**Selected Project: Digital Marketing Campaign Conversion Prediction**

Develop a robust machine learning model to accurately predict customer conversions based on various demographic and engagement factors. By utilizing this model, the company aims to improve campaign targeting, increase conversion rates, and maximize return on advertising spend (ROAS).

[**Click here for Dataset Link**](https://bostoninstituteofanalyti399-my.sharepoint.com/:f:/g/personal/projects_bostoninstituteofanalytics_org/EiuDrb_nGehLhc-F_N9aBIkBNi0wLPbix_zyTs6xw9Ky4A)

**Project Overview:**

This project aims to enhance campaign effectiveness in the digital marketing sector by accurately predicting customer conversions. By leveraging machine learning, the project seeks to identify potential converters and optimize marketing strategies. The objective is to develop a robust machine learning model that predicts customer conversions based on various demographic and engagement factors, enabling improved campaign targeting, increased conversion rates, and maximized return on advertising spend (ROAS).

**Project Benefits:**

* Improved Targeting: The model will identify customers most likely to convert, allowing for more focused and efficient marketing efforts.
* Cost Optimization: By predicting conversions accurately, the company can allocate resources more effectively, reducing wasted ad spend.
* Enhanced Campaign Performance: Understanding key conversion factors will help in designing more effective marketing campaigns.

**Deliverables:**

* A documented machine learning model specifically designed for conversion prediction in digital marketing.
* Visualizations of feature distributions, correlations, and model performance metrics.
* A comprehensive explanation of the model selection process, feature importance, and data preprocessing steps.

**Project Guidelines:**

* Data Exploration: Conduct comprehensive EDA using visualization techniques to understand feature distributions and relationships.
* Feature Engineering: Apply appropriate encoding techniques for categorical variables and consider feature scaling if necessary.
* Model Selection: Evaluate various classifiers including Decision Trees, Random Forests, Gradient Boosting methods, and others.
* Performance Evaluation: Use appropriate metrics such as F1 score, confusion matrix, and precision-recall curves to assess model performance.
* Visualization: Create clear and informative visualizations to communicate data insights and model performance.
* Code Quality: Ensure well-structured, commented Python code following best practices.

**Submission:**

* Submit Jupyter notebook (.ipynb) containing data analysis, preprocessing steps, and model training.
* Submit final report as .docx or PowerPoint Presentation.
* Submit Power BI or Tableau dashboard visualizing churn patterns and model performance.
* Include the trained model file in the submission.
* NOTE: Create a zip file of the above mentioned items for the final submission.