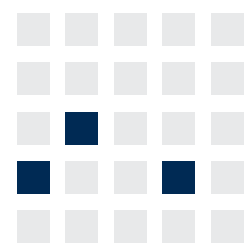




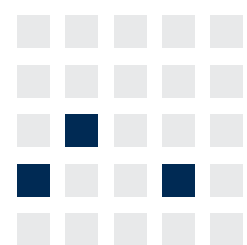
Natural Language Processing (NLP) Strategies for Real-World Challenges

Organization of the Seminar



Lehrstuhl für Wirtschaftsinformatik
Prozesse und Systeme

Universität Potsdam



Chair of Business Informatics
Processes and Systems

University of Potsdam

Univ.-Prof. Dr.-Ing. habil. Norbert Gronau
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Adrian Abendroth

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Seminar concept

What to expect?

- The seminar offers an overview of the methods of Natural Language Processing (NLP) and their application to real challenges in business and society. The combination of knowledge transfer and practical application, with a focus on modern NLP methods, enables participants to solve given problems independently.
- As part of the seminar, participants will learn about the following approaches, among others: Information Extraction (Retrieval and Extraction), Topic Modeling, Sentiment Analysis, Named Entity Recognition as well as rule-based and machine learning approaches.
- As part of the seminar, participants create their own project work, which represents a holistic NLP application.

Learning Objectives

- Knowledge of current methods of natural language processing
- Are able to select suitable solution approaches for given problems
- Are able to combine state-of-the-art technologies to solve real-world problems and implement them prototypically



Organisation of the Seminar

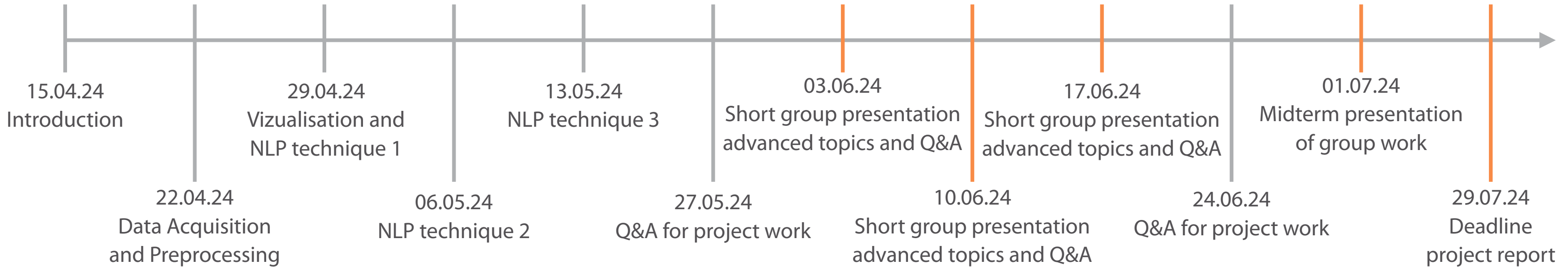
Preview of Topics

Overview of the Seminar

Nr	Phase	Topic	Date	Time and room
1	Basics to NLP	Introduction and Set Up: Python basics and Jupyter notebook setup	15.4.2024	16-18 , Room 0.04 at KMS 67
2		Data Acquisition and Preprocessing	22.4.2024	
3		Vizualisation and NLP technique 1	29.4.2024	
4		NLP technique 2	6.5.2024	
5		NLP technique 3	13.5.2024	
6	Group work	Q&A for project work	27.5.2024	
7		Short group presentation advanced topics and Q&A	3.6.2024	
8		Short group presentation advanced topics and Q&A	10.6.2024	
9		Fallback Appointments		
10		Short group presentation advanced topics and Q&A	24.6.2024	
11		Midterm presentation of group work	1.7.2024	
12		Deadline project report	29.7.2024	

