In preparation for your interview, we are asking you to work through the two separate exercises below and provide your findings/results in form of a short briefing (10 minutes max for both exercises) not later than **Tuesday, June 11, 2024, at 15h00 (CEST-Brussels time).**

As part of your interview you will be asked to present your briefing to the interview board.

The exercises do no assume that you are familiar with the details of the EUROCONTROL data environment. However, you may access supplementary material available via [https://ansperformance.eu](https://ansperformance.eu/) if needed.

**1.       Exercise 1 – Write a EUROCONTROL Data Snapshot about the evolution of traffic and flight distance between Europe and China**

Using the template provided at [1] containing a graph showing the traffic evolution between Europe and China, write an explanatory text of the graph in the style of a EUROCONTROL data snapshot. In case it is useful, the data used to create the graph is provided at [2], and the list of all EUROCONTROL data snapshots published to date can be found at [3]. The data snapshot should fit in one page, the approximate proportions to be devoted to graphic and text are suggested in the template. The text should have a maximum of 450 words and it should fit in the provided template without tampering with the margins, font-size, format, etc.

You are allowed to use LLM-based supporting tools. If you do, please explain in which stages of the process you used them and for which purpose.

**2.      Exercise 2 – Process a dataset and develop a visualization(s) showing the KPIs described below**

1. The KPIs to be represented are arrival and departure punctuality percentage, defined as follows:
   1. Arrival punctuality percentage = (Total arriving punctual flights)/(Total arriving scheduled flights)
   2. Departure punctuality percentage = (Total departing punctual flights)/(Total departing scheduled flights)

A (arrival/departing) punctual flight is defined as a flight arriving/departing 15 minutes or less after its scheduled time.

1. Using dataset [4], and the dimension tables provided in [5], write a query that would consolidate the data on a per airport (in the EUROCONTROL area), per day basis, covering the period 1-June to 31-December 2023. The consolidated table should contain the daily arrival and departure punctuality percentages, the 7-day moving average arrival and departure punctuality percentages. The table should also contain whatever additional fields you consider necessary for the next steps. Please, clearly state any assumptions you make along the way.
2. Using the table developed in step 2.b,
   1. Define some example views to ease queries by analysts and sketch them out.
   2. Provide some data visualizations that in your opinion could be of use to possible stakeholders (airport authority, state authority, EUROCONTROL network manager).

[1] Data snapshot template <https://www.eurocontrol.int/performance/data/download/test/data-snapshot-template.docx>

[2] Flights and flight distance Europe-China <https://www.eurocontrol.int/performance/data/download/test/aiu-recruitement-exercise1.xlsx>

[3] List of published EUROCONTROL data snapshots <https://ansperformance.eu/publications/ectl/datasnap/>

[4] Flights in the EUROCONTROL area, May-Dec 2023:

[https://www.eurocontrol.int/performance/data/download/test/aiu-recruitement-exercise2\_data.csv]( https:/www.eurocontrol.int/performance/data/download/test/aiu-recruitement-exercise2_data.csv%20)

<https://www.eurocontrol.int/performance/data/download/test/aiu-recruitement-exercise2_data.parquet>

[5] Dimension tables and metadata: [https://www.eurocontrol.int/performance/data/download/test/aiu-recruitement-exercise2-dimensions.xlsx]( https:/www.eurocontrol.int/performance/data/download/test/aiu-recruitement-exercise2-dimensions.xlsx%20)