**Phase 3: Development Part 1**

**Predictive Use Case**:

The use case selected for this phase was customer churn prediction for a gaming company. The goal was to predict which customers are likely to churn and take proactive measures to retain them.

**Dataset Selection**:

A relevant dataset containing historical customer data, including gameplay patterns, in-game purchases, and customer demographics, was sourced. This dataset was crucial for training the machine learning model.

**Data Import**:

The dataset was seamlessly imported into IBM Cloud Watson Studio, making it easily accessible for further analysis and modeling.

**Data Preprocessing:**

A comprehensive data preprocessing pipeline was implemented. This included handling missing values, encoding categorical variables, and scaling features to ensure the data was ready for modeling.

**Feature Selection**:

Feature selection played a vital role in improving the model's performance. The most relevant features were identified and used for training the machine learning model.

**Model Training:**

An ensemble model, combining decision trees and logistic regression, was selected for the task. It was trained using the preprocessed data, and hyperparameters were fine-tuned to optimize its predictive accuracy.

**Model Evaluation**:

The model's performance was evaluated using various metrics, including accuracy, precision, recall, and F1-score. It exhibited a high level of accuracy in predicting customer churn, providing valuable insights for the gaming company.

