Capstone Project Weekly Report

Date: 28 Sep 2025

Project Details:

1. Sponsor Company: AiSPRY
2. Project Title: Inventory Optimization Replenishment Simulation for Hospital Pharmacy

Note: All the fields in the form are required.

Project Milestones:

Progress made in Current Week:

1. **Initial Forecasting Model**

   - Developed a baseline forecasting model to test feasibility of predictions.
   - Model currently under **validation** to check accuracy, feature relevance, and business alignment.
   - Output will guide refinement of features and selection of final modelling approach.
   - Reviewed with clients and have received feedbacks.

2. **Data Pipeline**

   - Completed end-to-end data pipeline and setup for data ingestion, processing, model integration, and dashboard flow.

Tasks to finish in Next week:

1. **Model Validation & Refinement**

    - Increase the data limit being used for training and validation.
    - Improvise the baseline model created

2. **Dashboard**

    - Create the wireframe of the dashboard and get it reviewed.

Updates/MoM from Sponsor and Faculty Mentor:

Note: **It is expected that you have at least one weekly connect with the faculty mentor and sponsor.** If you were not able to schedule meetings with the sponsor or faculty mentor in the current week, please mention the reason for your inability to meet with the Sponsor or Faculty Mentor.

Meeting Sunday 28 September 2025:

Key Updates

- **Model:**
  - Forecasting currently on daily basis (aligned with sponsor).
  - Metrics (RMSE, MAPE, etc.) reviewed, accuracy still low.
  - Training data used ~60 days; suggestion to increase training window (≥30–45 weeks) and reduce test window (~10 weeks).
  - Need to check actual vs predicted values alongside error metrics for better interpretation.
- **Dashboard:**
  - 25 KPIs finalized.
  - To be calculated on a daily basis and integrated into Superset dashboard.
- **Architecture:**
  - Setup using Docker, Postgres, Airflow, DBT, Superset.
  - Need to prepare **high-level and low-level architecture diagrams** (with CRISP-DM alignment).

Decisions

- Increase training data size and reduce test period.
- Reapply models with revised data split.
- Prepare and share architecture diagrams (high-level & low-level).

Next Steps

- Re-run models with larger training data and fine-tune parameters.
- Calculate KPI values in code and integrate with dashboard.
- Share architecture diagrams and updated results with sponsor.

Updates/MoM from Sponsor:

Updates/MoM from Faculty Mentor:

Same as MoM with Sponsor. Had a common meeting with Professor and Sponsor

Challenges:

Mention any technical and non-technical challenges that you faced during the current week that hindered your project progress. Enter "NA" if you didn't face any challenges.

Technical Challenges:

NA

Non-Technical Challenges:

NA

Mention any other queries/challenges regarding the project that you want to highlight:

NA