IEEE Task Force on Process Mining

XES CERTIFICATION FOR PM4PY 0.1: LIBRARY
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Tool

NAME
Pm4py Library

VENDOR
Fraunhofer FIT process mining group and RWTH Aachen University

VERSION
0.1 - https://github.com/pm4py/pm4py-source/releases/tag/0.1

REQUESTED CERTIFICATION LEVELS

Import
A-D, X

Export
A-D, X
Meta

AUTHORS
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DATE
19/11/2018

HISTORY

CHANGES

<table>
<thead>
<tr>
<th>AUTHOR(S)</th>
<th>DATE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madhavi Shankar</td>
<td>06/11/2018</td>
<td>Initial recordings for the certification</td>
</tr>
<tr>
<td>Madhavi Shankar</td>
<td>19/11/2018</td>
<td>Fixed the import issue and revised as per the initial comments from Task Force team</td>
</tr>
</tbody>
</table>
IMPORT

Import

REAL-LIFE LOGS

<table>
<thead>
<tr>
<th>NAME</th>
<th>TRACES</th>
<th>EVENTS</th>
<th>SIZE IN KB</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPIC12</td>
<td>13,087</td>
<td>262,200</td>
<td>72,363</td>
</tr>
<tr>
<td>BPIC13_closed_problems</td>
<td>1,487</td>
<td>6,660</td>
<td>4,090</td>
</tr>
<tr>
<td>BPIC13_incidents</td>
<td>7,554</td>
<td>65,533</td>
<td>38,627</td>
</tr>
<tr>
<td>BPIC13_open_problems</td>
<td>819</td>
<td>2,351</td>
<td>1,370</td>
</tr>
<tr>
<td>BPIC15_1</td>
<td>1,199</td>
<td>52,217</td>
<td>40,261</td>
</tr>
<tr>
<td>BPIC15_2</td>
<td>832</td>
<td>44,354</td>
<td>33,616</td>
</tr>
<tr>
<td>BPIC15_3</td>
<td>1,409</td>
<td>59,681</td>
<td>45,673</td>
</tr>
<tr>
<td>BPIC15_4</td>
<td>1,053</td>
<td>47,293</td>
<td>36,131</td>
</tr>
<tr>
<td>BPIC15_5</td>
<td>1,156</td>
<td>59,083</td>
<td>44,961</td>
</tr>
<tr>
<td>BPIC17 - Offer log</td>
<td>42,995</td>
<td>193,849</td>
<td>107,557</td>
</tr>
<tr>
<td>BPIC17</td>
<td>31,509</td>
<td>1,202,267</td>
<td>565,373</td>
</tr>
</tbody>
</table>

BPIC12

log loaded
Number of traces - 13087
Number of events - 262200
Classifiers ['Activity classifier': ['concept:name', 'lifecycle:transition']]
exporting log xescert_exportlogs\exp_BPIC12.xes
exported log xescert_exportlogs\exp_BPIC12.xes
Reimporting log file just exported - xescert_exportlogs\exp_BPIC12.xes
log loaded xescert_exportlogs\exp_BPIC12.xes
Number of traces - 13087
Number of events - 262200
Classifiers ['Activity classifier': ['concept:name', 'lifecycle:transition']]

Page 3
BPIC13_closed_problems

log loaded
Number of traces = 1487
Number of events = 6660
Classifiers ['Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']]
exporting log rescертExportLogs\exp_BPIC13_closed_problems.xes
exported log rescертExportLogs\exp_BPIC13_closed_problems.xes
Ret importing log file just exported - rescертExportLogs\exp_BPIC13_closed_problems.xes
log loaded rescертExportLogs\exp_BPIC13_closed_problems.xes
Number of traces = 1487
Number of events = 6660
Classifiers ['Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']]
**BPIC13_incidents**

log loaded
Number of traces - 7584
Number of events - 65833
Classifiers ['Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']]
exporting log ressort_exportlogs\exp_BPIC13_incidents.xes
exported log ressort_exportlogs\exp_BPIC13_incidents.xes
Reimporting log file just exported - ressort_exportlogs\exp_BPIC13_incidents.xes
log loaded ressort_exportlogs\exp_BPIC13_incidents.xes
Number of traces - 7584
Number of events - 65833
Classifiers ['Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']]
BPIC13_open_problems

log loaded
Number of cases - 912
Number of events - 2351
Classifiers {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}
exporting log mesoert_exportlogs/exp_BPIC13_open_problems.xes
exported log mesoert_exportlogs/exp_BPIC13_open_problems.xes
Reimporting log file just exported - mesoert_exportlogs/exp_BPIC13_open_problems.xes
log loaded mesoert_exportlogs/exp_BPIC13_open_problems.xes
Number of cases - 912
Number of events - 3351
Classifiers {'Activity classifier': ['concept:name', 'lifecycle:transition'], 'Resource classifier': ['org:resource']}
BPIC15_1

