**🛍️ Store Sales Forecasting Using Time Series Models**

This project applies **time series forecasting models** to predict future sales based on historical daily data. It demonstrates how **data-driven decision making** can improve inventory planning, revenue management, and operational efficiency in the retail industry.

**📂 Dataset**

* Source: [Kaggle - Store Sales Forecasting by Tanaya Tipre](https://www.kaggle.com/)
* Contains daily sales records across multiple stores and items.

**🎯 Objectives**

* Analyze and forecast **monthly store sales** using Prophet.
* Evaluate trends, seasonality, and model performance (RMSE, MAPE).
* Create a reusable **Prophet model** with Streamlit dashboard support.
* Enable regional and categorical filtering in forecasts.

**📊 Models Used**

* ✅ **Facebook Prophet** for monthly and regional forecasting

**📈 Key Features**

* ✅ Monthly sales aggregation and trend analysis
* ✅ Model saving/loading to avoid retraining
* ✅ Evaluation metrics: **RMSE** and **MAPE**
* ✅ Future forecasting (next 6 months)
* ✅ (Optional) Interactive **Streamlit app** with region/state/category filters

**🔧 Tech Stack**

* Python (Pandas, Prophet, Matplotlib, Seaborn)
* Scikit-learn for evaluation
* Streamlit (optional app)
* Jupyter Notebook

**📉 Evaluation (Example Results)**

| **Metric** | **Monthly Forecast** |
| --- | --- |
| RMSE | ~2370.76 |
| MAPE | ~14.66% |

**📁 Project Structure**

store\_sales\_forecasting/

├── data/

│ └── sales\_data.csv

├── prophet\_monthly\_model.pkl

├── Store Sales Forecasting.ipynb

├── app.py (optional Streamlit app)

└── README.md

**🚀 Future Enhancements**

* Add LSTM forecasting support
* Improve dashboard UI in Streamlit
* Add feature for CSV export of forecasts
* Forecast by item or product category