

TP2

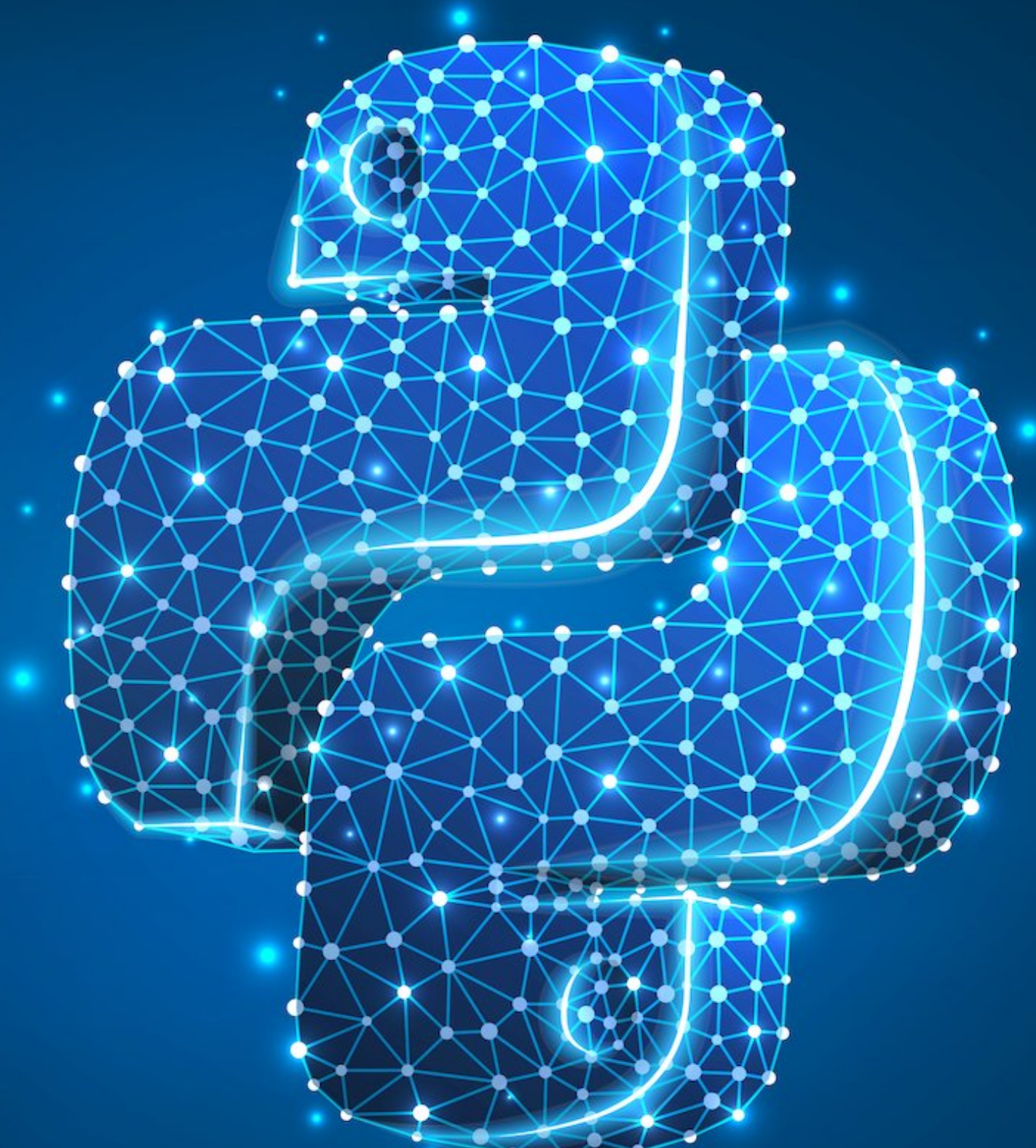


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Introduction

This report presents an in-depth analysis of book sales data collected over a specific period (from 1990 to 2024).

The goal is to provide valuable insights into market trends, consumer preferences, and potential opportunities within the publishing industry. By examining various factors influencing book sales, including genre, price, publication year, and region, this report aims to illuminate key patterns and inform strategic decision-making for publishers, retailers, and authors.

Data Description and Methodology

The analysis is based on a comprehensive dataset containing detailed information about individual book sales transactions. The data encompasses the following variables:

- **ISBN:** Unique book identifier.
- **Titre:** Title of the book.
- **Auteur:** Name of the author.
- **Genre:** The literary genre to which each book belongs, categorized based on established industry standards (e.g.: Roman, Science-fiction, Jeunesse, etc.).
- **Annee_Publication:** The year of publication for each book.
- **Prix_Unitaire:** The unit price (in Euros) at which each book was sold.
- **Quantite_Vendue:** The number of units sold for each specific book.
- **Region:** The geographical region (in France) where the sale occurred.
- **Date_Vente:** Date in which the book was sold.

