

# Automating Diamond Market Demand Analysis and Pricing Optimization

## ABOUT CLIENT

- One of India's top diamond manufacturers and exporters with a rich legacy spanning 57 years, they have honed their expertise in the art of cutting and polishing diamonds.
- The company prioritizes sustainable sourcing, ethical standards, and true craftsmanship, seeding trust and long-term relationships with premium clients worldwide.

## PROBLEM STATEMENT

The company highlighted multiple challenges in the existing workflow when we first sat together for a discussion. Here are the key issues we identified:

### Automating Market Demand and Pricing:

The client struggled with the daily task of assessing market demand for diamonds, which directly affected pricing decisions. They sought a software solution to automate demand analysis and pricing, improving efficiency and reducing manual time.

### Lack of Timely Metrics:

Without a system to structure raw data, the client faced challenges in analyzing market trends and managing inventory, limiting their ability to make informed decisions.

### Mis-handling Large Datasets:

Processing large datasets (over 1 million rows) took 14-16 hours due to inefficient calculations. The lengthy processing time hindered daily operations frequently.

## SOLUTION

After analyzing the challenges discussed in the table, the solution had to address challenges like handling large datasets. By using tools like numpy vector arrays and parallel computation, we were able to reduce processing time and introduced file-splitting logic to ensure that no data would be lost during the analysis of large datasets.

### Excel Data Handling:

- We automated the extraction and transformation of data from various Excel sheets and workbooks, ensuring it was ready for analysis.

### File and Folder Management:

- Using Python scripts, we automated repetitive tasks such as copying, renaming, and moving files into organized folders. We also ensured that any data inconsistencies, like missing or incorrect formats, were handled properly.

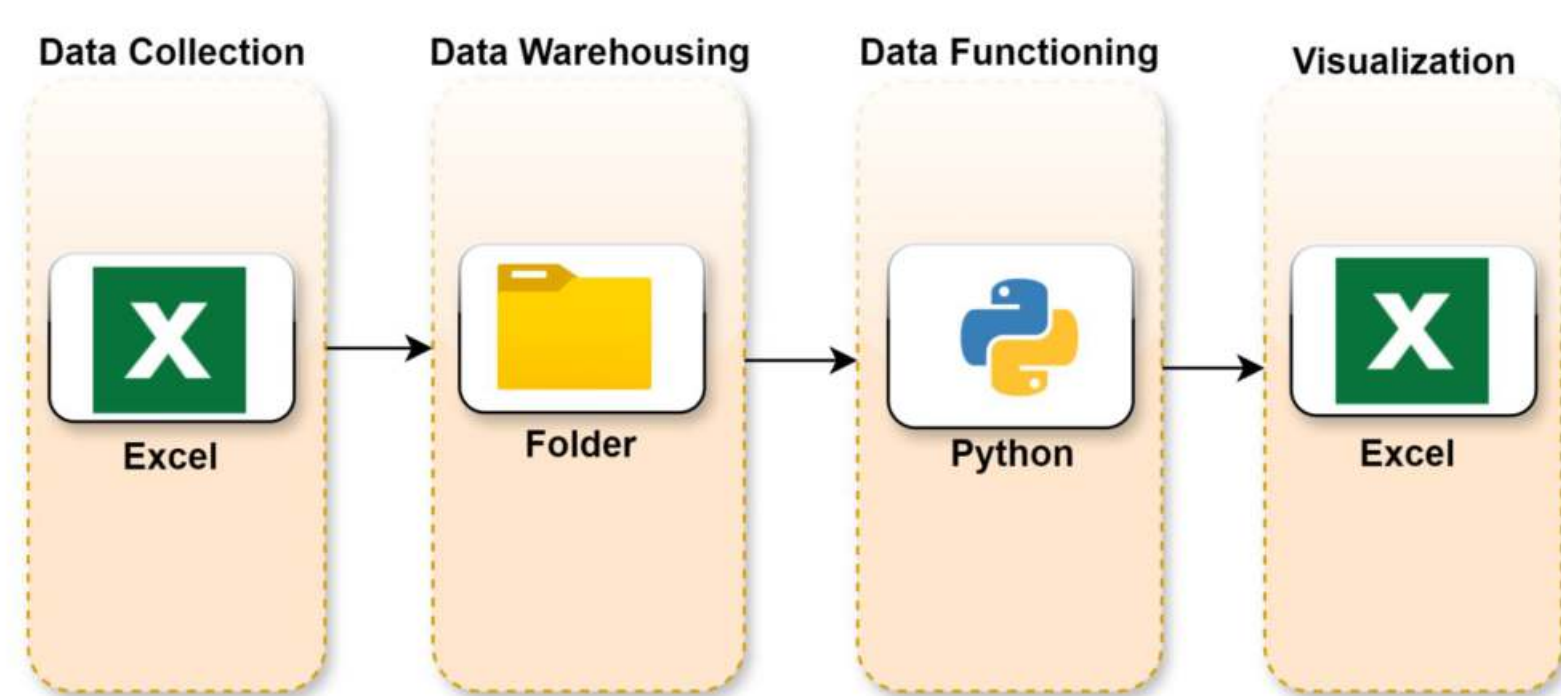
### Error Handling:

- Our designated developers made sure all data was properly validated, preventing any issues like missing values or formatting errors.

### Excel Integration:

- We ensured that processed Excel files were saved according to predefined rules and generated summary reports, making it easier for the client to analyze the data.

## TECHNICAL ARCHITECTURE



## BUSINESS IMPACT

- Reduced manual tasks, cutting processing time from 12 hours per week to just 3 hours, allowing the team to focus more on strategic decisions.
- Optimized data processing reduced handling time from 14-16 hours to under 25 minutes per dataset, increasing capacity to process up to 30 datasets daily.
- File-splitting logic ensured 100% data accuracy, preventing any loss and significantly improving the reliability and consistency of reports.
- Structured data resulted in 85% more accurate insights, leading to a 20% increase in trading profitability over 6 months by optimizing inventory and pricing strategies.

The implemented, automated software solution delivered significant improvements in the client's diamond market demand analysis and pricing optimization processes, benefitting them with their enterprise goals.



### Industry

Logistics & Supply Chain



### Services Used

- Business Intelligence (BI)
- Data Analytics
- Digital Transformation



### Region

Middle East



### Function/Department

- Operations Management
- Strategy and Planning
- Supply Chain Management



### Engagement Model

End to End Project Lifecycle Management

