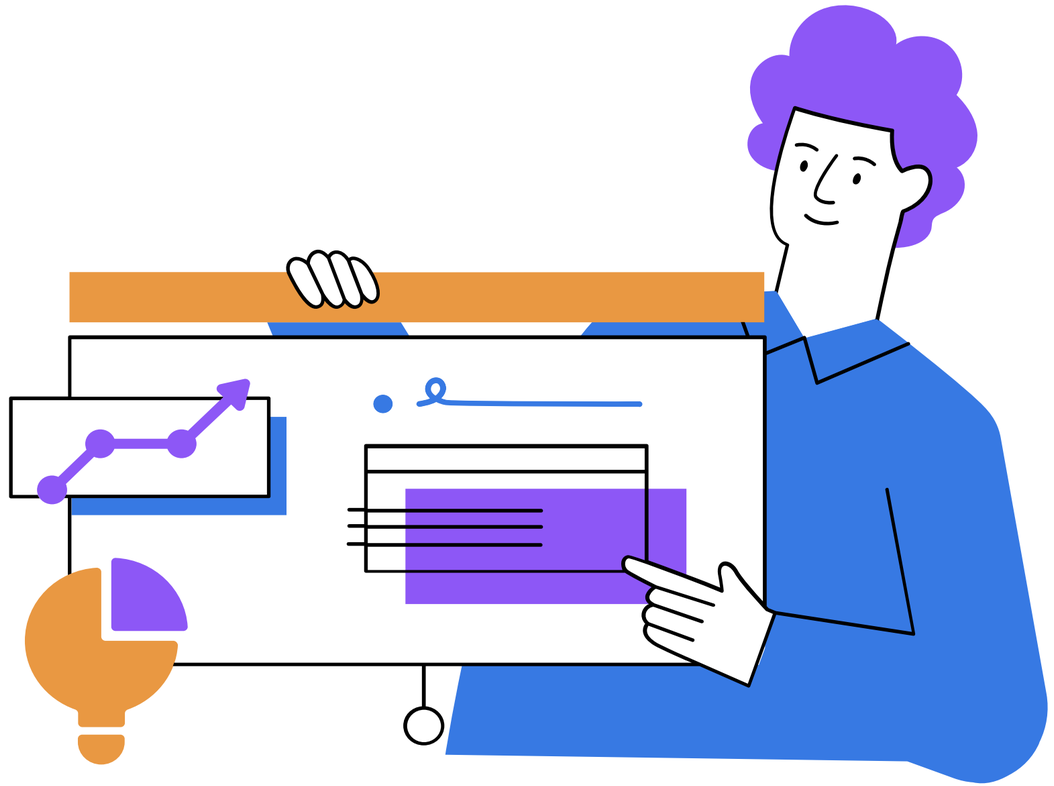
Students’ admission process

Introduction

- This project analyzes **admission dynamics from the French Parcoursup 2024 dataset**.

- The goal was to build an interactive Power BI dashboard to visualize key indicators related to the evolution and dynamics of program seat filling during the admission campaign.

- **Tools used:** Power BI, DAX, and Excel.
Focus: Data modeling, DAX measures, and visual storytelling.



To respect data privacy, all private or institutional data were replaced with official public Parcoursup open data (published by the French Ministry of Higher Education) and complemented with **mock data** to simulate realistic program and admission dynamics.

Datasets

Name	Cardinality	Total Size	Data	Dictionary	Hier Size	Encoding	Columns
Admissions	3 395	6 109 084	222 024	5 732 044	155 016	Many	134
bdd-2024	2 617	295 919	50 544	226 583	18 600	Many	25
Voeux	75	173 867	3 360	166 275	4 232	Many	16
PropositionsParDate	2 617	103 397	13 280	87 021	3 032	Many	7
rattachement_composantes	68	71 373	848	69 117	1 344	Many	5
Formation-PC	32	61 380	720	59 972	656	Many	5

- Overview of tables used in the Power BI model:

  - **Admissions**: datas on students admitted in the programs
  - **bdd-2024**: datas on parcoursup process
  - **Voeux**: number of applications per program (temporary, definitive).
  - **PropositionsParDate**: daily aggregation of offers.
  - **rattachement_composantes**: program and institution mapping.
  - **Formation-PC**: programs entering second phase admissions.
  - **DateTableTemplate**: time dimension for campaign tracking.