Results

1. Descriptive Statistics

The descriptive statistics provide a snapshot of the central tendencies and variability within each variable:

The mean price per genre is:

- Jeunesse: 29.84€
- Science-fiction: 28.14€
- Histoire: 27.70€
- Roman: 28.73€
- Philosophie: 33.26€
- Cuisine: 27.87€

Annee publication:

- Count: 200.00
- Mean: 2005.80
- Standard Deviation: 10.17
- Minimum: 1990.00
- Q1: 1997.00
- Median: 2004.00
- Q3: 2015.00
- Maximum: 2023.00

Prix unitaire:

- Count: 200.00
- Mean: 29.10
- Standard Deviation: 12.68
- Minimum: 5.17
- Q1: 19.65
- Median: 29.75
- Q3: 39.90
- Maximum: 49.30

Quantite vendue:

- Count: 200.00
- Mean: 261.55

- **Standard Deviation:** 136.20
- **Minimum:** 2.00
- **Q1:** 156.50
- **Median:** 270.50
- **Q3:** 377.00
- **Maximum:** 500.00

Facts about those statistics:

- The philosophy genre is much more expensive than other genres, and young people literature is the second most expensive.
- While the average publication year is relatively recent, a significant portion of books were published earlier in the dataset's timeframe.
- The median unit price slightly exceeds the mean, suggesting a possible skew towards higher-priced books in the dataset.
- The high standard deviation in the quantity sold indicates considerable variation in book sales performance, with some books selling significantly more units than others.

2. Genre Analysis

Genre with the greater median of sold books:

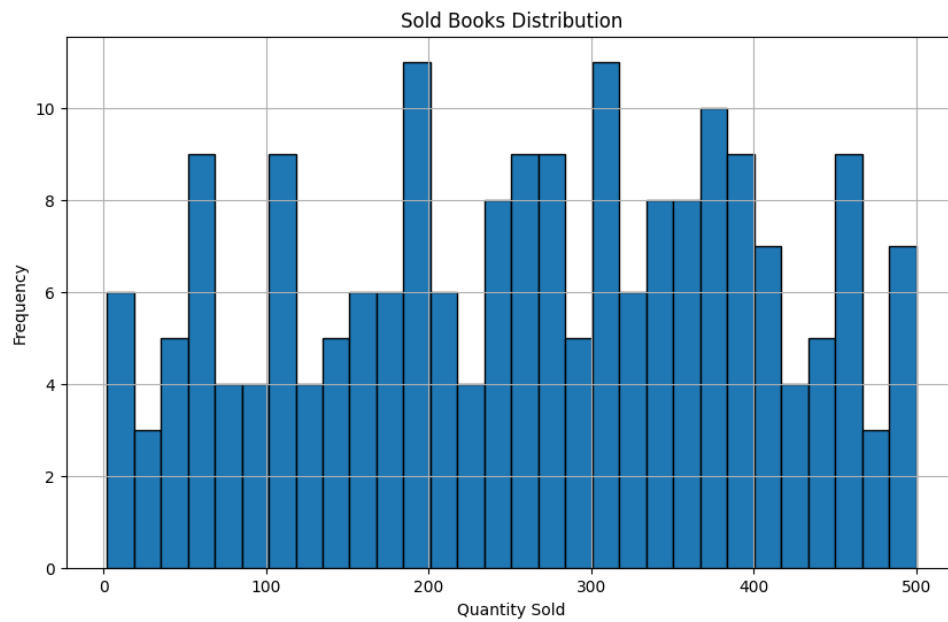
- **Genre:** Histoire
- **Median:** 301.00

3. Most Expensive Book

The most expensive book is:

- **ISBN:** 978-0-417-09066-5
- **Title:** Le droit d'avancer autrement
- **Author:** Franck Thierry
- **Genre:** Cuisine
- **Publication Year:** 2017
- **Unit Price:** 49.3€
- **Quantity Sold:** 372
- **Region:** Bretagne
- **Sold At:** 2020-06-01

