

# Sales Forecasting for Large Retail Chains: A Data Science Approach

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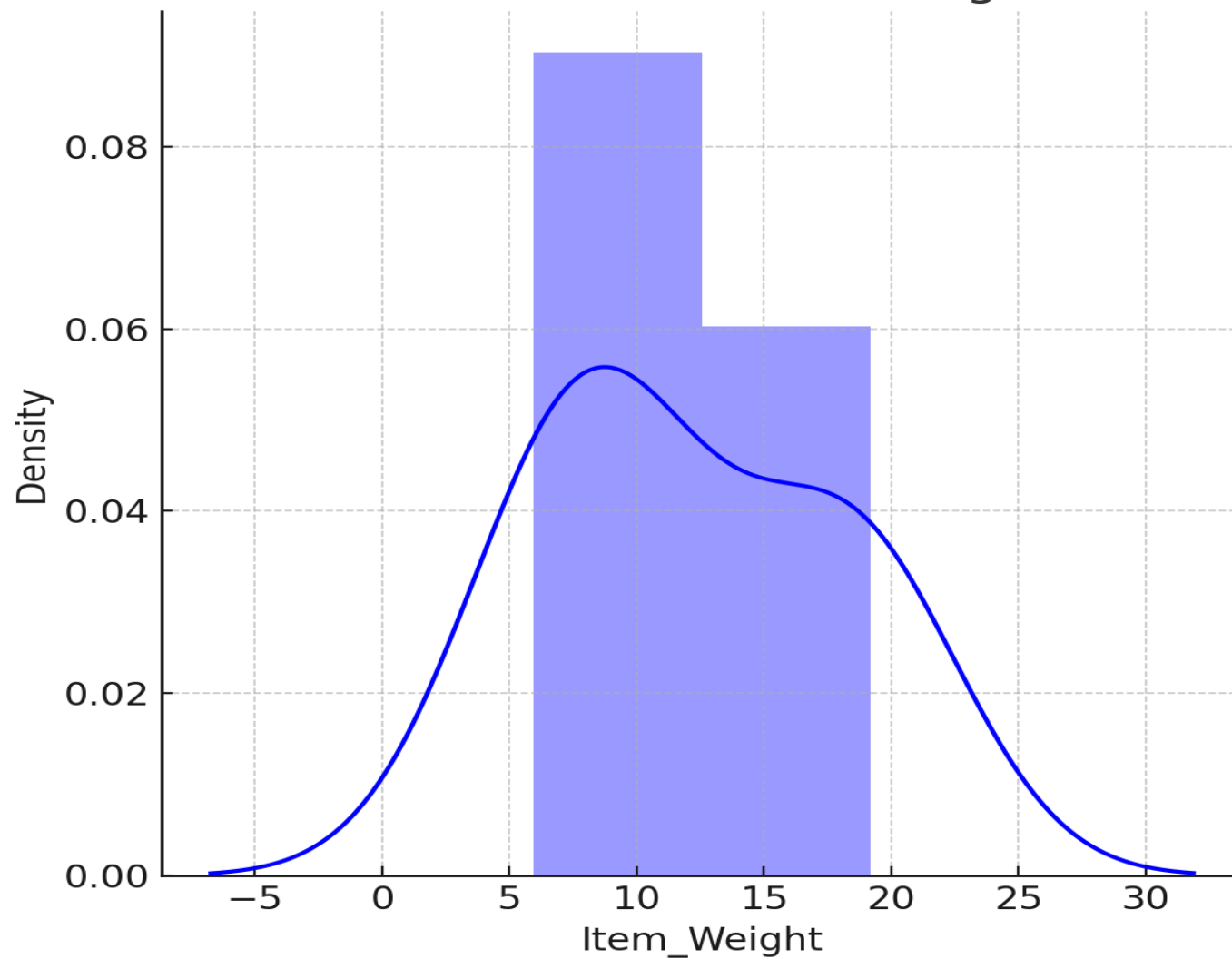
## Introduction

- This presentation provides insights from a comprehensive data analysis and machine learning model aimed at predicting sales for large retail chains. We utilize various visualization techniques to explore the relationships between different variables in the dataset and predict the sales performance of items at various retail outlets.

