

Module 4: Conversational Analysis & Lab 1

Interacting Directly with Public Datasets Using PandasAI

Bridging the Gap Between Natural Language Questions and Instant Data Visualizations

Conversational AI Engines

Turning Natural Language into Executable Pandas Code

Introducing PandasAI

No-Code Generative Inquiries

PandasAI is an advanced wrapper library designed to let you chat with structured data. It leverages Large Language Models in the background to convert standard human questions into executable Python vector code.

The SmartDataframe Layer

By wrapping a standard Pandas DataFrame into a highly intuitive SmartDataframe layer, you instantly enable cognitive capabilities across your localized variables and memory spaces.

Setting Up the Architecture



1. Installation

Instantly deploy the environment via pip inside your active terminal console: `pip install pandasai`



2. API Authentication

Acquire a secure API authorization token key from primary providers like OpenAI, Anthropic, or HuggingFace endpoints.



3. Initialization

Import the required modules, load the model key, and map your baseline tabular asset into the smart wrapper.

The Online Target Dataset

Leveraging Public CSV Streams for Live Jupyter
Analysis

Live E-Commerce Sales Repository

Online Dataset Stream

To demonstrate conversational querying, we ingest a live, public global sales dataset containing regional product histories directly from GitHub.

URL Endpoint Location:

<https://raw.githubusercontent.com/vizzuhq/ipyvizzu/main/docs/examples/stories/sales/sales.csv>

This structure includes categories like Region, Product, Sales, and Revenue [\$], creating a robust target for natural questions.



Ingested Dataset Schema Preview

Region	Product	Sales	Revenue [\$]
Midwest	Shoes	\$1,540.00	\$250,450.00
Northeast	Handbags	\$845.00	\$152,990.00
South	Gloves	\$340.00	\$45,000.00
West	Accessories	\$2,100.00	\$1,250,000.00

**Preview rows showcasing structural schema configurations loaded from the remote GitHub server.*

Conversational Analytics Live

Executing Complex Code Aggregations via Direct Dialogue

Drafting No-Code Data Queries

- Question-Based Tasks:** Query totals without grouping:
`df.chat("What are the total sales per region?")`
- Automated Plotting:** Create instant charts easily:
`df.chat("Plot a bar chart of product revenue")`
- Seamless Compilation:** The PandasAI engine writes the Python code, runs it internally, and prints output.



| The Efficiency Transformation

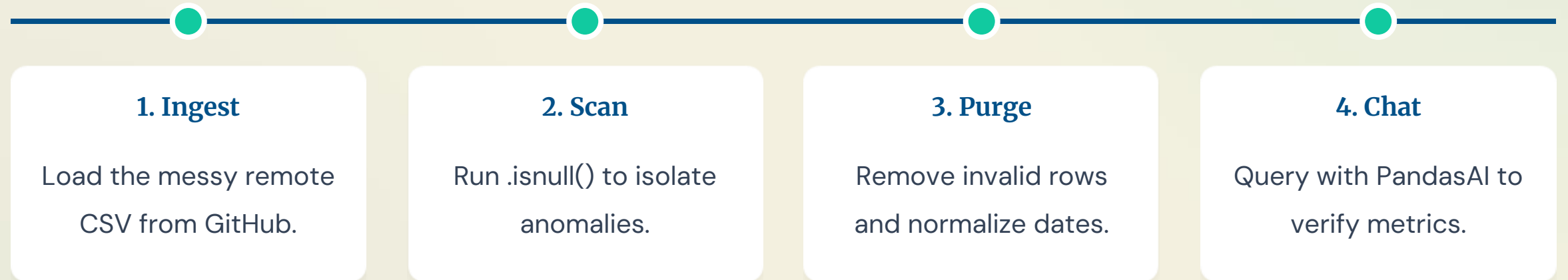
10x

Execution Acceleration

Bypassing Traditional Obstacles

Typically, non-technical stakeholders must request SQL extractions or wait for data science teams to draft bespoke scripts. With conversational interfaces, business professionals query data repositories in standard English—boosting delivery speed instantly.

Lab 1: End-to-End Operational Flow



Questions?

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Complete

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Image Sources



<https://monpellier.co.uk/wp-content/uploads/2024/10/website-images-4-1024x1024.png>

Source: monpellier.co.uk



<https://imgv3.fotor.com/images/share/Fotor-AI-assistant-for-visual-content-editing-and-creation.jpg>

Source: www.fotor.com