# ABSTRACT

**Project Title**: Machine Learning Model Deployment with IBM Cloud Watson Studio

**Domain** : Cloud Application 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. Predictive Use Case

**Objective:** Define a use case for predictive analytics that will drive the project's scope and objectives.

**Steps:**

Identify potential areas where predictive analytics can provide valuable insights or solve business problems.

Discuss with stakeholders to understand their needs and expectations.

Select a specific use case, such as predicting customer churn, forecasting product demand, or anomaly detection.

**Deliverable:** A well-defined predictive use case statement.

## 2. Dataset Selection

**Objective:** Choose a relevant dataset that aligns with the selected predictive use case.

**Steps:**

Identify 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 testing sets.

Choose a suitable machine learning algorithm based on the nature of the predictive use case (e.g., classification, 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 satisfactory performance.

## 4. Model Deployment

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

**Steps:**

Export the trained model in a format compatible with Watson Studio.

Use Watson Studio's deployment tools to create a web service endpoint.

Configure deployment settings, such as resource allocation and scalability options.

Deploy the model to a cloud environment.

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

## 5. Integration

**Objective:** Integrate the deployed model into applications or systems to enable real-time predictions.

**Steps:**

Develop or modify applications that will consume the model's predictions.

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

Ensure proper error handling and data input validation in the integration code.

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

**Deliverable:** Applications or systems integrated with the predictive model for real-time predictions.

# Thank You