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Paper 4 : Process Mining Tools Comparison

Google scholar : https://pdfs.semanticscholar.org/f4cb/b4b5abdbb335e1fac41d64e5ee8a2aa40a6b.pdf

Business Intelligence (BI) is a set of techniques and tools to help decision-making in a business environment.
Business Process Intelligence (BPI) is a management sub-category of BI.
BPM uses information technology tools and management principles to implement them in the operational part of the company.

The entire process is based on data mining methods (from databases, ERP or CRM systems and specification records), and includes the business process. This instance process consists of an activity, a time and an initiator. Once all the necessary checks have been made, we can prove that the observed model is compatible with the modeled process and create the new initial model.

Business processes encompassing a wide range of activities and operations within a company generate a list of problems that are referred to related process mining methods. To this end, we have compared and analyzed these process mining software tools using the following framework.

Different process mining tools :
- ProM is an open source software package developed in Java, giving it total platform independence. It was created by Will Van der Allât and his research group.
- Fluxicon, which runs on Windows or Mac OS X, is an academic license option with full support.
- Celeonis is a commercial tool with an academic license option too. Available for Windows or Mac OS X.
- My-Invenio has its own academic license option. But its system is web-based, so it can be accessed on any device (mobile, tablet, computer) with an internet connection.

Results:
Process mining tools can use multiple criteria to avoid software malfunctions :
- Data filtering
- Implement process discovery and provide certain models
- Conformity checking: two different points of view - one is the exact model in a real situation, and the other is how to improve this mode in a later application.
- Discovering relationships between resources using social network mining
- Use of decision rule exploration capabilities: improving interactivity between activities
- Delta analysis: comparing the generated model with the reference model
- Measuring process performance: according to the elements of the process model
- Exploring discriminating rules
- Trace clustering
- Delta analysis: comparing the generated model with the reference model

According to all these criteria, ProM is the one that offers the right functionalities for process mining. All tools have the following advantages and disadvantages:
Advantages: only open source tool, supports rule mining and trace clustering (is a technique that creates clusters), social network mining, and many others.
Disadvantage: different user interface

In comparison, other software packages have many more features in common but fall short of expectations. If only they had a better, simpler user interface. Disco and My-Invenio: Disco offers guided data import; if My-Invenio has a problem with data size, Disco can import up to 30MB.
Celonis has its own design, but supports a customizable designer like My-Invenio, and with its web version, uses advanced artificial intelligence and machine learning capabilities.

To conclude, the main objective of this case study was to compare process mining software with each other in order to assess the problem.
According to users, ProM is the software that meets the functionalities required for process mining, even though it has an interface problem. We therefore proposed to use another software package and export the model to ProM.