4. Sold Books Distribution



5. Price Analysis

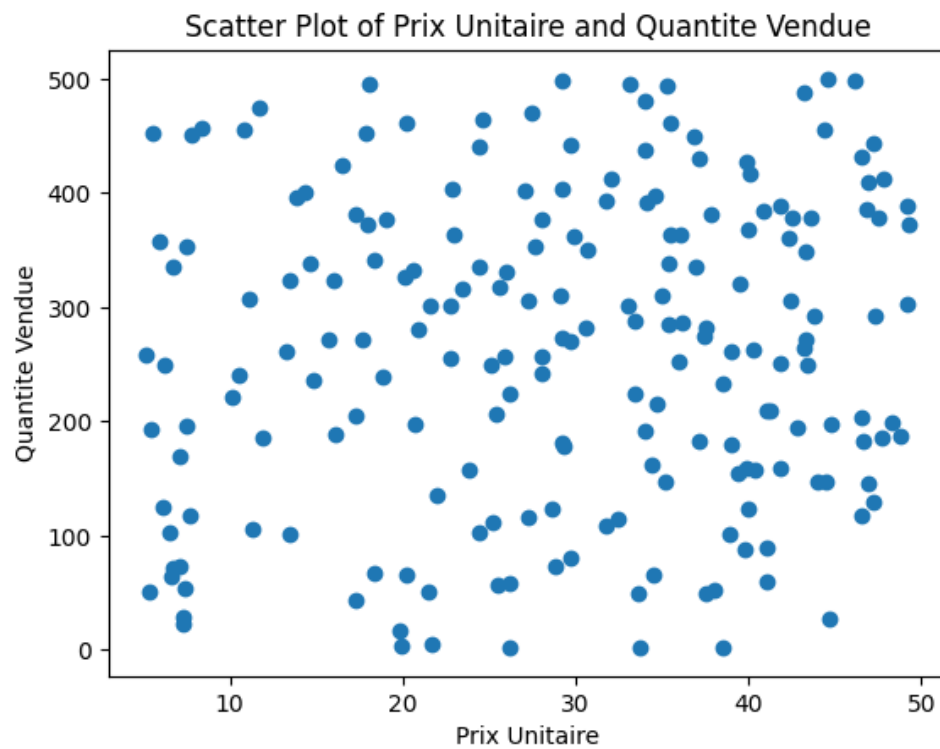
Estimated probability that a book costs more than 20€: 0.0148
 Sum of prices of top 10 most expensive books: 482.49€
 Product of prices of top 10 most expensive books: 68282480266651328.00€

Prix_Unitaire Quantite_Vendue

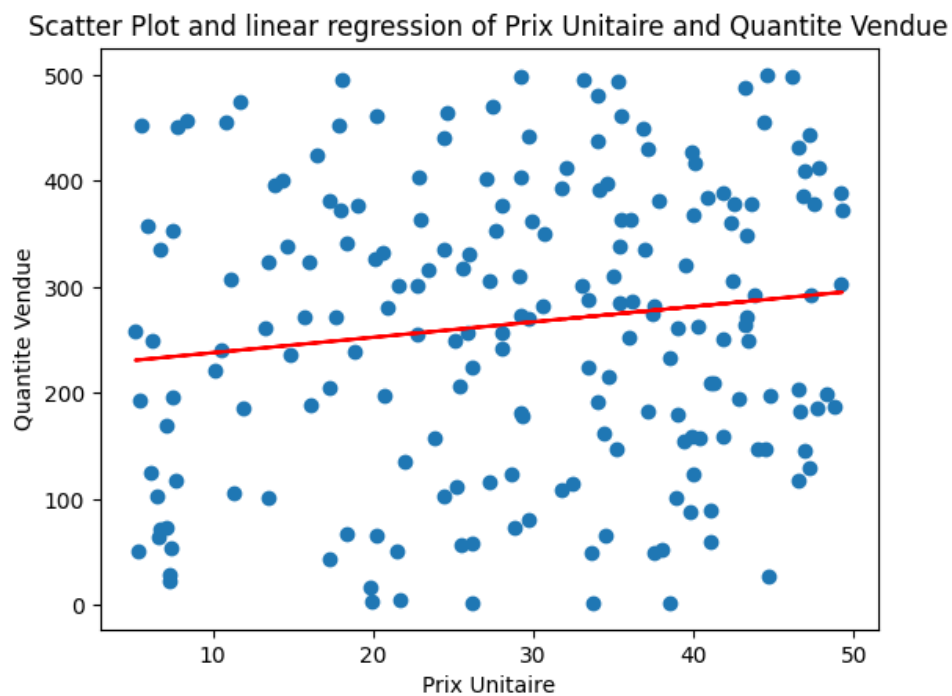
Region

Bretagne	1283.85	10433
Grand Est	1289.53	11943
Nouvelle-Aquitaine	881.84	8888
Provence-Alpes-Côte d'Azur	915.45	9592
Île-de-France	1449.93	11454

The correlation is 0.11 and the covariance is 160.85.

