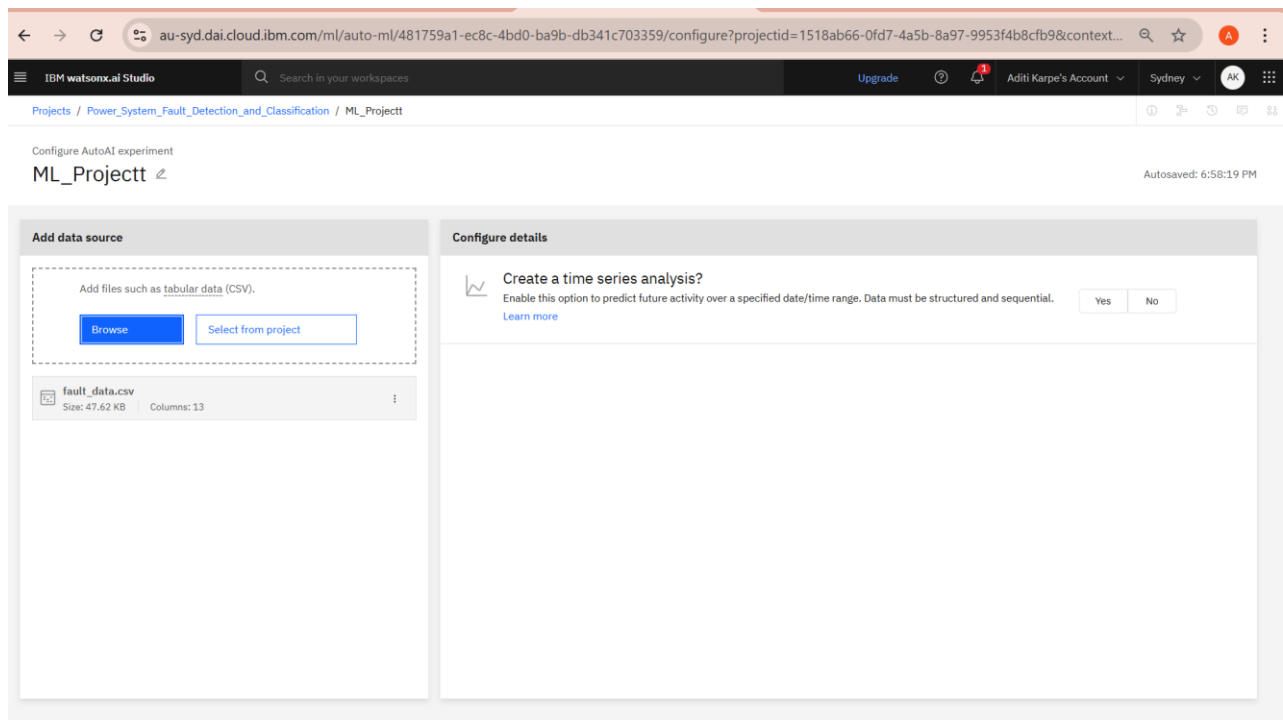# POWER SYSTEM FAULT DETECTION AND CLASSIFICATION
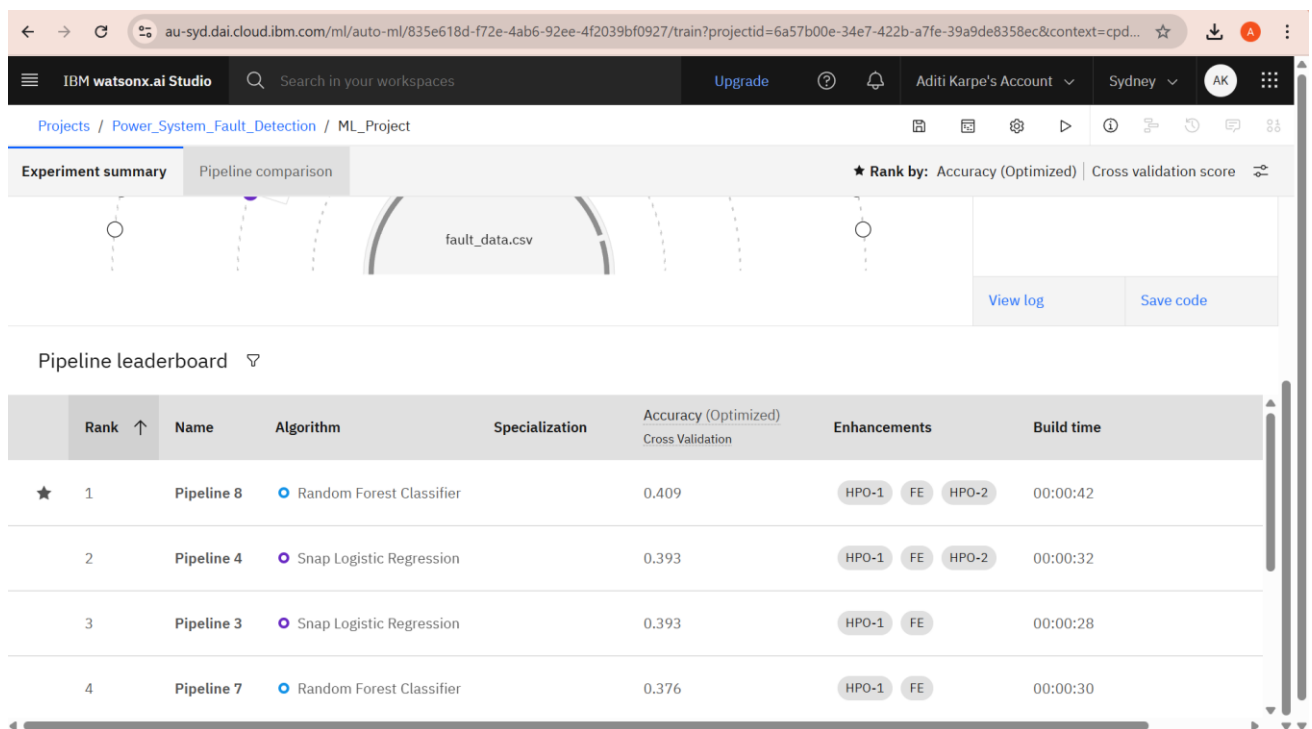
❖ **<u>Problem Statement</u>**: Design a machine learning model to detect and classify different types of faults in a power distribution system. Using electrical measurement data (e.g., voltage and current phasors), the model should be able to distinguish between normal operating conditions and various fault conditions (such as line-to-ground, line-to-line, or three-phase faults). The objective is to enable rapid and accurate fault identification, which is crucial for maintaining power grid stability and reliability.

