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Process
Analytics

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Advanced Process Mining

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Exercise sheet 8

Event Log Quality

Exercise 1: Noise vs. Outlier

Explain the difference between noise and outlier using an example.

Exercise 2: Types of Outliers

a) Explain briefly the key aspects of a contextual outlier.

b) Design a (short) event log that contains a contextual outlier. Explain why the outlier is contextual.

Exercise 3: Event Log Imperfections

a) Inspect the following event log and identify possible event log imperfections. If possible correct them.

Case ID	Timestamp	Activity
1	01.06.20 - 18:00:42	receive order
1	01.06.20 - 18:20:01	locate appropriate warehouse
2	01.06.20 - 18:33:32	recieve order
1	01.06.20 - 19:17:17	take goods out of storage
1	01.06.20 - 23:17:19	package goods
1	01.06.20 - 00:44:53	ship package
2	06.02.20 - 06:20:01	decline order
3	02.06.20 - 06:21:00	receive order
2	02.06.20 - 06:25:11	inform customer
4	02.06.20 - 06:50:42	order received
3	02.06.20 - 07:00:02	locate appropriate warehouse
4	06.02.20 - 07:25:01	decline order
4	02.06.20 - 08:24:18	inform customer
3	02.06.20 - 08:33:31	receive order
3	02.06.20 - 09:17:13	take goods out of storage
3	02.06.20 - 12:12:19	place goods in parcel
3	02.06.20 - 12:12:43	weigh package
3	02.06.20 - 12:13:13	seal package
3	02.06.20 - 12:13:32	hand over package
3	02.06.20 - 13:41:32	ship package

b) What might be wrong when assuming that all event log imperfections have been caused by logging errors?

Exercise 4: Eventually-Follows Graph

$L_1 = [\langle ABCDEDEF \rangle, \langle ACDBEF \rangle, \langle ABCEDEDF \rangle, \langle AFCDBE \rangle]$

a) Draw both a directly-follows graph and an eventually-follows graph based on the event log above.

b) Try to identify outliers in both graphs and explain which one is better suited to identify outliers.