Process Mining –
Process Analysis Assignment

Utrecht University
Department of Information and Computing Sciences
Faculty of Sciences

INFOMPROM

Group Assignment
Version 1.0

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Period 4

Lectures:

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1. Introduction

The main objective of this assignment is to develop a practical approach for performing process mining and related data analytics activities on real data and get acquainted with the use of contemporary tool environments for process mining.

For this assignment you will create a data science report for the Business Process Intelligence Challenge 2014 (see https://www.win.tue.nl/bpi/doku.php?id=2014:challenge). The challenge provides participants with a real-life event log and challenges them to analyze these data using whatever techniques are available. Participants are encouraged to use any tools, techniques, methods at their disposal. All information about the challenge and the type of contributions for it can be found at:
https://www.win.tue.nl/bpi/doku.php?id=2014:challenge

For the assignment you are required **to work in teams of four (or three) people**. Your final assignment submission should contain a pdf report of at most 20 pages, including figures, using the LNCS/LNBIP format (https://www.springer.com/gp/computer-science/lncs/conference-proceedings-guidelines) specified by Springer (available for both LaTeX and MS Word). References do not count for this limit and can be added to the submission.

For this assignment, please use the preprocessed event log provided via the blackboard.

By the end of the course, you will submit your data science report for the assignment on Blackboard,and it will be graded as assignment. The document (and possible appendices/attachments) should adhere to the rules and standards of the BPI Challenge. This means, your submission will not be a typical research paper, but a report on a data science project.

Note that your assignment submission may differ from the actual challenge submissions. For example, it might be shorter and more condensed than the challenge submission. It may also focus on more advanced process analyses. However, it should adhere to the same standards as the challenge submission, which is stated as “the focus is on the originality of the results, the validity of the claims and the depth of the analysis of specific issues identified. We expect participants can focus on a specific aspect of interest and analyze this aspect in great detail”.

2. Assignment Deliverables

Deliverable 1: Draft of the assignment topic (May 26; 17:00)

For this deliverable you will write a document of 6-8 pages length that sketches 3 possible analysis problems or business questions that your group could work on with the provided data to tackle the challenge.

You may get inspired by the list of questions on the challenge home page (https://www.win.tue.nl/bpi/doku.php?id=2014:challenge, section "Case") to choose for which topic / question to address in the challenge. Besides these, as the challenge description states, "we encourage the participants to come up with new and interesting insights". If you can think of other interesting questions that can be answered by analyzing the data, please don't hesitate to suggest them in your draft paper and discuss the with the lecturer.

You are also encouraged to apply any kind of process analysis approach to the data, not only process mining in a classical sense like control flow discovery. If, e.g., you can base your analysis on a good data visualization derived from the provided log data, go ahead. In case of doubt whether a topic is appropriate to work on, consult the lecturer.
For this assignment, please use the preprocessed event log provided via the blackboard.

Requirements for deliverable 1

- For each of the 3 analysis problems, your draft report should
  - describe the analysis problem or business question briefly
  - mention possible benefits that would be achieved by a solution
  - sketch an analysis technique or setup to tackle the problem (it is sufficient to make plausible that a technique or combination of techniques would work, no details are necessary)
  - draft how the results would be presented (e.g., using mockup figures)

- The page limit for the draft papers is 8. References and a possible appendix do not account towards this total.
- The report should follow the LNCS/LNBIP format (https://www.springer.com/gp/computer-science/lncs/conference-proceedings-guidelines) specified by Springer (available for both LaTeX and MS Word).
- The document format should be PDF.

Submit your draft paper in the Blackboard before the deadline.

Please note that failing to finalize this assignment on time will result in the deduction of one point per day from your final assignment grade, starting on the day after the deadline. Furthermore, late submissions may not be included in the peer review process.

You must receive at least a sufficient for the draft paper to pass to this course.

Please try to hand in your papers as complete as possible so you can get useful feedback from your fellow students. In case you are in doubt, please contact the lecturer.

Deliverable 2: Peer review (June 2; 17:00)

For this deliverable, **each course participant** has to review one draft report from other student groups that are assigned to you. The reviews are intended to help these groups to improve their assignment with respect to the final assignment report they will create.

When you have obtained a proper report to review, you need to provide 1-2 page textual feedback (i.e., remarks and suggestions for improvement) based on the criteria listed here below. Read them carefully to understand the specifics of where to pay attention to when reviewing.

Requirements for deliverable 2 – Peer review

- The review should contain the following:
  - summarizing the analysis problems described in the draft paper
  - discussing 2-3 positive aspects of the draft paper
  - discussing 2-3 weak aspects of the draft paper and providing constructive feedback and concrete suggestions for each weak aspect.

- For the positive or weak aspects of the draft paper, you may consider using the following subjects to discuss:
  - whether a particular analysis problem or question is appropriately described.
  - whether the potential benefits of a solution to the analysis problem are presented properly.
  - how clearly it is explained with which technique or setup an analysis solution is to be achieved.
  - if the way of presenting an analysis solution is appropriately sketched (e.g., by an example visualization).
  - compliments or concerns you have considering the feasibility, novelty, or other aspects of a proposed analysis
  - Any other things that your classmates did particularly well or could improve (e.g., structure, introduction, data description, references, etc.).

- The page limit for the draft papers is 2.

Each course participant must submit your personal review individually in the Blackboard before the deadline. Failing to submit your review in time will result in the deduction of one point per day from your review assignment grade, starting on the day after the deadline.

As soon as the deadline for providing feedback has passed, you will be able to access the feedback you received for your paper via Blackboard.

Deliverable 3: Final assignment report (June 23; 17:00)

Requirements for deliverable 3

- The style of the report paper must follow the LNCS Springer template.
- The document format should be PDF.
- The page limit is 20. The list of references and appendices do not account towards this total, for example, you can submit a paper of 20 pages and can have 2 additional pages for references.

Submit your final report in the Blackboard before the deadline.
Failing to finalize the report on time will result in the deduction of one point per day from your paper grade, starting on the day after the deadline.

To get acquainted with the writing style of BPI Challenge reports, look at the submissions available from other editions of the challenge:
https://icpmconference.org/2019/icpm-2019/contests-challenges/bpi-challenge-2019/#the_student_category (BPI Challenge '19)
https://www.win.tue.nl/bpi/doku.php?id=2018:challenge#the_student_category (BPI Challenge '18)
https://www.win.tue.nl/bpi/doku.php?id=2017:challenge#all_submissions (BPI Challenge '17)

Fraud and Plagiarism

We expect you to adhere to the Utrecht Code of Conduct and the UU Academic policies and procedures. Failure to adhere to the code of conduct and our policies may result in penalties, up to and including automatic failure in the course and reference to the Examination Committee. You may learn from the BPIC submissions or cite paragraphs from the BPIC14 submissions to confirm your findings. Copying and pasting text from such submissions or any other sources that are not your intellectual property, without using quotation marks and referring to the source will be considered as plagiarism. Please have a careful look at https://students.uu.nl/en/practical-information/policies-and-procedures/fraud-and-plagiarism

Disclaimer

The contents of this syllabus are subject to adaptation during the running course. Any specific negotiations with the lecturer may supersede the regulations stated in this document.

Acknowledgement

This description is built on the description of the last years' edition (written by dr. Jens Gulden) and adopted to the course organization of this year.

Changelog

Version	Changes