StorePulse

Demand Forecasting Automation Platform using NB-INGARCH Models

MTech Technical Presentation - Complete System Architecture

</> Implementation & Verification

Key Files & Components

COMPONENT	FILE PATH	PURPOSE
INGARCH Trainer	`ml/train_ingarch.py`	Main training logic, MLE optimization
Forecast Service	`api/core/forecast_service.py`	Prediction generation, feature building
Feature Engineering	`api/core/feats.py`	Lag computation, rolling stats
Baseline Models	`ml/baselines.py`	MA7, Naive for comparison
Metrics Calculator	`api/core/metrics.py`	SMAPE, MASE, RMSE
Database Layer	`api/core/db.py`	Visit storage, model registry

How to Verify These Metrics

Reproducibility: All metrics can be independently verified:

1. `cd /Users/shenzc/Desktop/projects/StorePulse`
2. `python3 -m ml.train_ingarch --mode lite --dataset data/samples/lite_sample.csv`
3. Check output: `ml/artifacts/lite/ingarch_report.json`

4. Metrics match those shown in this presentation

Model Artifact: `ml/artifacts/lite/ingarch_model.joblib` (can be inspected with joblib.load)

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MTech Project | NB-INGARCH Implementation | Verified Metrics

All diagrams, metrics, and architecture details are based on actual implementation