Following are the steps and output :

Step 1: Uploaded fault_data.csv as the dataset in IBM Watsonx.ai Studio.

Step 2: Selected Fault Type as the prediction column and initialized the AutoAI experiment for multiclass classification.

Step 3: AutoAI generated 8 machine learning pipelines using different algorithms and feature transformers.

Step 4: Pipelines were ranked based on optimized accuracy using cross-validation.

Step 5: Visualized the relationship map showing connections between the dataset, algorithms, and transformers.
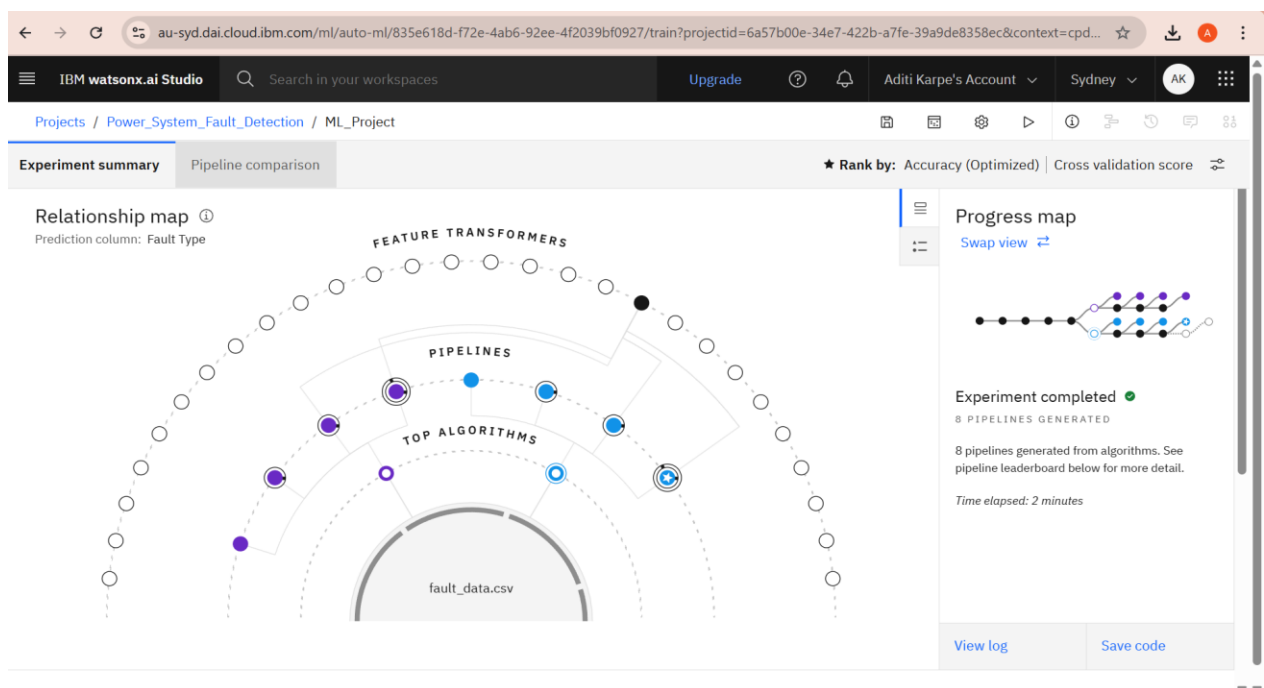
Step 6: After completing the experiment, input data was provided to the best-performing pipeline for prediction.

Step 7: The system successfully predicted the **Fault Type** based on the input data using the trained model.