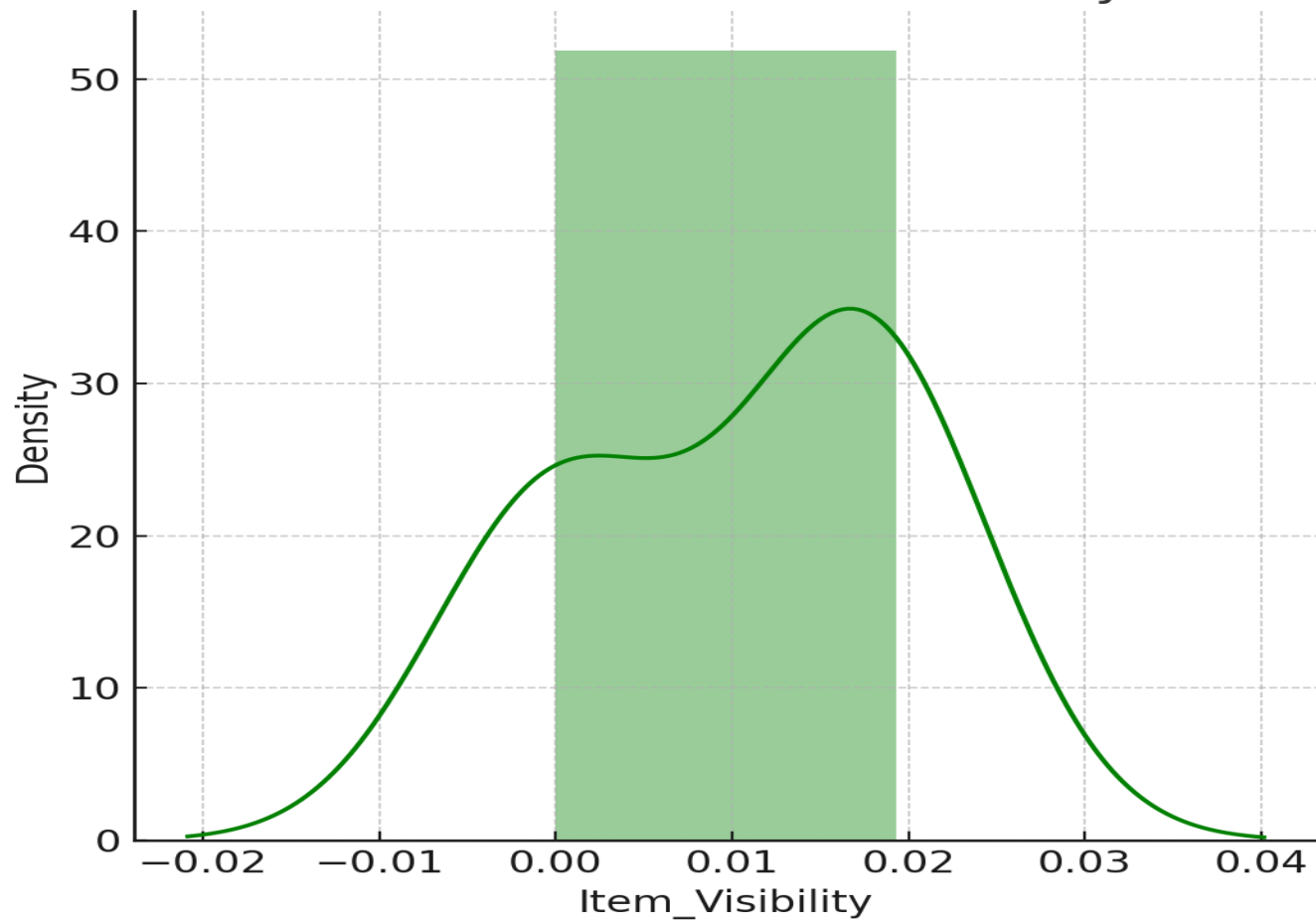
## Dataset Overview

- The dataset contains information about multiple products, their characteristics such as weight, visibility, and price (MRP), as well as details about the outlets including their size, location, and establishment year. The target variable is 'Item\_Outlet\_Sales', representing the sales of items in various retail outlets.

