Subject: Assignment description for Data Science Minor 2024
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Transavia has been in the news for the introduction of the Airbus A320/321 NEO for lower emissions and noise reduction, but unfortunately also due to delays and cancelation of flights. The last 2 years, Transavia has been dealing with a high number of AOGs (Aircraft on Ground).

AOG means the aircraft is not airworthy and the found defect causing the AOG needs to be resolved before the next flight. This unplanned downtime causes delays or cancellations of flights. The financial impact to the organization is high due to wet-lease costs in order to perform the scheduled flight, compensation to customers, accommodation costs and decreased revenue due to unavailability of the aircraft.

A significant number of AOGs are structure AOGs; Structural damage to the aircraft out of allowable damage limits. The damage requires a repair action to resolve the defect and re-instate (temporary) aircraft airworthiness. The damages are found during the pre-flight check and are either caused by incidents such as lightning strikes, bird strikes or other debris (FOD) or mistakes by ground handling.

Lowering these costs can either be done by preventive actions resulting in less structure AOGs or improving the AOG process expediting return-to-service and minimize downtime. This assignment aims to contribute to the latter.

Last semester, March-August 2024, two students from the Amsterdam University of Applied Sciences performed their graduation assignment at Transavia. Their research shows Structure AOG time could be significantly reduced by requesting approval for a proposed repair design to the OEM rather than requesting repair instructions. A POC of a search tool was created to find relevant cases from our historical data to create and substantiate a design proposal.

Your assignment is to continue their work and further develop the search tool. The objective of the tool is to support the Structure Engineer in creating a repair design proposal for structure damages out of SRM limits by providing quick access to relevant historical data and related approvals. An automated generator for Service request (Boeing) or Tech Request (Airbus) messages would be valuable addition.

Recommendations for the search tool concerns data extraction from Trax (Transavia ERP system) and data structuring. The available data from Trax and Excel sheets is inconsistent and the search tool requires a higher quality to be (more) effective. One of your challenges is find a way to improve the data quality.