Log loaded
Number of traces - 2199
Number of events - 82217
Classifiers: "activityName", "caseName", "lifecyclestate"

Imported log from: reports/caseLog_Bpic15_1.log
Incorporating log from: eventLog_Bpic15_1.ev
Number of traces - 2199
Number of events - 82217
Classifiers: "activityName", "caseName", "lifecyclestate"
BPIC17 – Offer log

log loaded
Number of traces - 42995
Number of events - 163046
Classifiers ("Event Name": ["concept:name"], "MXML Legacy Classifier": ["concept:name", "lifecycle:transition"], "Resource": ["org:resource"])

log loaded/ExportLogsesp_BPIC17 - Offer log.mes
Exported log to ExportLogsesp_BPIC17 - Offer log.mes
Reimporting log file just exported - ExportLogsesp_BPIC17 - Offer log.mes
log loaded/ExportLogsesp_BPIC17 - Offer log.mes
Number of traces - 42995
Number of events - 163046
Classifiers ("Event Name": ["concept:name"], "MXML Legacy Classifier": ["concept:name", "lifecycle:transition"], "Resource": ["org:resource"])

---

O_Create Offer+complete (42995)

O_Created+complete (42995)

O_Sent (online only)+complete (2026)  O_Sent (mail and online)+complete (39707)

O_Returned+complete (23305)

O_Cancelled+complete (20898)  O_Accepted+complete (17228)  O_Refused+complete (4695)
### FILTERED REPAIR EXAMPLE LOGS

<table>
<thead>
<tr>
<th>NAME</th>
<th>LEVEL</th>
<th>EVENT ATTRIBUTE KEYS (IF BOLD THEN GLOBAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LevelA1</td>
<td>A1</td>
<td>concept:name</td>
</tr>
<tr>
<td>LevelA2</td>
<td>A2</td>
<td>Classifier (concept:name AND lifecycle:transition)</td>
</tr>
<tr>
<td>LevelB1</td>
<td>B1</td>
<td>concept:name, lifecycle:transition, time:timestamp</td>
</tr>
<tr>
<td>LevelB2</td>
<td>B2</td>
<td>Classifier (concept:name AND lifecycle:transition), time:timestamp</td>
</tr>
<tr>
<td>LevelC1</td>
<td>C1</td>
<td>concept:name, org:resource</td>
</tr>
<tr>
<td>LevelC2</td>
<td>C2</td>
<td>Classifier (concept:name AND lifecycle:transition), org:resource</td>
</tr>
<tr>
<td>LevelD1</td>
<td>D1</td>
<td>concept:name, concept:instance, lifecycle:transition, org:resource, org:group, org:role, time:timestamp</td>
</tr>
<tr>
<td>LevelD2</td>
<td>D2</td>
<td>Classifier (concept:name AND lifecycle:transition), concept:instance, org:resource, org:group, org:role, time:timestamp</td>
</tr>
<tr>
<td>FlagX1</td>
<td>X1</td>
<td>defectFixed, defectType, Key 1, Key 2, Key 3, Key 4, Phone Type, number Repair, 0,1,2 25Sa!! 3 +1 &lt;x&gt;, ITEMS:41, #1, 0.1.1</td>
</tr>
<tr>
<td>FlagX2</td>
<td>X2</td>
<td>defectFixed, defectType, Classifier (Key 1 AND Key 6),</td>
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</tbody>
</table>
### ATTRIBUTE TYPES AND VALUES

