□ Retail Sales Forecasting(Walmart)

□ Overview

A machine learning system that predicts weekly sales for 45 Walmart stores, incorporating:

- Historical sales data

- Holiday impacts

- Economic indicators (CPI, Unemployment)

- Store-specific trends

Key Achievements:

- Achieved **MAE of $5,420** (12% better than baseline)

- Reduced inventory costs by **9%** in simulation

□ Project Structure

```
sales-forecasting-project/
├── data/           # Processed data (raw data excluded)
├── notebooks/ # Jupyter notebooks (phased execution)
├── src/            # Production-ready scripts
├── models/       # Serialized models and scalers
├── reports/       # Visualizations and insights
├── .gitignore
├── requirements.txt
└── README.md
```

□ Installation

```bash
git clone https://github.com/yourusername/sales-forecasting-project.git

cd sales-forecasting-project

# Create virtual environment (recommended)

python -m venv .venv

source .venv/bin/activate  # Linux/Mac

.venv\Scripts\activate     # Windows
```

```
pip install -r requirements.txt

jupyter notebook notebooks/1_data_exploration.ipynb

# From src/ directory

python train.py  # Trains and saves models

python predict.py --store 5 --date 2023-12-25  # Sample prediction
```

Key Outputs

- Store-level sales predictions
- Holiday impact reports
- Feature importance visualizations

Results

Model	MAE ($)	Training Time
XGBoost	5,420	8 min
Prophet	6,150	12 min
SARIMA	7,890	15 min
Ensemble	**5,380**	20 min

Contact

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Project Link: https://github.com/Priyadharshini091/sales_forecasting_project.git