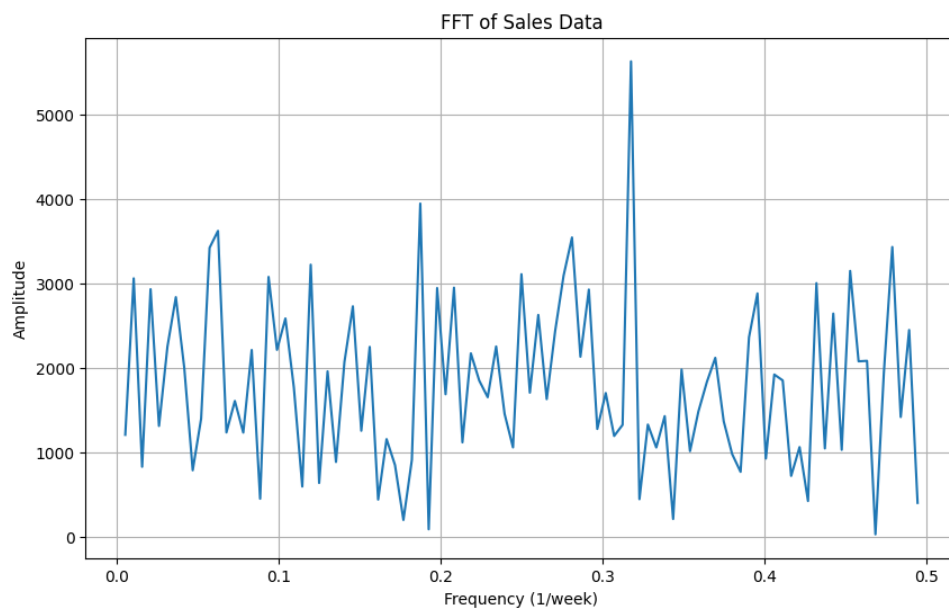


The slope is 1.4538184025256269 and the intercept is 223.37562816015898.



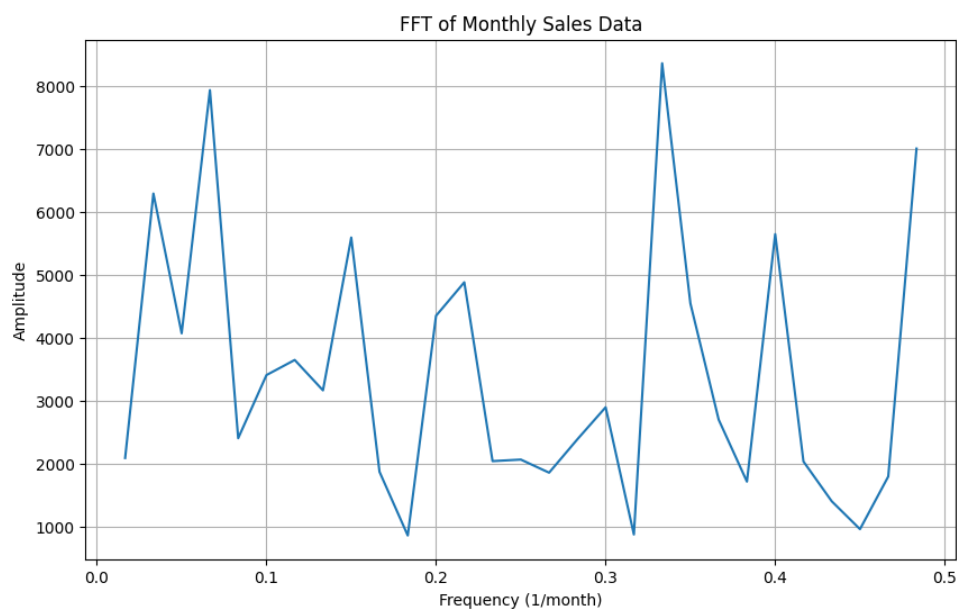
According to the linear regression, we can say that the most expensive books tend to sell better.

5. Selling dynamics



According to this Fast Fourier Transformation, there is a slight increase in quantity of books sold every 3 days and a half.

Except for this increase, it seems that the data are not very regular in that weekly visualization.



According to this other plot, there is also a slight increase in quantity of books sold every 3 months approximately.

That increase may correspond to special moments of the year, like feasts or promotion times.

But apart that increase, the data are not extremely consistent in a monthly repartition.

Conclusion and Recommendations

This analysis reveals several key insights into book sales trends:

- A strong preference for History genre among consumers.
- Potential for growth in genres with lower median quantity sold.
- A good opportunity with more expansive books.
- Interesting dynamics in important moment of the year, maybe festivities and promotion times.
- The need for a deeper understanding of pricing strategies and factors influencing unit price variations.

Further research could delve deeper into these findings, utilizing advanced statistical techniques and exploring the relationship between variables like genre, publication year, and sales performance. These insights can guide publishers in identifying promising trends, developing targeted marketing strategies, and ultimately contributing to the growth and success of the publishing industry.