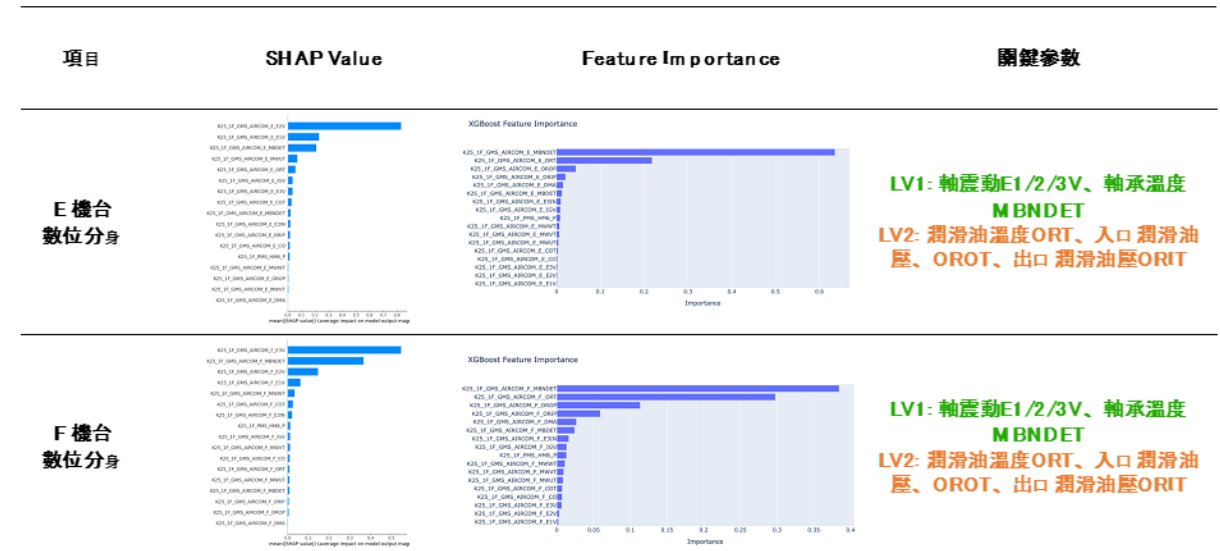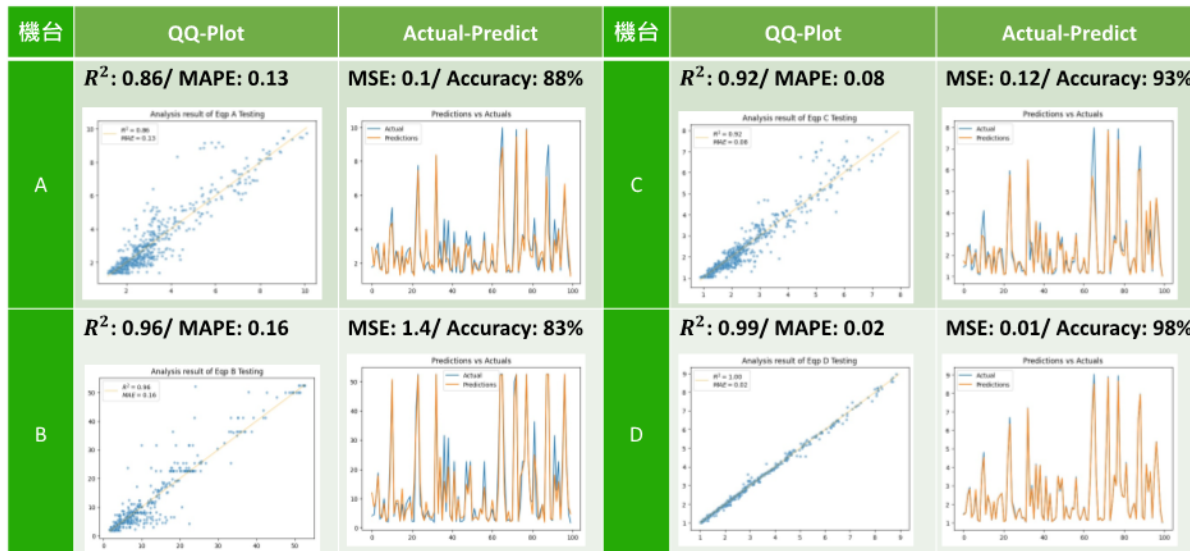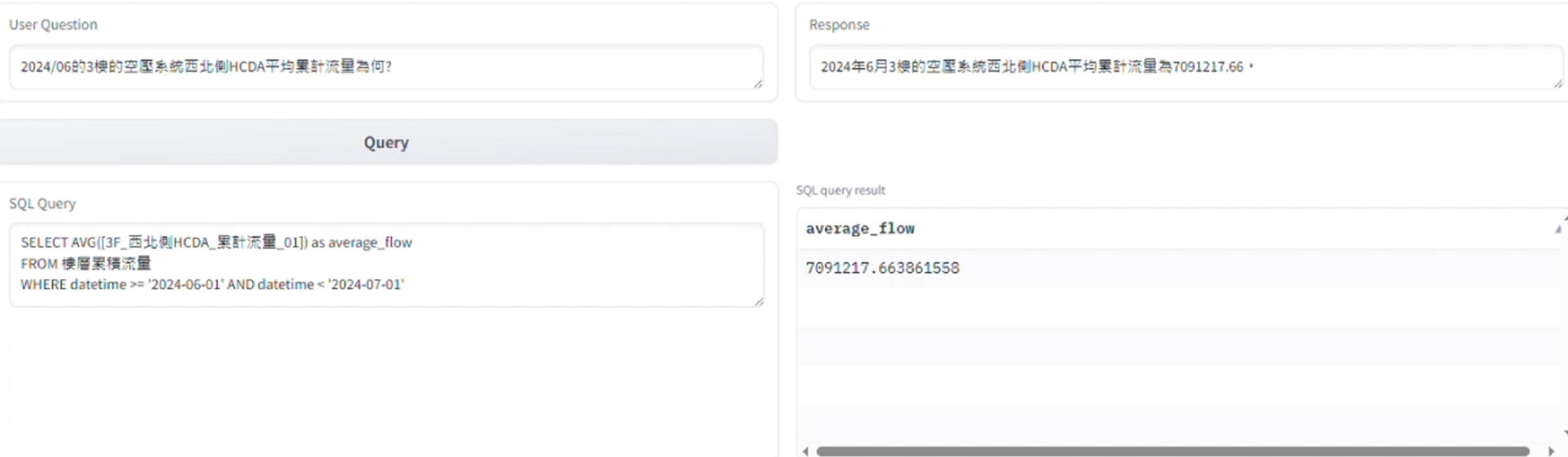# LLM Digital Twins for Air Compressor Energy Optimization

