



Forecasting Video Games Inventory Sales

Business Focus: Supply Chain Optimization

Business Focus: Sales Forecasting

Business Focus: Investment Strategy Development

Business Focus: Economic Trend Analysis





Overview



Amdari has recently been contacted by a local video-game resale company. Many businesses have to be on point when it comes to ordering supplies to meet the demand of its customers

This Project centers on the **video game industry**, which encompasses both hardware (consoles, accessories) and software (physical and digital game copies). The project is also relevant to retail and e-commerce sectors that sell video games. An overestimation of demand leads to bloated inventory and high costs. Underestimating demand means many valued customers won't get the products they want



Business Introduction

Our Client company is a renowned video game Developer and Re-Saler, offering a diverse catalog of games and accessories. Known for its innovative gaming experiences, the company has won multiple industry awards. Its unique selling proposition lies in its customer-centric approach, ensuring high-quality products and engaging marketing campaigns. With a strong online presence, the company has established itself as a leader in the competitive gaming market.



Business Challenge

The company faces difficulty in aligning its inventory with fluctuating customer demand. An overestimation of demand results in excessive inventory holding costs, while underestimation leads to lost sales opportunities and dissatisfied customers.

Specific Obstacles:

1. **Seasonal Demand:** Sales spikes during holidays and game releases.
2. **Market Competition:** Rapid shifts in customer preferences due to competing products.
3. **Inventory Costs:** High storage costs and potential write-offs for unsold inventory.
4. **Uncertainty:** Variability in customer behavior and external factors (e.g., economic conditions).



Understanding the problems

01

Market Competitiveness: Staying ahead of trends provides a strategic edge.

02

Forecasting Accuracy and Enhanced Decision-Making: Uses advanced modeling techniques to Forecast prices and market trends and Data-driven strategies improve operational agility.

03

Comprehensive Analysis and Investment Strategy Development: Combines stock market trends with financial health for a holistic view and also Provides a foundation for crafting personalized investment strategies.



Project objective

- Build a time series forecasting model to predict monthly sales for the next four months.
- Reduce inventory holding costs by improving demand forecasts.
- Increase customer satisfaction by minimizing stockouts and overstock scenarios.
- Provide actionable insights for supply chain and marketing teams.
- Create a scalable solution for ongoing sales forecasting.



Data Description

The dataset required for this project will include:

- **Date:** Monthly sales timestamps.
- **Monthly Sales:** The total sales for the month in units or revenue.
- **Product Categories:** The genre of the video game (e.g., RPG, FPS, Adventure)
- **Monthly Sales:** Historical pricing and discounts.
- **Promotional Campaigns:** Impact of marketing efforts.
- **External Factors:** Economic indicators, competitor launches.
- **Holiday:** A binary indicator (1/0) representing whether the month includes major holidays(December/January
- **Promotion:** A binary indicator (1/0) representing whether a promotion was active during the month.
- **Platform:** The platform the game was sold on (e.g., PC, PlayStation, Xbox).
- **DayOfWeek:** The day of the week for the recorded month.

Technology Stack

- **Python Libraries:**
 - **Pandas** and **NumPy**: Data manipulation and numerical computation.
 - **Matplotlib** and **Seaborn**: Data visualization.
 - **Statsmodels**: Time-series modeling with exponential smoothing techniques.
 - **Deployment**: Flask/Django for integrating forecasts into operational systems
 - **Version Control**: Git for collaborative development
- **Integrated Tools**: Jupyter Notebook for iterative analysis and reporting.



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