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Optimised Path Recommendation for a Real Time Process

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Abstract : Traditional execution process follows the path of execution drawn by the process analyst without observing the behaviour of resource and other real-time constraints. Identifying process model, predicting the behaviour of resource and recommending the optimal path of execution for a real time process is challenging. The proposed AlfyMiner: αyM iner gives a new dimension in process execution with the novel techniques Process Model Analyser: PMAMiner and Resource behaviour Analyser: RBAMiner for recommending the probable path of execution. PMAMiner discovers next probable activity for currently executing activity in an online process using variant matching technique to identify the set of next probable activity, among which the next probable activity is discovered using decision tree model. RBAMiner identifies the resource suitable for performing the discovered next probable activity and observe the behaviour based on; load and performance using polynomial regression model, and waiting time using queueing theory. Based on the observed behaviour αyM iner recommend the probable path of execution with; next probable activity and the best suitable resource for performing it. Experiments were conducted on process logs of CoSeLoG Project1 and 72% of accuracy is obtained in identifying and recommending next probable activity and the efficiency of resource performance was optimised by 59% by decreasing their load.

Keywords : cross-organization process mining, process behaviour, path of execution, polynomial regression model
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