Customer Churn ML Model Project Proposal

Due 17 September 2024

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| **Name:** | *MUNGUTI JOSIAH NYAMAI* |
| **Programme:** |  |
| **Student ID:** |  |
| **Project Title:** | *Predicting Customer Churn in the banking industry using Machine Learning Techniques.* |
| **Problem you are seeking to address:** | *There is a critical issue where customers always switch banks due to various reasons like dissatisfaction, better offers or even due to change in their financial situations. Due to this, banks suffer financial losses because getting new customers is more costly than retaining the existing clients. This project aims at predicting whether a customer is likely to churn, enabling the bank to take proactive steps to retain them.*  *Using machine learning models, this project identifies factors leading to customer churn, giving banks the chance to allocate resources for customer retention.* |
| **Aim and scope:** | *The aim of this project is come up with a predictive model that can forecast customer churn accurately in the banking sector. The model analyzing customer data collected from Kaggle.com (product usage, age, account activity) to identify key reasons for churn.*  *The scope includes:*   * *Collecting and preparing a dataset from Kaggle.com.* * *Analyzing and preprocessing the data for analysis.* * *Build and train two machine learning models for churn prediction (Logistic Regression and Random Forest Classifier).* * *Evaluating and optimizing the best performing model for better accuracy.* * *Provide insights and recommendations on how banks can reduce customer churn.* |
| **Project objectives:** | *Projects objectives are: -*   1. *Data Analysis: - Analyze customer data in banking institution.* 2. *Model Development: - To develop an accurate machine learning model that can predict customer churn.* 3. *Model Evaluation: - To evaluate different machine learning, including Logistic Regression and Random Forest, in terms of performance and accuracy.* 4. *Insights: - Provide usable insights that can be implemented in customer retention strategies.* |
| **Expected project outcomes:** | *The expected outcomes of this projects include:*   1. *An accurate machine learning model that is capable of predicting churn based on previous customer data.* 2. *An analysis of key factors that lead to customer churn in the banking industry.* 3. *A power bi dashboard showing churn predictions* 4. *Recommendations made for managers on how they can reduce churn.* 5. *Evaluation of several machine learning models in terms of their accuracy, performance and precision.* |
| **Brief review of relevant literature:** | *This project is going to reference various industry online sources: -*   1. *Applying machine learning in the banking sector to predict likely customer churn.* 2. *Techniques and challenges faced when trying to predict customer churn or even when trying to prevent it.* 3. *Research on various factors influencing customer loyalty and satisfaction in banks.* |
| **[optional]**  **References:** | *Kaggle’s Customer Churn dataset.* |
| **Testing and Evaluation:** | *I will test and evaluate the effectiveness of different machine learning models that is Logistic Regression and Random Forest Classifier.*  *The metrics that will be used to evaluate models include: -*   1. *Accuracy Score: Measure the proportion of correct prediction made by a model.* 2. *Precision and recall: Assess the model’s ability to correctly identify churned customers.* 3. *ROC-AUC: To evaluate the model’s ability between churners and non-churners.* |
| **Ethical considerations:** | *Since this project uses sensitive customer’s data, ethical considerations regarding data privacy will be adhered to. No personal information will be disclosed.* |
| **Project plan:** | *Step followed are: -*   1. *Data collection.* 2. *Data analyzing, exploration and preprocessing.* 3. *Model development and Training.* 4. *Model Evaluation.* 5. *Visualization in Power BI and Final Analysis.* 6. *Report writing.* |
| **Signature:** | *MungutiJosiah Nyamai.* |