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Bachelorarbeit / Masterarbeit

Enhancing the Quality of Event Logs: Detecting, Measuring, and Repairing Data Quality Issues in Event Logs

Process mining is a novel technology that helps organizations to better understand their business processes. Over the last 20 years, there has been intensive research into various process mining techniques. These techniques support the automatic discovery of business process models from event log data, the checking of conformance between specified and observed behavior, the identification of various variants of a business process, non-compliant behavior, performance-relevant insights, and so forth.

Reliable process mining results are, however, contingent on starting with high-quality event logs. In practice, event logs are often far from the desired quality. Therefore, an event log should not be naively used for process mining without ensuring that the event log is of adequate quality. To understand which quality issues affect event logs, Suriadi et al. (2017) proposed eleven event log imperfection patterns often found in real-life logs.

However, to the best of our knowledge, research that focuses on the improvement of event log quality remains scarce. The aim of this thesis is, therefore, to contribute to the event log quality cycle by developing an (automated) approach that assists in detecting, measuring, and/or repairing data quality imperfections in event logs. A prototypical implementation is highly appreciated.

The thesis can be written in either English or German language.
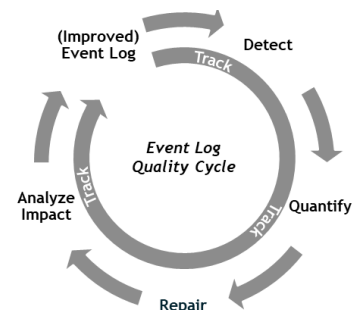
Empfohlene Einstiegsliteratur:

- Andrews, R., van Dun, C. G. J., Wynn, M. T., Kratsch, W., Röglinger, M., & ter Hofstede, A. H. M. (2020). Quality-informed semi-automated event log generation for process mining. *Decision Support Systems*.
- Suriadi, S., Andrews, R., ter Hofstede, A. H., & Wynn, M. T. (2017). Event log imperfection patterns for process mining: Towards a systematic approach to cleaning event logs. *Information Systems*, 64, 132-150.
- Van Der Aalst, W. et al. (2011). Process mining manifesto. In *International Conference on Business Process Management* (pp. 169-194). Springer, Berlin, Heidelberg.

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