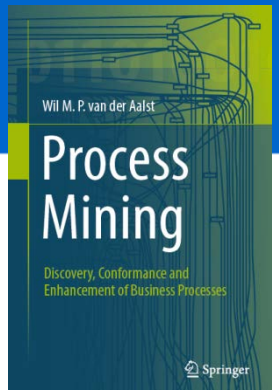
Process Mining: Data Science in Action

About the Last Two Weeks of This Course



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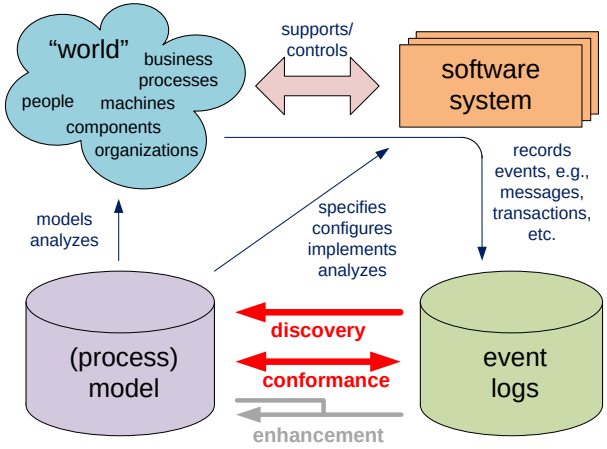
Where innovation starts

- In the last four weeks we focused on control-flow
  - process discovery – finding desire lines
  - conformance checking – diagnosing deviations
- Replaying event logs on control-flow allows breathing life into otherwise static process models (see background)
- However, as seen before, event logs contain much more information that goes far beyond just control-flow
  - resources
  - time
  - data attributes
- Next two weeks we will focus on these other perspectives, introduce new process mining tasks, and discuss the practical side of process mining
- The nature of the course will now change markedly:
  - lectures will be shorter and less technical
  - more time for hands-on process mining using the tools ProM & Disco
  - abundance of event logs (processmining.org and other sites)

Focus thus far



	control-flow only
discovery L → M	✓
conformance L+M → D	✓

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Bigger picture

	control-flow only	control-flow and ...			
		time	resources	data	....
discovery (L → M)	✓	✗	✗	✗	✗
conformance (L+M → D)	✓	✗	✗	✗	✗
enhancement (L+M → M)	✗	✗	✗	✗	✗

operations reserach

social networks

data mining

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mining decision points

mining bottlenecks

mining social networks

comparative process mining

offline to online

operational support

detect
predict
recommend

refined process mining framework

link to simulation

data extraction

guidelines for logging

conducting a process mining project

lasagna processes

spaghetti processes

toolbox of a process/data scientist

last two weeks will be very different

less technical
shorter lectures
more applied

Use the software (ProM/Disco) and data sets provided!

- www.processmining.org
- process mining research/competitions (BPI challenges)
- data mining (e.g. http://www.kdnuggets.com/datasets/)
- open data (e.g. www.data.gov and open-data.europa.eu)
- social media (open APIs of twitter, facebook, google, etc.)
- …

Part I: Preliminaries

- Chapter 1: Introduction
- Chapter 2: Process Modeling and Analysis
- Chapter 3: Data Mining

Part II: From Event Logs to Process Models

- Chapter 4: Getting the Data
- Chapter 5: Process Discovery: An Introduction
- Chapter 6: Advanced Process Discovery Techniques

Part III: Beyond Process Discovery

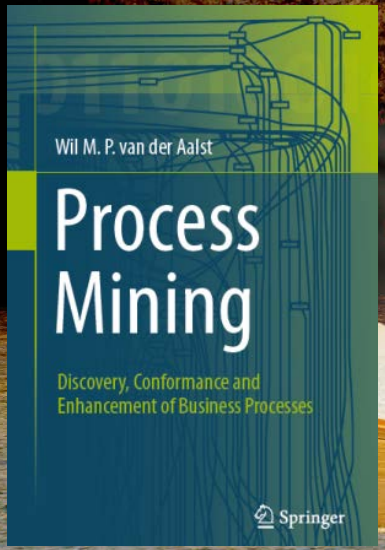
- Chapter 7: Conformance Checking
- Chapter 8: Mining Additional Perspectives
- Chapter 9: Operational Support

Part IV: Putting Process Mining to Work

- Chapter 10: Tool Support
- Chapter 11: Analyzing "Lasagna Processes"
- Chapter 12: Analyzing "Spaghetti Processes"

Part V: Reflection

- Chapter 13: Cartography and Navigation
- Chapter 14: Epilogue



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