

Power BI advance programming and data visualization

M2 DS2E

MGE 3 DS2E





About me

- Postdoctoral Researcher at Bicocca University of Milan
- PhD in Economics from University of Strasbourg
- MSc in Data Science from Sapienza University of Rome
- Interested in NLP and SNA
- **Contact:** diletta.abbonato@unimib.it
- Material on **Github** [DSS-ML/Power-Bi](#)

Course overview

- Power BI Desktop
- Group project
- Final presentation on 24/01/2024

Jour	Salles	Durée (h)	Début	Fin	Activité
Lundi 16/09/2024	A 330 - Idem-Lab	02h00	14h30	16h30	UE 1. Advanced programming and data vis...
Lundi 07/10/2024	salle en Distanciel	03h00	08h30	11h30	UE 1. Advanced programming and data vis...
Jeudi 17/10/2024	salle en Distanciel	03h00	14h30	17h30	UE 1. Advanced programming and data vis...
Vendredi 08/11/2024	salle en Distanciel	03h00	08h30	11h30	UE 1. Advanced programming and data vis...
Mardi 03/12/2024	salle en Distanciel	02h00	18h00	20h00	UE 1. Advanced programming and data vis...
Lundi 13/01/2025	salle en Distanciel	03h00	17h00	20h00	UE 1. Advanced programming and data vis...
Vendredi 24/01/2025	A 330 - Idem-Lab	04h00	14h00	18h00	UE 1. Advanced programming and data vis...



Rules of the Game

- **Group size** : maximum of three person per group
- **Dashboard requirement**: must be dynamic and interactive
- **Data requirement**: no limit on data type, but data must be scraped
- **Additional value**: string manipulation and feature engineering
- **Deadline flexibility**: no need to finish by next week!!

Power BI

What is Power BI?

- Is a business analytics tool developed by Microsoft that enables users to visualize data, create interactive reports, and derive insights from different data sources.

Why Do We Use Power BI?

- **Data Integration:** connects to various data sources, enabling comprehensive analysis.
- **Advanced Analytics:** supports complex data modeling, custom calculations, and real-time updates.
- **Collaboration:** facilitates sharing and collaboration within teams and across organizations.

Why Are Dashboards Important?

- **Visual Insights:** present complex data in a simple, visually appealing manner.
- **Real-Time Monitoring:** allow for dynamic updates and real-time decision-making.
- **Performance Tracking:** provide an at-a-glance view of key metrics and performance indicators.
- **Data-Driven Decisions:** enable informed decision-making by aggregating and visualizing critical business data

Example: Patient Wait List Analysis

- **Inpatient:** A patient who stays in a hospital while under treatment
- **Outpatient:** A patient who receives medical treatment without being admitted to a hospital
- **Project Goals:**
 1. Track the current status of the patient waiting list
 2. Analyze historical monthly trends of the waiting list in Inpatient & Outpatient categories
 3. Perform detailed specialty-level & age profile analysis
- **Metrics Required:**
 - Average and median waiting list times
 - Current total wait list size
- **Views Required:**
 - Summary page
 - Detailed page for granular analysis