Expected requirements for presentations and group work

The semester overview



Structure of the seminar

- The module builds on each other
- In the first phase (Basics to NLP), the foundations for group work are laid
- The second phase (Group work) involves active work on the projects

Required course assignments

Nr	Assignment	Submission	Valuation
1	Short group presentation advanced topics and Q&A	Submission: 02.06.24 or 09.06.24 or 23.04.24 Presentation: 03.06.24 or 10.06.24 or 24.04.24	15 %
2	Midterm presentation of group work	Submission: 31.06.24 Presentation: 01.07.24	15 %
3	Final written group report (12-15 pages of text + Appendix)	Submission: 29.7.2024	70 %

Moodle course for group organization

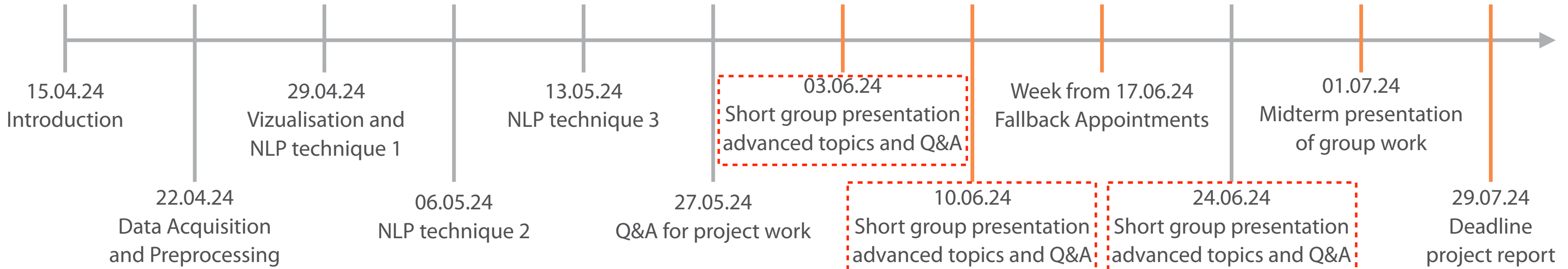
- Natural Language Processing Strategies for Real-World Challenges (NLP SoSe 24)
- Link: <https://moodle2.uni-potsdam.de/course/view.php?id=41616>
- Password: NLP-SoSe24

Course administration and submissions are made via the Moodle course. There you will find all the expectations for the work to be completed.



Required course assignments

Short group presentation advanced topics



Expected contents

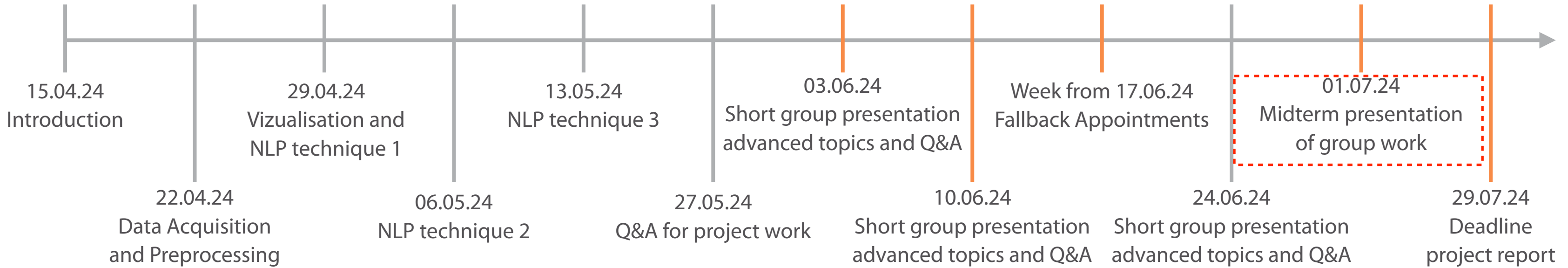
- Each group does one presentation to an advanced NLP topic, which is used for the group work
- The presentation should include first experimental analysis of the topic
- ~ 10-15 minutes