- Using AI digital twin models to predict KPI performance, we assist in decision-making for backup machine selection to achieve energy savings and optimize efficiency → By inputting machine parameters, the current KPI value can be predicted, allowing the selection of the most efficient machine for operation.

- Through explainable AI, we analyze parameters related to KPI and energy consumption, identifying which factors should be prioritized and adjusted when efficiency decreases → It was discovered that air compressor efficiency is strongly correlated with its bearings, emphasizing the importance of predictive maintenance (PHM) for bearings in the future.

LLM Digital Twins for Air Compressor Energy Optimization

- A data dashboard is provided to visualize the relationship between demand and supply data → This improves the speed and accuracy of information delivery, aiding real-time decision-making and responsiveness.

- Through LLM question-and-answer capabilities, users can directly understand the current data status on-site → By using LLM Agents, communication with Digital Twins is quick, effective, and intuitive.

User Question

2024/06的3樓的空壓系統西北側HCDA平均累計流量為何?

Response

2024年6月3樓的空壓系統西北側HCDA平均累計流量為7091217.66。

Query

SQL Query

SELECT AVG([3F_西北側HCDA_累計流量_01]) as average_flow
FROM 樓層累積流量
WHERE datetime >= '2024-06-01' AND datetime < '2024-07-01'

SQL query result

average_flow

7091217.663861558