SUMMARY

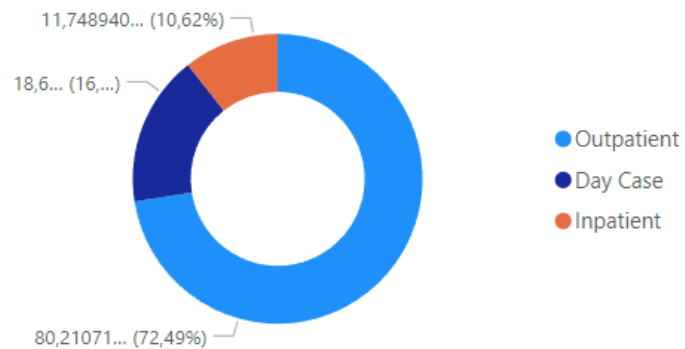
709K

Latest Month Wait List

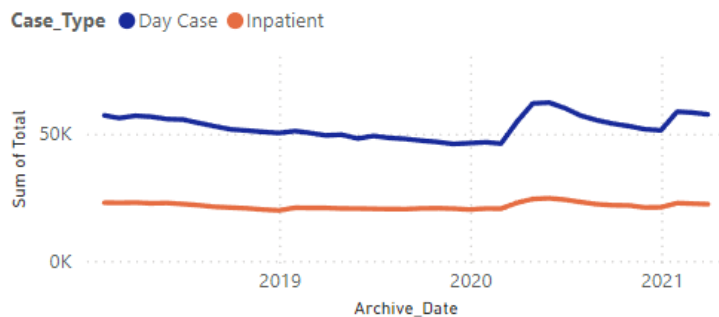
640K

PY Latest Month Wait List

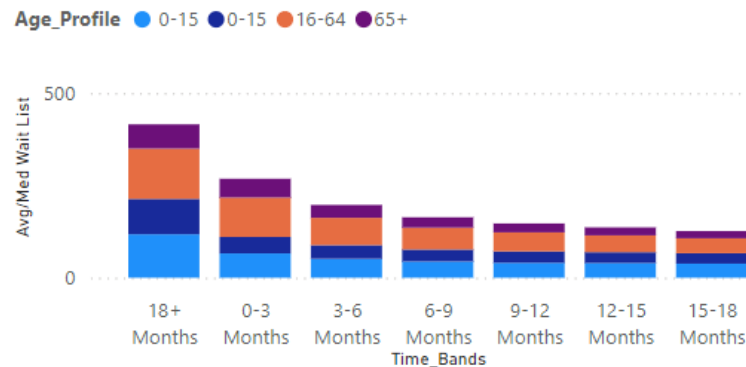
Avg/Med Wait List by Case_Type



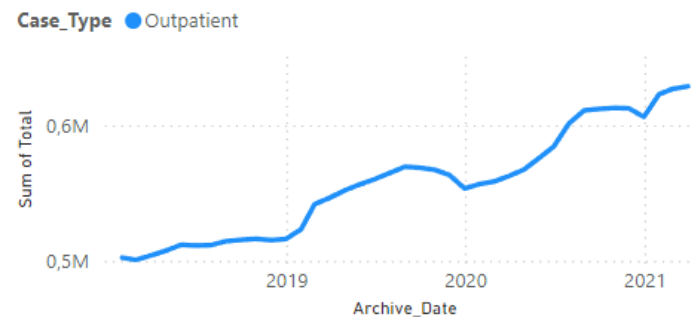
Sum of Total by Archive_Date and Case_Type



Avg/Med Wait List by Time_Bands and Age_Profile



Sum of Total by Archive_Date and Case_Type



Case_Type

All

Speciality_Name

All

Average

Median

Otolaryngology (ENT)

159,44

Avg/Med Wait List

Paed Orthopaedic

264,45

Avg/Med Wait List

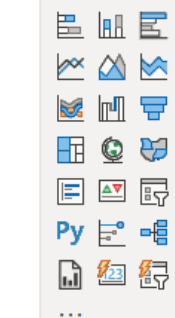
Paediatric Dermatology

233,15

Avg/Med Wait List

Visualizations

Build visual



Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Summary

Detail



Archive_Date

31/01/2018

31/03/2021

Case_Type

All

Speciality_Name

All

Age_Profile

All

Time_Bands

All

Archive_Date	Day Case	Inpatient	Outpatient	Total
mercoledì 31 gennaio 2018	57267	22937	502482	582686
			502482	502482
0-15			82148	82148
0-3 Months			22613	22613
12-15 Months			6225	6225
15-18 Months			5224	5224
18+ Months			13869	13869
3-6 Months			13959	13959
6-9 Months			11275	11275
9-12 Months			8983	8983
16-64			309766	309766
0-3 Months			91877	91877
12-15 Months			22436	22436
15-18 Months			18875	18875
18+ Months			44280	44280
3-6 Months			56096	56096
6-9 Months			42899	42899
9-12 Months			33303	33303
65+			110543	110543
0-3 Months			33516	33516
12-15 Months			7583	7583
15-18 Months			6650	6650
18+ Months			15238	15238
3-6 Months			20327	20327
6-9 Months			15687	15687
Total	2059882	845348	21735739	24640969