

Integrating the Safran Project API with Power BI and Python

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## The task I was asked to solve.

- Need for a live tool for project managers, area managers and directors so that they always have up to date information on progress.
- It had to have a visible progress cart that is easy to navigate.
- Make it easy to compare projects and contracts.
- We wanted to view financial data and project progress together.



## Why integrating the Safran Project API with Power BI and Python?

- Efficient Data Management: The Safran Project API allows you to automatically retrieve project data, ensuring that the data is always up-to-date.
- Visualization: Power BI allows you to create interactive and dynamic visualizations, making it easier to understand and communicate the data.
- Advanced Analysis: Python enables you to perform advanced data analyses and automate processes, providing deeper insights into the project data.
- **Data Product:** The combination of these tools results in a data product that is structured, documented and ready for use in decision-making and further analysis.

The result we get is a **Data Product** which is important because it enable organizations to utilize data effectively, improve decision-making processes, and create added value through insights and analyses.



## Why use Safran Project API?



- Safran Project API is a tool that provides access to project information for external applications.
- Main features:
  - **Retrieve data:** Access to projects, activities, resources, and more.
  - Integration: Seamless connection with other systems and tools.
- The importance of API integration in project management
  - Efficiency: Automates data flow between systems, reducing manual entry.
  - Accuracy: Ensures data is consistent and up-to-date across platforms.
  - Flexibility: Adapts project management to specific needs and workflows.



## Simply explained API (Application Programming Interface)



## Power BI



#### • What is Power BI

- Power BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights.
- Developed by Microsoft, Power BI was first released in 2014.

#### • Key Features

- Data Visualization: Power BI allows you to create a wide range of visualizations, including charts, graphs, and maps, to represent your data effectively.
- Data Integration: Connects to various data sources, such as Excel, cloud-based, and on-premises data warehouses.
- User-Friendly: Designed to be accessible for users with varying levels of data knowledge.
- Web Access to Desktop Reports: Power BI allows users to publish their desktop reports to the Power BI service, making them accessible online. This enables team members to view and interact with reports from anywhere, fostering better collaboration and decision-making.



## Python



#### • What is Python

- Python is a high-level, interpreted programming language known for its simplicity and readability.
- Python is free software, meaning you can use, distribute, and modify it at no cost.
- Developed by Guido van Rossum and first released in 1991.

#### • Key Features

- Simple Syntax: Python has a clean and easy-to-understand syntax, making it simple to learn and use.
- **Extensive Library:** Python has a comprehensive standard library that supports many common programming tasks, such as network protocols, data processing, and web development.
- Cross-Platform: Python can run on many different operating systems, including Windows, macOS, and Linux.
- Support for Multiple Paradigms: Python supports object-oriented, procedural, and functional programming.



## Benefits of Using Power BI and Python

#### **Power BI**

- Powerful tool for data analysis and visualization:
  - Interactive reports: Create dynamic and interactive reports that provide real-time insights.
  - Easy integration: Integrate with various data sources like Excel, SQL Server and Safran.
  - Automation: Automate data updates and report generation to ensure data is always up-to-date.

### Python

- Automation and customization of data analysis processes:
  - Advanced data analysis: Use Python libraries like pandas and NumPy for advanced data analysis.
  - Data visualization: Create customized visualizations with libraries like Matplotlib and Seaborn.
  - Automation: Automate repetitive tasks and data flow processes to increase efficiency



## Preparations before integration

- System and Software Requirements:
  - Install necessary libraries in Python
    - Recommendations:
      - NumPy
      - pandas
      - Matplotlib
      - Seaborn
- Setting Up Safran Project API:
  - Authentication and access





# Smart things to do in Safran before sending data via the API

- Make sure you send out the correct dates!
  - Make a new start date and end date columns, some examples of this shown to the right.
  - To ensure that you have the correct dates for activities, start milestones, and finish milestones



## Using Python for Data Analysis

#### • Python Scripts:

- Retrieve and process data
- Ensure your data is well-structured and easily readable
- Organize data into DataFrames with clear and consistent column names
- Handle missing values and outliers to maintain data quality
- Document your data processing steps for reproducibility
- Use data analysis to understand data distributions and relationships
- Apply statistical methods and machine learning algorithms with libraries



## Example of how I use Power BI Dashboards

- Interactive Dashboard with multiple APIs creates a comprehensive Data Product.
- A tool for project managers, area managers and directors.
  - It allows them to easily navigate, click through, and compare projects and contracts themselves.
- In addition to generating monthly reports from Safran, the dashboard provides the flexibility for users to check updates and details at any time.
- We also integrate multiple APIs, allowing us to view financial data and project progress side by side on the same dashboard. (This will not be shown in this presentation)









