# Case Study
## C3: Road-traffic Fines

## Description

The Italian police developed an information system to support the management and handling of road traffic fines by the local police force in Italy. The system records sufficient data to create an event log. The log contains information about more than 140,000 road-traffic fines.

The central office would like to use the generated event log to study the process and identify possible interventions aimed at (i) increasing the probability of completing the process by a payment; (ii) reducing the cost of management of the process; (iii) support early detection of dysfunctional executions of the process.

The process starts with the **Create Fine** transition that writes four variables: Amount (A), Points (PO), Payment (P), and Dismissal (D). The Amount variable refers to the amount that needs to be paid by the offender and the Points variable records the number of points that are deducted from the offender's driving license. Payment is the total amount that has been paid by the offender. Dismissal contains a character that encodes the diverse reasons for possible dismissal of the fine. A value of NIL encodes that the fine is not dismissed (i.e. has to be paid); any other value encodes different motivations. In general, the offender can pay the fine (partly or fully) at many moments in time: right after the creation, after a road fine notification is sent by the police to the offender's place of residence, or when such a notification is received by the offender herself. If the entire amount is paid (or, even, by mistake, more than that amount), the fine management is closed. If a notification is sent, the offender needs to also pay the postal expenses. If the offender does not pay within 180 days, a penalty is added, usually as much as the fine's amount. After being notified by post, the offender can appeal against the fine through a judge and/or the prefecture. If the appeal is successful, the variable Dismissal is set to value G or #, respectively, and the case ends. Otherwise, the case continues with the **Receive Result** activity. If the offender does not pay, eventually the fine ends by handing over the case for **Send for Credit Collection**.

## Assignment

For each goal, describe the Knowledge Uplift Trail that allows you to provide answers.

In particular, define:

- Filtering steps to remove noise.
- Filtering steps to remove irrelevant data.
- Filtering steps to summarize data.
- Segments of the log describing normal behavior.
- Segments of the log describing anomalous behavior.