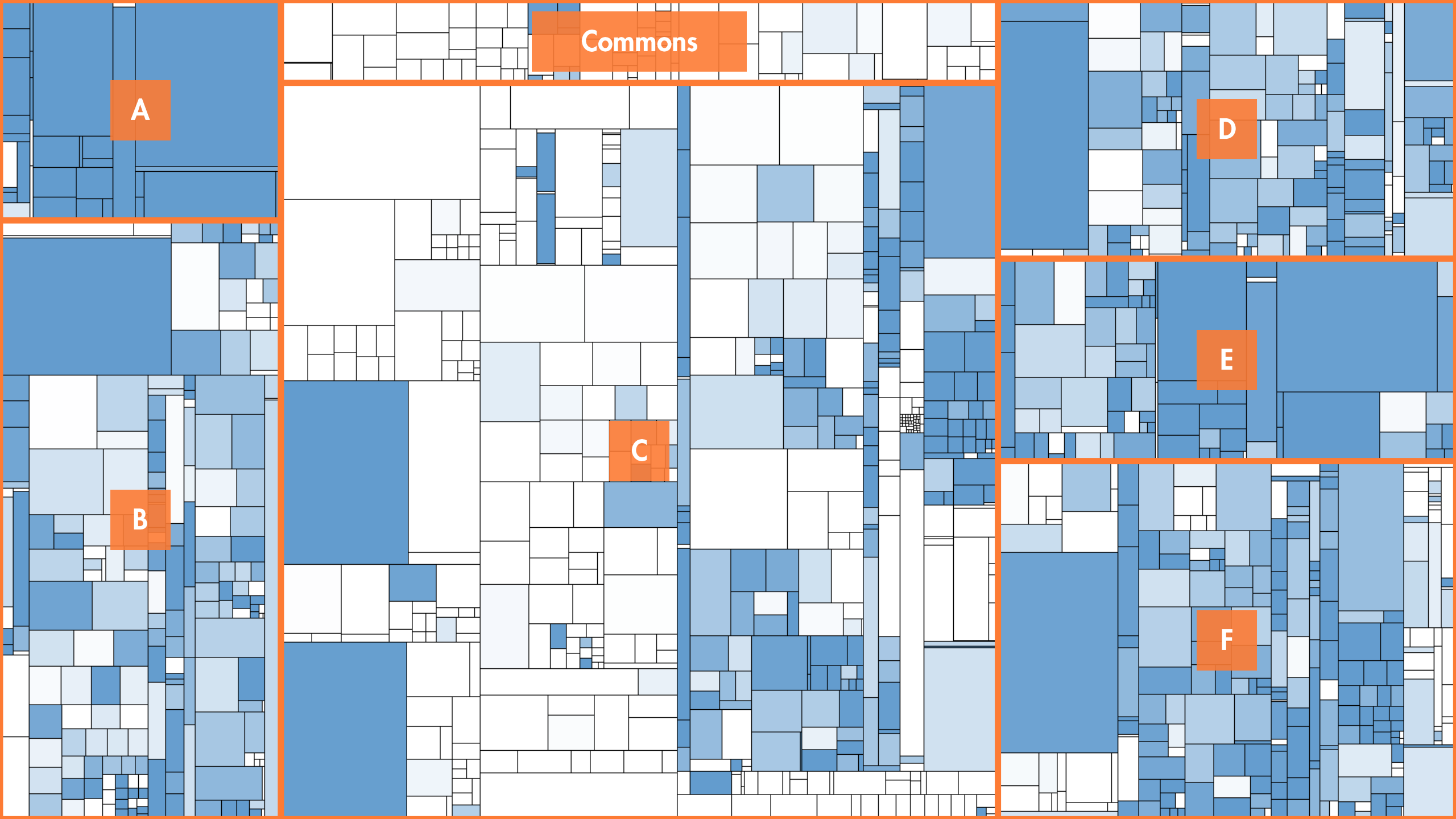


Database.cs





Presenter.js



Commons

A

D

B

E

C

F

Commons

A

D

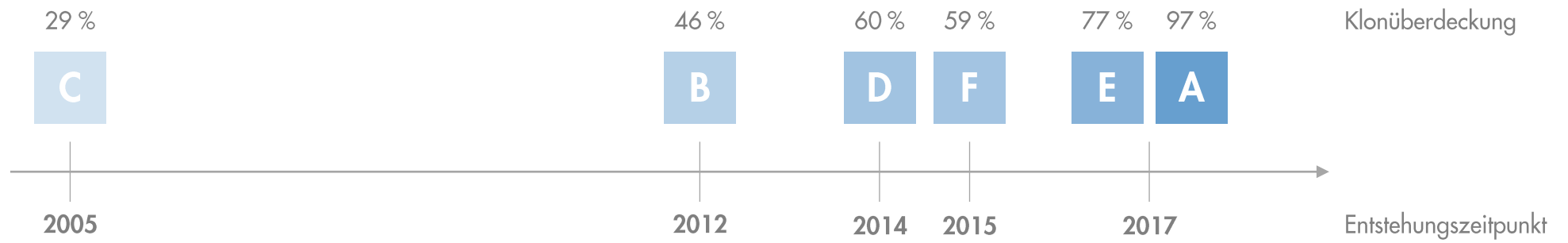
E

C

B

F





CQSE-Workshop

# Softwareaudits: Qualität unter der Lupe

**27. Oktober**

[cqse.eu/audit-workshop-jfs-21](http://cqse.eu/audit-workshop-jfs-21)

Verzeichnisorganisation



Technologien



Datenbank-Architektur



Applikations-Klone



CQSE-Workshop

# Softwareaudits: Qualität unter der Lupe

**27. Oktober**

[cqse.eu/audit-workshop-jfs-21](https://cqse.eu/audit-workshop-jfs-21)



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