ABSTRACT

Project Title: Machine Learning Model Deployment with IBM

Cloud Watson Studio

Domain : Cloud Applica on Development - Group 4

Assignment : PROJECT SUBMISSION PHASE 1

Team Member:

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Problem Definition

The objective of this project is to leverage IBM Cloud Watson Studio to train a machine learning model and deploy it as a web service. The project's primary goal is to gain proficiency in predictive analytics by developing a model capable of making real-time predictions. This encompasses defining a predictive use case, selecting an appropriate

dataset, training the machine learning model, deploying it as a web service, and integrating it into applications.

Design Thinking

1. Predic ve Use Case

Objective: Define a use case for predic ve analy cs that will drive the project's scope and objec ves.

Steps:

Iden fy poten al areas where predic ve analy cs can provide valuable insights or solve business problems.

Discuss with stakeholders to understand their needs and expecta ons.

Select a specific use case, such as predic ng customer churn, forecas ng product demand, or anomaly detec on.

Deliverable: A well-defined predic ve use case statement.

2. Dataset Selec on

Objective: Choose a relevant dataset that aligns with the selected predic ve use case.

Steps:

Iden fy and collect datasets that contain historical data relevant to the chosen use case.

Evaluate the quality and completeness of the datasets.

Preprocess and clean the data to prepare it for model training.

Deliverable: A cleaned and prepared dataset for model training.

2. Model Training

Objective: Select an appropriate machine learning algorithm and train the model using IBM Cloud Watson Studio.

Steps:

Perform exploratory data analysis (EDA) to gain insights into the dataset.
Split the dataset into training and tes ng sets.
Choose a suitable machine learning algorithm based on the nature of the predic ve use case (e.g., classifica on, regression, or clustering).
Train the machine learning model using the training data.
Evaluate the model's performance using appropriate metrics and fine-tune it if necessary.

Deliverable: A trained machine learning model with sa sfactory performance.

4. Model Deployment

Objective: Deploy the trained model as a web service using IBM Cloud Watson Studio's deployment capabili es.

Steps:

Export the trained model in a format compa ble with Watson Studio.
Use Watson Studio's deployment tools to create a web service endpoint.
Configure deployment se ngs, such as resource alloca on and scalability op ons.
Deploy the model to a cloud environment.

Deliverable: A deployed machine learning model accessible via a web service endpoint.

5. Integra on

Objective: Integrate the deployed model into applica ons or systems to enable real- me predic ons.

Steps:

Develop or modify applica ons that will consume the model's predic ons.

Implement API calls to the deployed model's web service endpoint.

Ensure proper error handling and data input valida on in the integra on code.

Test the end-to-end integra on to verify the model's performance in a real-world scenario.

Deliverable: Applica ons or systems integrated with the predic ve model for real- me predic ons.

Thank You