<table>
<thead>
<tr>
<th>KEYS</th>
<th>TYPE</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>concept:instance Key 2</td>
<td>string</td>
<td>instance 1, instance 2, instance 3, instance 4</td>
</tr>
<tr>
<td>concept:name (A1 and C1 logs)</td>
<td>string</td>
<td>Analyze Defect+complete, Analyze Defect+start, Archive Repair+complete, Inform User+complete, Register+complete, Repair (Complex)+complete, Repair (Complex)+start, Repair (Simple)+complete, Repair (Simple)+start, Restart Repair+complete, Test Repair+complete, Test Repair+start</td>
</tr>
<tr>
<td>concept:name (other logs) Key 1</td>
<td>string</td>
<td>Analyze Defect, Archive Repair, Inform User, Register, Repair (Simple), Repair (Complex), Restart Repair, Test Repair</td>
</tr>
<tr>
<td>lifecycle:transition Key 6</td>
<td>string</td>
<td>start, complete</td>
</tr>
<tr>
<td>org:group {0,1,2} 2Sa!! +1 &lt;x&gt;</td>
<td>string</td>
<td>Group 1, 3, and 5, Group 2 and 4</td>
</tr>
<tr>
<td>org:resource Key 3</td>
<td>string</td>
<td>SolverC1, SolverC2, SolverC3, SolverS1, SolverS2, SolverS3</td>
</tr>
<tr>
<td>org:role</td>
<td>string</td>
<td>Role 1, 2, and 3</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>ITEMS:41, #1, o.1.1</td>
<td></td>
<td>Role 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Role 9</td>
</tr>
<tr>
<td>time:timestamp</td>
<td>date</td>
<td>Like 1970-01-02T12:23:56.720+01:00</td>
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<tr>
<td>Key 4</td>
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<tr>
<td>defectFixed</td>
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<tr>
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<td>false</td>
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<td>defectType</td>
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<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>phoneType</td>
<td>String</td>
<td>T1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3</td>
</tr>
</tbody>
</table>

**Level A1**

```
log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xascert_exportlogs\exp_LevelA1.xes
exported log xascert_exportlogs\exp_LevelA1.xes
Reimporting log file just exported - xascert_exportlogs\exp_LevelA1.xes
log loaded xascert_exportlogs\exp_LevelA1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}
```
Level A2

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers [('Name AND Transition)]: ['concept:name', 'lifecycle:transition']}
exporting log kessert_exportlogs\exp_levelA2.xes
exported log kessert_exportlogs\exp_levelA2.xes
['(Name AND Transition)']
@Classifier
Reimporting log file just exported - kessert_exportlogs\exp_levelA2.xes
log loaded kessert_exportlogs\exp_levelA2.xes
Number of traces - 1104
Number of events - 11855
Classifiers [('Name AND Transition)]: ['concept:name', 'lifecycle:transition']}

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Level B1

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xescert_exportlogs\exp_LevelB1.xes
exported log xescert_exportlogs\exp_LevelB1.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelB1.xes
log loaded xescert_exportlogs\exp_LevelB1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}
Level B2

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
exporting log kscert_exportlogs\exp_LevelB2.xes
exported log kscert_exportlogs\exp_LevelB2.xes
{'(Name AND Transition)'}
@classifier
Reimporting log file just exported - kscert_exportlogs\exp_LevelB2.xes
log loaded kscert_exportlogs\exp_LevelB2.xes
Number of traces - 1104
Number of events - 11855
Classifiers {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

Page 21
Level C1

log loaded
Number of traces -  1104
Number of events -  11855
Classifiers   }
exporting log xescert_exportlogs\exp_LevelC1.xes
exported log xescert_exportlogs\exp_LevelC1.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelC1.xes
log loaded xescert_exportlogs\exp_LevelC1.xes
Number of traces -  1104
Number of events -  11855
Classifiers   }
Level C2

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers ["(Name AND Transition)": ["concept:name", "lifecycle:transition"]]
exporting log xescert_exportlogs\exp_LevelC2.xes
exported log xescert_exportlogs\exp_LevelC2.xes
["(Name AND Transition)"]
@Classifier
Reimporting log file just exported - xescert_exportlogs\exp_LevelC2.xes
log loaded xescert_exportlogs\exp_LevelC2.xes
Number of traces - 1104
Number of events - 11855
Classifiers ["(Name AND Transition)": ["concept:name", "lifecycle:transition"]]

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Level D1

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xescert_exportlogs\exp_LevelD1.xes
exported log xescert_exportlogs\exp_LevelD1.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelD1.xes
log loaded xescert_exportlogs\exp_LevelD1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}/
Level D2

log loaded
Number of traces = 1104
Number of events = 11855
Classifiers [('Name AND Transition)': ['concept:name', 'lifecycle:transition']]
exporting log xescert_exportlogs\exp_LevelD2.xes
exported log xescert_exportlogs\exp_LevelD2.xes
('Name AND Transition')]
@@classifier
Reimporting log file just exported - xescert_exportlogs\exp_LevelD2.xes
log loaded xescert_exportlogs\exp_LevelD2.xes
Number of traces = 1104
Number of events = 11855
Classifiers [('Name AND Transition)': ['concept:name', 'lifecycle:transition']]}
Flag X1

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xescert_exportlogs\exp_FlagX1.xes
exported log xescert_exportlogs\exp_FlagX1.xes
Reimporting log file just exported - xescert_exportlogs\exp_FlagX1.xes
log loaded xescert_exportlogs\exp_FlagX1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}
Note – Since, there is no classifier and no activity attributes, we cannot have a DFG visualization for this log.