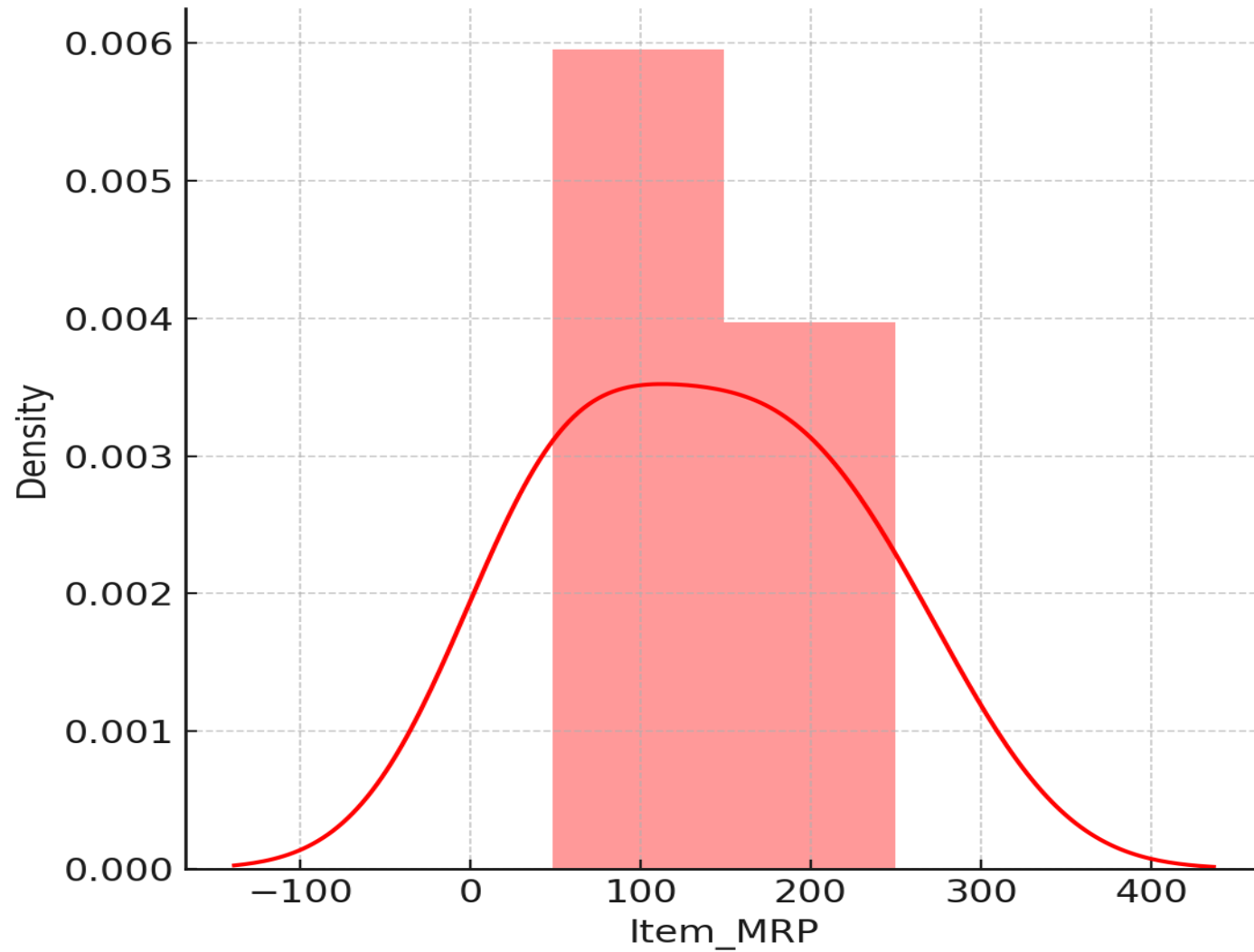
# Distribution of Item Weight



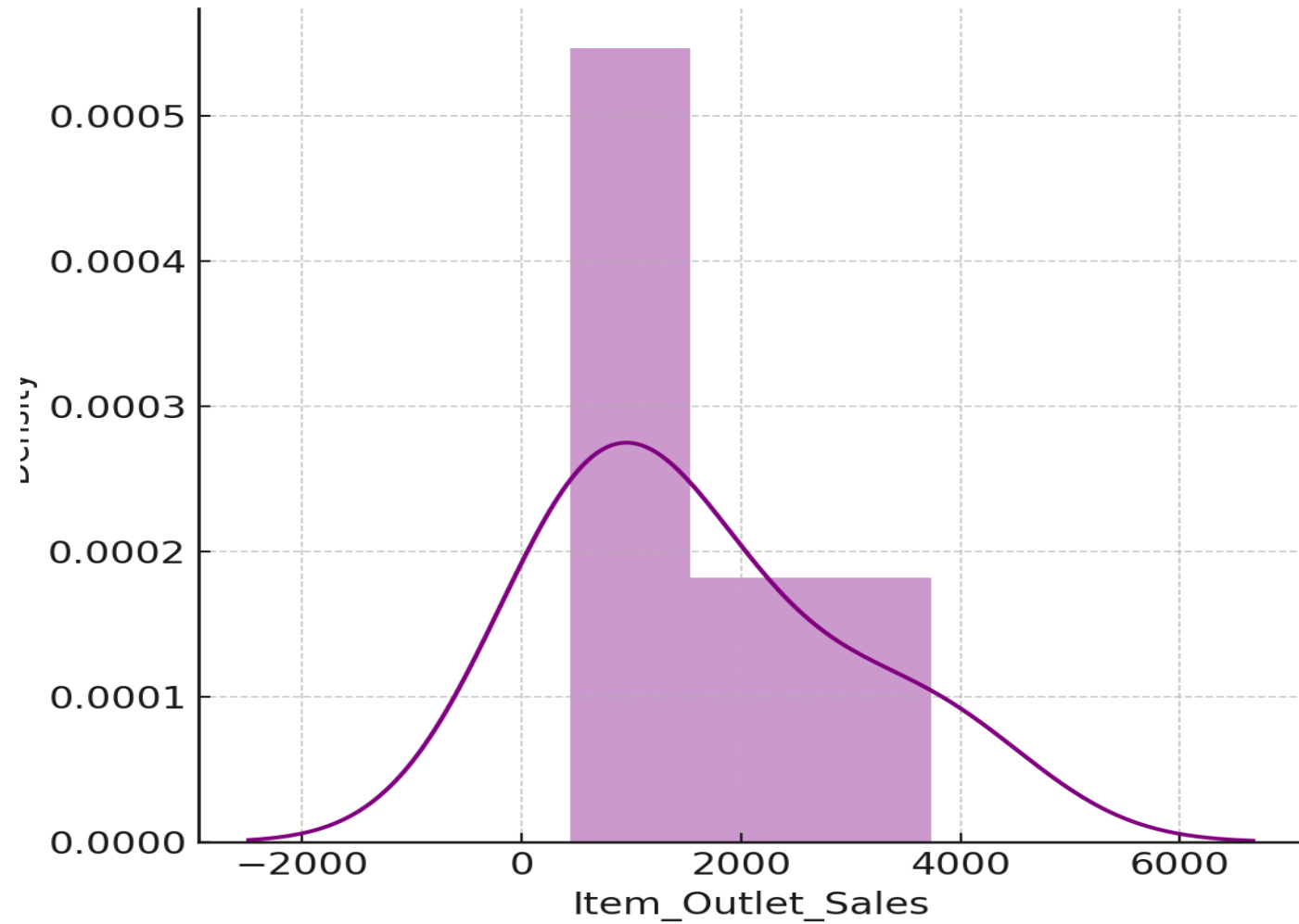
Distribution of Item Visibility



Distribution of Item MRP



# Distribution of Item Outlet Sales



## Conclusion

- The project aimed to predict sales for large retail chains using data from various products and outlets. By analyzing the distribution of key features such as item weight, visibility, and MRP, we gained insights into patterns within the dataset. A machine learning model was trained to predict sales, which showed a decreasing loss function over multiple epochs, indicating decent performance.



## Future Scope

- 1. Model Improvement: Future work can involve hyperparameter tuning, feature engineering, and experimenting with more advanced models.
- 2. Addressing Data Imbalance: Handling underrepresented features with techniques like SMOTE could improve prediction accuracy.
- 3. Incorporating External Factors: Including seasonal trends, regional demographics, and economic conditions could enhance the model's robustness.
- 4. Deployment: Integrating the model into retail systems for real-time predictions could optimize pricing and inventory management.