



The Evolution of Products and Platforms in Portuguese E-commerce

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Goals

- Analyze the evolution of products offerings over the years
- Analyze price trends and promotional strategies
- Evaluate the evolution of e-commerce platform functionalities



1st Delivery



- Extracted Filter Categories for Each Website
- Extracted Product Links During Black Friday and Non-Black Friday Periods

2nd Delivery



Data Extraction

1. Web Scraping all Product Links

Data Processing

2. Merge Extracted Products Across All Sites
3. Refined Product Titles
4. Cleaned Duplicate Entries

Data Categorization

5. Developed a Custom Categorization Model with Pattern Matching
6. Aggregate Data and created Visualizations

3rd Delivery



1. Improved Categorization

Better categorization of categories, models and brands, and promotion dates

2. Improved Visualizations

Introduced advanced filtering options for better data exploration and analysis.

3rd Delivery



3. Price Prediction Using ARIMA Algorithm (Temporal Prediction)

- Attempted to apply the ARIMA algorithm for price prediction.
- However, the dataset characteristics were not well-suited for ARIMA's requirements.

4. Price Prediction with Random Forest

- Implemented a Random Forest model to predict product prices based on dataset features.
- Employed techniques like data imputation and one-hot encoding.

3rd Delivery



5. **Brand and Model Analysis with Word Clouds**
Generated word clouds to identify the most frequently occurring brands and models across websites.
4. **Graph Representation by Website**
Created network graphs to visualize the relationships between brands, models, and categories for each website.

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Thanks