- The table above shows dataset size and structure (rows, storage, and dictionary size) extracted from Power BI's model view.

OPENDATA

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Data processing

Database mapping and organization:
All tables are connected in a **star-schema–like model**, allowing for optimized DAX calculations and cross-table filtering in Power BI.

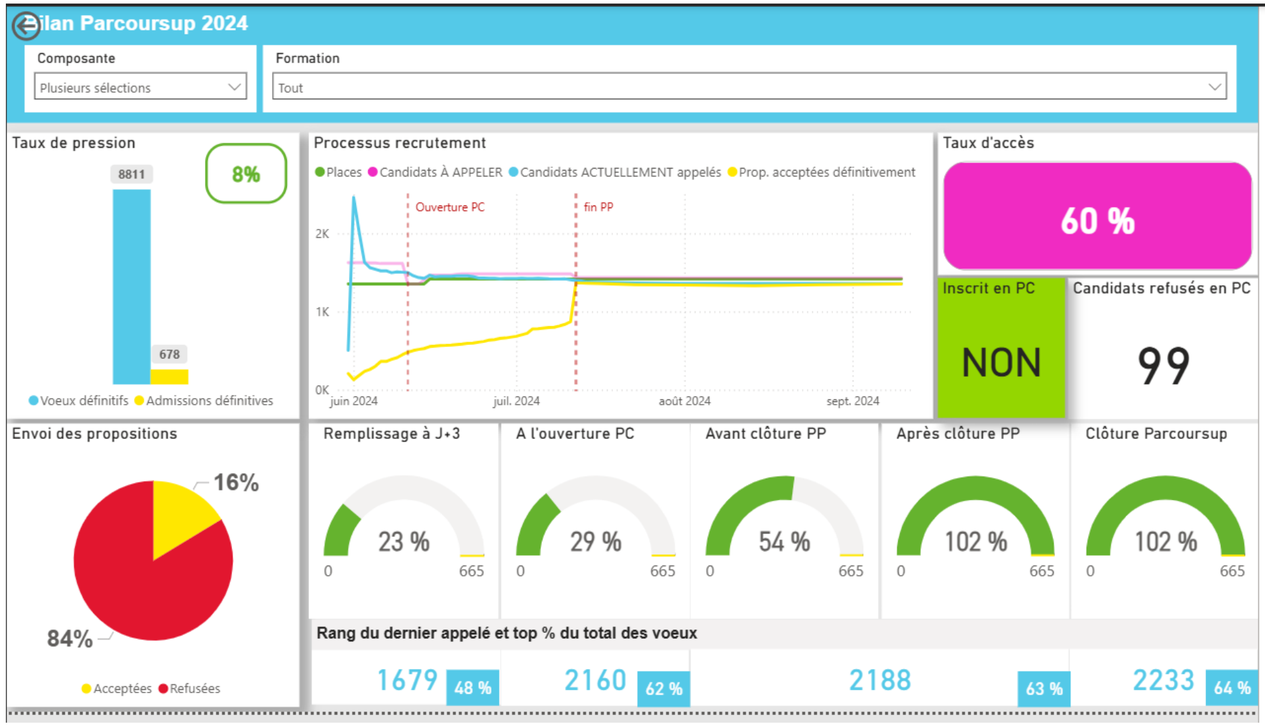
The model includes over **40 DAX measures**, designed to support analytical calculations such as admission evolution, ranking, and program fill rates.
Each measure follows best practices using CALCULATE, FILTER, and VAR for performance optimization.

