Bachelor's Thesis

Deletion and Anonymization of Personal Data in Apache Kafka Despite Log Immutability

Löschung und Anonymisierung personenbezogener Daten in Apache Kafka trotz Log-Immutabilität

Submitted by: **Alexander Doubrava**

To partially obtain the academic degree of: **Bachelor of Science in Engineering**

Declaration of authorship:

I declare that this Bachelor Thesis has been written by myself. I have not used any other than the listed sources, nor have I received any unauthorized help.

I hereby certify that I have not submitted this Bachelor Thesis in any form (to a reviewer for assessment) either in Austria or abroad.

Furthermore, I assure that the (printed and electronic) copies I have submitted are identical.

Date: December 25, 2025   Signature: *Alexander Dankman*

Acknowledgements

(optional)

Abstract

Compact summary of the thesis in german (approx. 150–250 words).

Abstract

Compact summary of the thesis in English (approx. 150–250 words).

List of abbrevations

(optional)

Example::

AI	Artificial Intelligence
NLP	Natural Language Processing
LLM	Large Language Model

Contents

1. Introduction

Motivation, goal, research questions and structure of the thesis.

2. Chapter heading

2.1. Subchapter heading

This is a sentence. [1]

2.1.1. Sub-subchapter heading

Like Muster (2020) shows, this is how you add a citation or reference.

2.2. Sub-subchapter heading

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[1]and here is the explanation to the footnote

3. Chapter Heading

3.1. Subchapter heading

Abb. 1 Image of books

In the picture 1 you can see a stack of books.

3.1.1. Sub-subchapter heading

Tab. 1 Example Table		
Name	Amount	Unit
Alpha	12.3	m/s
Beta	4.5	m/s
Gamma	7.8	m/s

See table 1

3.2. Subchapter heading

Bibliography

Muster, Max (2020). *Ein Beispielbuch*. Berlin: Beispielverlag.

Overview of AI technologies used

Describe the used AI-Tools, Models and Workflows. Use tables if necessary:

Technology	Use
OpenAI GPT	text generation, ideation, code examples
spaCy	NLP-Pipeline, Entity Recognition
scikit-learn	classification, model comparison

List of Figures

List of Tables

A. Appendix A

(optional) Only for additional documents such as circuit diagrams, program listings, interview transcripts, calculation examples, statistics, construction plans, sketches, etc.