Flag X2

log loaded
Number of traces - 1104
Number of events - 11355
Classifiers {}
exporting log xescert_exportlogs\exp_LevelAl.xes
exported log xescert_exportlogs\exp_levelAl.xes
Reimporting log file just exported - xescert_exportlogs\exp_levelAl.xes
log loaded xescert_exportlogs\exp_levelAl.xes
Number of traces - 1104
Number of events - 11355
Classifiers {}
Export

Level A1

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xescert_exportlogs\exp_LevelA1.xes
exported log xescert_exportlogs\exp_LevelA1.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelA1.xes
log loaded xescert_exportlogs\exp_LevelA1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}

Level A2

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers ['(Name AND Transition)'; ['concept:name', 'lifecycle:transition']]
exporting log xescert_exportlogs\exp_LevelA2.xes
exported log xescert_exportlogs\exp_LevelA2.xes
['(Name AND Transition)']
@classifier
Reimporting log file just exported - xescert_exportlogs\exp_LevelA2.xes
log loaded xescert_exportlogs\exp_LevelA2.xes
Number of traces - 1104
Number of events - 11855
Classifiers ['(Name AND Transition)'; ['concept:name', 'lifecycle:transition']]

Level B1

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xescert_exportlogs\exp_LevelB1.xes
exported log xescert_exportlogs\exp_LevelB1.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelB1.xes
log loaded xescert_exportlogs\exp_LevelB1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}
Level B2

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers ['(Name AND Transition)': ['concept:name', 'lifecycle:transition']]
exporting log xescert_exportlogs\exp_LevelB2.xes
exported log xescert_exportlogs\exp_LevelB2.xes
['(Name AND Transition)'](classifier
Reimporting log file just exported - xescert_exportlogs\exp_LevelB2.xes
log loaded xescert_exportlogs\exp_LevelB2.xes
Number of traces - 1104
Number of events - 11855
Classifiers ['(Name AND Transition)': ['concept:name', 'lifecycle:transition']]

Level C1

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {} export
exporting log xescert_exportlogs\exp_LevelC1.xes
exported log xescert_exportlogs\exp_LevelC1.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelC1.xes
log loaded xescert_exportlogs\exp_LevelC1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}

Level C2

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers ['(Name AND Transition)': ['concept:name', 'lifecycle:transition']]
exporting log xescert_exportlogs\exp_LevelC2.xes
exported log xescert_exportlogs\exp_LevelC2.xes
['(Name AND Transition)'](classifier
Reimporting log file just exported - xescert_exportlogs\exp_LevelC2.xes
log loaded xescert_exportlogs\exp_LevelC2.xes
Number of traces - 1104
Number of events - 11855
Classifiers ['(Name AND Transition)': ['concept:name', 'lifecycle:transition']]
**Level D1**

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xescert_exportlogs\exp_LevelD1.xes
exported log xescert_exportlogs\exp_LevelD1.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelD1.xes
log loaded xescert_exportlogs\exp_LevelD1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}

**Level D2**

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}
exporting log xescert_exportlogs\exp_LevelD2.xes
exported log xescert_exportlogs\exp_LevelD2.xes
{'(Name AND Transition)'
}@classifier
Reimporting log file just exported - xescert_exportlogs\exp_LevelD2.xes
log loaded xescert_exportlogs\exp_LevelD2.xes
Number of traces - 1104
Number of events - 11855
Classifiers {'(Name AND Transition)': ['concept:name', 'lifecycle:transition']}

**Flag X1**

log loaded
Number of traces - 1104
Number of events - 11855
Classifiers {}
exporting log xescert_exportlogs\exp_FlagX1.xes
exported log xescert_exportlogs\exp_FlagX1.xes
Reimporting log file just exported - xescert_exportlogs\exp_FlagX1.xes
log loaded xescert_exportlogs\exp_FlagX1.xes
Number of traces - 1104
Number of events - 11855
Classifiers {}/
Flag X2

log loaded
Number of traces - 1104
Number of events - 11055
Classifiers {}
exporting log xescert_exportlogs\exp_LevelAl.xes
exported log xescert_exportlogs\exp_LevelAl.xes
Reimporting log file just exported - xescert_exportlogs\exp_LevelAl.xes
log loaded xescert_exportlogs\exp_LevelAl.xes
Number of traces - 1104
Number of events - 11055
Classifiers {}
Contact Information

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IEEE XES Working Group
IEEE Task Force on Process Mining
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