**Selected Project: E-commerce Product Delivery Prediction**

Develop robust machine learning models to accurately predict product delivery timeliness. By utilizing these models, the company aims to improve customer satisfaction, optimize logistics, and gain insights into factors affecting delivery performance.

**Project Overview:**

This project aims to enhance the understanding of product delivery patterns and customer behavior for an international e-commerce company specializing in electronic products. By leveraging machine learning, the project seeks to predict whether products will reach customers on time. The goal is to develop robust machine learning models to accurately predict product delivery timeliness, enabling the company to improve customer satisfaction, optimize logistics, and gain insights into factors affecting delivery performance.

**Project Benefits:**

* Delivery Optimization: The models will help identify factors influencing on-time delivery, allowing for more targeted logistics strategies.
* Customer Satisfaction: By predicting delivery timeliness accurately, the company can set realistic expectations and improve customer experience.
* Operational Insights: Understanding patterns in product properties, logistics, and customer behavior can assist in better resource allocation and decision-making.

**Deliverables:**

* Documented machine learning models specifically designed for predicting product delivery timeliness.
* Comprehensive data visualizations illustrating relationships between various factors and delivery performance.
* A comparative analysis of different machine learning algorithms for this classification task.

**Project Guidelines:**

* Data Exploration: Conduct comprehensive EDA using visualization techniques to understand feature distributions and relationships with the target variable.
* Feature Engineering: Apply appropriate encoding techniques for categorical variables and consider feature importance analysis.
* Model Selection: Evaluate various classification algorithms including Random Forest, Decision Tree, Logistic Regression, and K-Nearest Neighbors.
* Performance Evaluation: Use appropriate metrics such as accuracy, confusion matrix, and classification report to assess model performance.
* Visualization: Create clear and informative visualizations using libraries like matplotlib and seaborn to communicate data insights and model performance.
* Code Quality: Ensured well-structured, commented Python code following best practices.

**Submission:**

* Submit Jupyter notebook (.ipynb) containing data analysis, preprocessing steps, and model training.
* Stremlit deployed app.
* Submit final report as .docx or PowerPoint Presentation.
* Submited Power BI Dashboard for visualizing churn patterns and model performance.

**Team Members :**

* Aryan Pandya
* Palak Joshi
* Abhishek Rathod
* Devanshi Solanki

**Contact Details :**

[aryanpandya001@gmail.com](mailto:aryanpandya001@gmail.com)

Mo : 9376658932

**Project Submited on: 4th March, 2025**