Remarks

- Level of expectations will be provided

Required course assignments

Midterm presentation



Expected contents

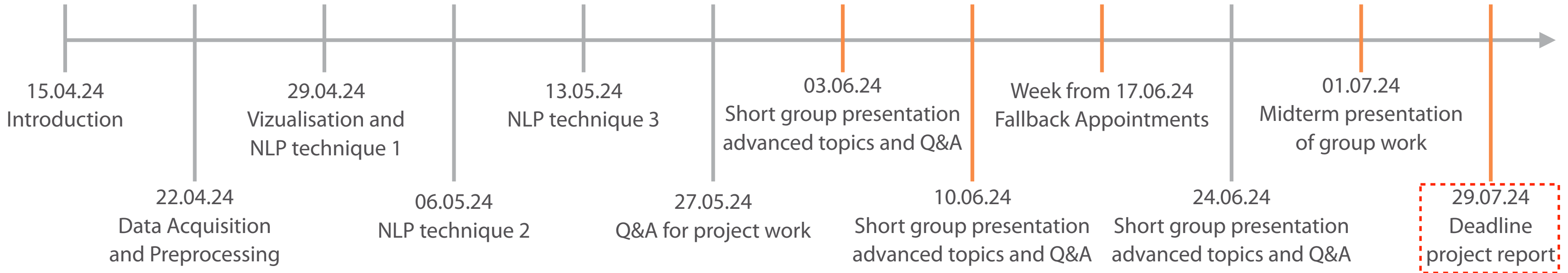
- The presentation should include first results
- ~ 15-20 minutes

Remarks

- Level of expectations will be provided

Required course assignments

Project report



Expected contents

- Project report in the form of technical report
12-15 pages of text + Appendix
- Jupyternotebook code in the form of a repo
(provided by us)

Remarks

- Level of expectations will be provided

Literature for in-depth study

Basics for Python:

