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Project Title:

Machine Learning Model Deployment with IBM Cloud Watson Studio

Phase 2: Model Optimization and Deployment Preparation

In this phase of the credit card fraud detection project using IBM Cloud Watson, we are actively engaged in optimizing our machine learning model and preparing it for future deployment.

1. Data Preprocessing and Feature Engineering:

The dataset has been meticulously preprocessed, addressing missing values and outliers.

We are exploring advanced feature engineering techniques to create new informative features, with the goal of enhancing the model's performance.

2. Ensemble Methods:

We are currently experimenting with ensemble methods like Random Forest, Gradient Boosting, and AdaBoost, leveraging their potential to combine multiple models.

Ongoing work involves tuning the hyperparameters of the ensemble models to find the optimal configurations in these methods.

3. Hyperparameter Tuning:

We are actively engaged in hyperparameter tuning using grid search and cross-validation.

We continue to evaluate the model's performance using various metrics, such as accuracy, precision, recall, F1-score, and ROC AUC, with the intention of selecting the best hyperparameters.

4. Model Evaluation:

To ensure the model's ability to generalize, we have divided the dataset into training, validation, and test sets.

Ongoing cross-validation techniques are being applied to validate the model's robustness and reliability.

5. Model Selection:

Based on the outcomes of our experiments, we are in the process of selecting the best-performing model or ensemble of models, ensuring alignment with the project's objectives.

6. Deployment Preparation:

We are actively preparing the machine learning model for future deployment on IBM Cloud Watson.

Our focus includes transforming the model into a deployable format and ensuring compatibility with our chosen deployment environment.

7. Scalability and Security:

Scalability aspects are being considered, with an emphasis on ensuring our solution can handle a high volume of real-time credit card transactions.

Comprehensive security measures are being planned and implemented to safeguard sensitive customer data