

PROCESS INTELLIGENCE**PROJECT DESCRIPTION****2024/2025****Professor: Joana Neves**

Project Description

Saúde+ Health Center is a mid-sized private medical clinic offering services across various specialties, with a focus on orthopedics, general medicine, and physiotherapy. Located in a central region, it serves patients from all over the country (North, South, Center, Islands), both insured and uninsured. The clinic has been investing in digital transformation and now logs clinical and administrative events in a structured format.



Over recent months, the management team has expressed concern over key performance and satisfaction indicators. While the number of patients has been increasing, the perceived quality and efficiency of the service seems to be declining. Thus, Saude+ intends to take advantage of the event logs stored by its information systems and develop different analyses that will help the growth and success of the company, better understanding its processes. The main focus of this project is the process of a patient attending an appointment, as it represents one of the main manager's concerns, that admits that the process has a lack of transparency and although it is recognized some issues measured on a low customer satisfaction levels, the company is not able to understand what is going on the process and quantify the negative outcomes.

The company needs your help for this task by identifying and evaluating the current AS IS situation, provide some interpretation on the issues, provide a business analysis, understand how the issues are affecting the business and lastly provide some recommendations.

Additionally, the management of the clinic shared its notes where it raised some hypotheses and preliminary concerns. Students are expected to investigate these issues using Process Mining techniques to validate or not the assumptions of the manager based on real data.



Manager's Notes

Key Concerns in the Clinic

We have some important questions about how the clinic is functioning. These are preliminary hypotheses that need to be validated using real data.

I don't understand the process. What exactly is going on? I need a process mining team.

(X) Irregular Patient Journeys and Process Deviations
I've observed that patient flows don't always follow the expected paths. A worrying example: several pregnant patients check in but never attend the consultation. What's going on here? Are they waiting too long? Unmotivated? Getting lost in the process?

(♂♂) Unequal Service Based on Patient Profile
The team feels that some patient groups are having more difficulties. Older patients report struggles - is the process not well adapted for them? Patients from the Islands face frequent system errors - maybe due to data integration problems? We need to take a close look at this. We cannot afford to offer unequal care.

(?) Low Satisfaction Among Certain Patient Segments
Another uncomfortable question: are we treating insured patients better? And are there differences in service depending on the gender of the patient? Is my clinic staff offering low service depending on gender? I REALLY hope not, but this needs to be verified.
→ We must understand how each group experiences our services.

You were provided with the data that you will work with for your project (2 tables):

- Case table: Provides information about each appointment executed
- Event log

Case Table:

Variable	Description
case_id	Case ID (appointment ID)
Patient_age	Patient age
Patient_gender	Patient gender (female, male, other)
Patient_region	Patient region (north, south, center, islands)
Has_insurance	Patient has insurance (true, false)
Total_cost	Total cost of the appointment
Chronic_condition	Patient chronic condition (none, diabetes, ...)
Satisfaction_score	Satisfaction score of the appointment (0-5)
Num_previous_appointments	Total number of previous appointments in the last 3 months
Cancellation_history	Total number of cancelled appointments in the last 3 months

Pizza_Event:

Variable	Description
case_id	Case ID (appointment ID)
timestamp	Timestamp
activity	Activity name

Deliverables:

1. Dashboard

- You should include different pages on the dashboard that will allow you to explore and answer the project goals. There is no mandatory format. However, **at least** you should have the following pages:
 1. Cover Page
 2. Variant Explorar
 3. Process Explorer
 4. Conformance Checking
 5. Case Explorer
 6. Business Analysis

(Feel free to add more pages and analysis)

- Notes for the Dashboard:

- We expect creativity and business-oriented dashboards to take decisions based on facts.

- The dashboard created should not be an exact Copy Paste of what was done in class, improvements are expected, and we will value user friendly dashboards.
- Technical field names are not expected, you should always be cautious to not leave the formulas visible or the original names of the tables
- You should also consider the appearance of your dashboard and visualizations, with good visuals, good color choices and coherent design

2. Report

- You should include a technical description of what you did in the project and interpretation of the results. **Suggestion** of information to be included on the report:
 1. Introduction
 2. Theoretical background (about Process Mining and the methodology used)
 3. Description of the project and goals
 4. ETL process (description and main insights)
 5. Description of each page and main insights (how to generate value from the dashboard)
 6. Final recommendations / value generated
 7. Limitations
 8. Conclusion

Criteria for evaluation:

- How many valuable insights you can take (if you were able to identify and evaluate the current AS IS, interpret the issues, understand how the issues are affecting the business, evaluate the business itself, provide valuable insights and/or recommendations for improvement)
- Answers provided to the management
- Creativity to present components and information on the dashboard
- Detail description of the procedures followed
- Detailed description on how to generate value from information presented
- Report organization
- Dashboard organization, appearance and user-friendly environment

Give me access to your project to better evaluate your technical skills 😊

Project delivery date: June 1st 2025