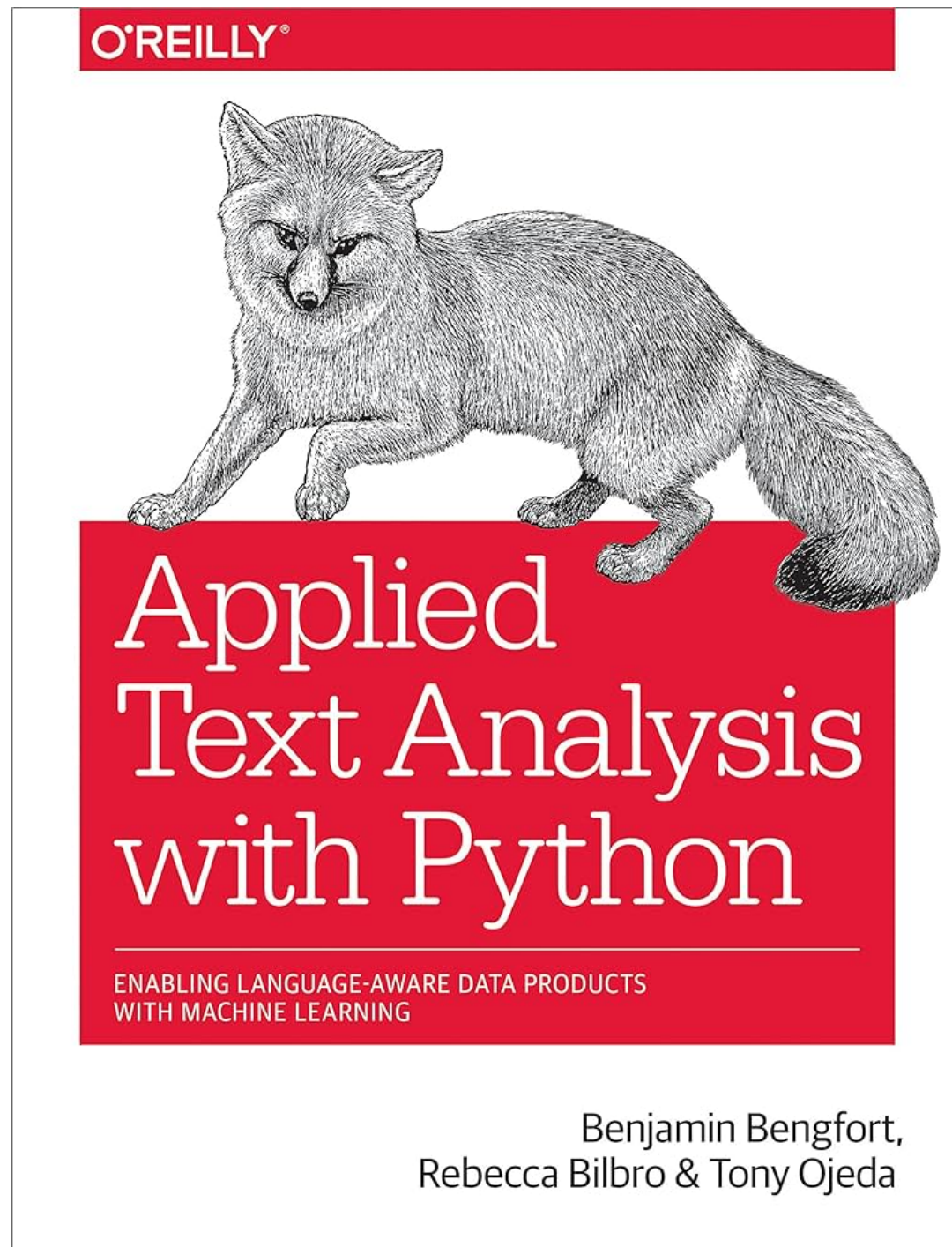
Hasso-Plattner-Institut (2020). Programmieren lernen mit Python. at [URL] <https://open.hpi.de/courses/pythonjunior2020> (retrieved on 10.04.2024).

University of Helsinki MOOC Center (2023). Data Analysis with Python 2023-2024. at [URL] <https://courses.mooc.fi/org/uh-cs/courses/data-analysis-with-python-2023-2024> (retrieved on 10.04.2024).

Advanced Topics on NLP:

Stanford University (2024). Stanford 224N. at [URL] <https://web.stanford.edu/class/cs224n/> (retrieved on 10.04.2024).

Further reading



Bengfort, B., Bilbro, R., & Ojeda, T. (2018). Applied text analysis with Python: Enabling language-aware data products with machine learning. " O'Reilly Media, Inc."



Organisation of the Seminar
Preview of Topics

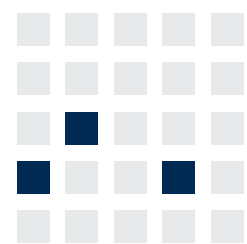
Preview of Topics

Nr	Topic	Description
1	Low-Code Addon Store Complexity Assessment	LCAP offer new possibilities to develop software solutions for citizen developer. However not all applications can be realized without codings skills.
2	Research Collaboration @University of Potsdam	Assess how well researchers of different departments are connected at UP
3	Research Collaboration in German HEIs	Assess how connected researchers of different departments are in German HEI
4	Classification of field dependencies in forms	Form analysis and rule identification as well as data type classification
5	Topic clarification of Abstracts (ERP Management)	Classify Topics based on abstracts of a German magazine. Topic categories are given and should be assigned accordingly



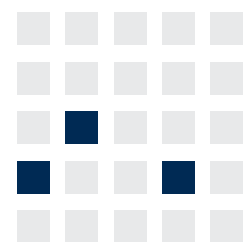
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