Full documentation: DAX_measures.md

Key Insights

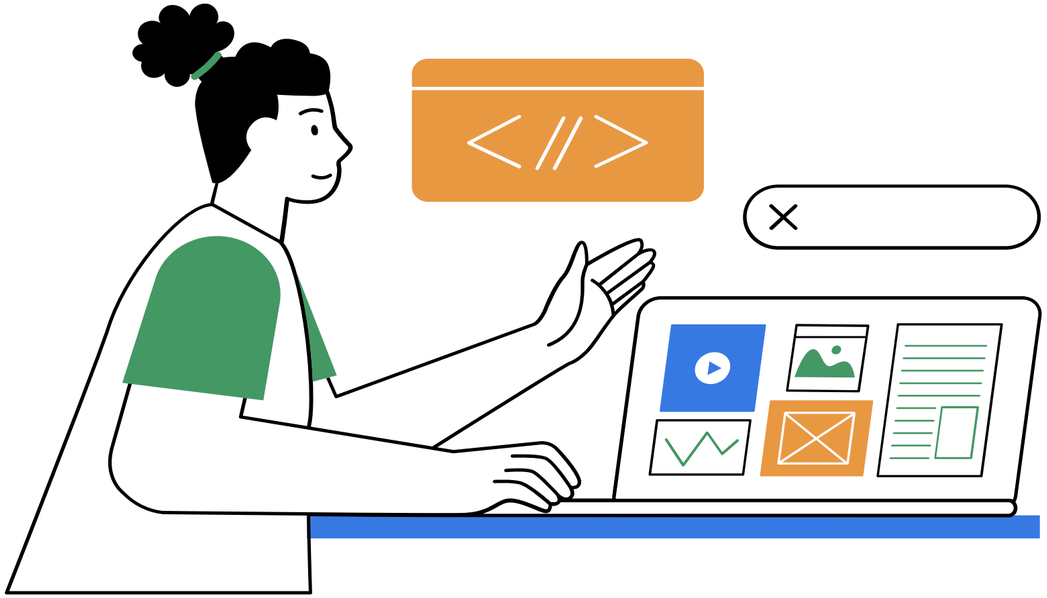
The dashboard allows users to explore **official indicators** defined by the French Ministry of Higher Education — **but not only**. It also includes additional custom indicators designed to better track program dynamics, candidate behavior, and seat-filling evolution throughout the admission campaign.

- **Pressure rate** — ratio of total applications to available seats (*taux de pression*).
- **Access rate** — proportion of candidates who received at least one admission offer (*taux d'accès*).
- **Attractiveness rate** — ratio of offers accepted or refused relative to the total offers sent (*nombre de propositions envoyées/refusées*).
- **Seat-filling rate** — percentage of filled seats at key stages of the admission campaign (opening, J+3, mid-July, final closure).
- **Last admitted rank** — rank of the last candidate called at each campaign stage.
- **Complementary phase metrics** — number of candidates refused during the complementary phase and whether the program reopened during this stage.
- All indicators can be **filtered and compared dynamically** by **academic unit level** *(Composante)* and/or by **program** (*formation*), providing flexible analysis across institutions and admission stages.



✓ Each indicator includes an **information tooltip** providing its **definition** and **calculation method**, to ensure transparency and help users interpret the metrics accurately.

Tools & Technologies



Category	Tools / Technologies
Data Visualization	Power BI Desktop
Data Modeling & Measures	DAX (Data Analysis Expressions)
Data Cleaning	Power Query, Excel
Documentation	Markdown (README.md, DAX_measures.md)
Design Principles	Data storytelling, KPI tracking, interactive visuals

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Power BI

DAX STUDIO

Conclusion

This dashboard was primarily designed for **program directors**, **teachers in charge of Parcoursup (OAD manager)**, **vice presidents for academic affairs**, and **heads of academic units.**

Its purpose is to **support strategic decision-making** by helping optimize recruitment, fill all available seats with the most suitable candidates, guide decisions for future admission campaigns, and improve the understanding of candidate profiles by program and institution.

Next steps:

Extend analysis to multiple years.
A second view was developed focusing on **admitted candidates** and the **analysis of their profiles**, based on **socio-demographic and academic criteria**.

Repository: github.com/namejou/students-admissions-kpi-dashboard