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Process Analytics

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Advanced Process Mining

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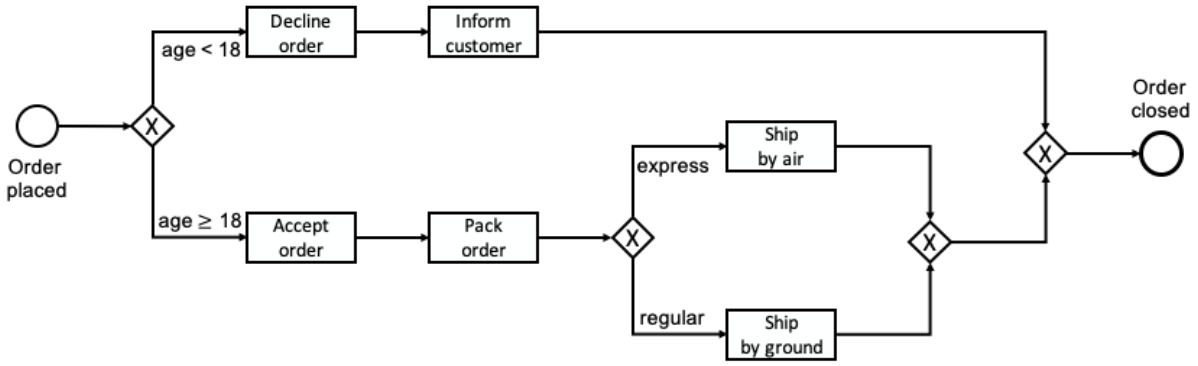
Exercise sheet 10

Multi-Perspective Alignments • Simplicity

Exercise 1: Multi-Perspective Alignments



Given the BPMN diagram above, calculate the deviation cost for the traces in the following event log using *multi-perspective alignments*:

Case ID	Timestamp	Activity	Age	Express
1	01.06.20 - 18:00:42	order placed	16	true
2	01.06.20 - 18:00:50	order placed	32	false
1	01.06.20 - 18:01:02	decline order	16	true
1	01.06.20 - 18:01:12	inform customer	16	true
1	01.06.20 - 18:01:12	order closed	16	true
2	01.06.20 - 18:02:20	accept order	32	false
3	01.06.20 - 22:01:27	order placed	15	true
3	01.06.20 - 22:33:57	accept order	15	true
2	02.06.20 - 08:43:44	pack order	32	false
2	02.06.20 - 13:22:53	Ship by air	32	false
3	02.06.20 - 13:41:02	Ship by ground	15	true
2	02.06.20 - 13:50:00	Order closed	32	false
3	02.06.20 - 13:50:01	Order closed	15	true

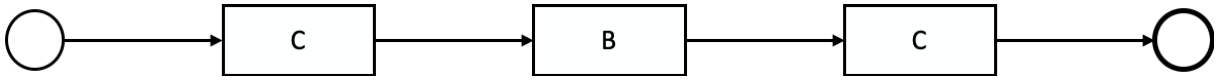
Exercise 2: True or False

a) For a successful process mining project it is not essential to have a common understanding of the objective.

b) The terms *Multi-Perspective alignments* and *Multiple Trace alignments* describe the same thing and can be used synonymously.

Exercise 3: Simplicity

a) What is quantified by simplicity and how is it measured?



b) Transform the process model above into a process tree.

c) Calculate the simplicity Q_S of the resulting process tree using the formula and method provided by *Buijs et al.* in `Quality Dimensions in Process Discovery [...] 2014`.

$$Q_S = 1 - \frac{\#duplicate\ activties + \#missing\ activties}{\#nodes\ in\ process\ tree + \#event\ class\ in\ event\ log}$$

Event log:

Trace	#
ABCDEG	6
ABCDFG	38
ABDCEG	12
ABDCFG	26
ABCFG	8
ACBEG	1
ADBCFG	1
ADBCEG	1
ADCBFG	4
ACDBFG	2
ACBFG	1

d) According to the approach off by *Buijs et al.*, how does a process tree look like with:

i) excellent simplicity

ii) very poor simplicity