To create a comprehensive six-page summary on customer churn prediction, including analysis, internal and external factors, and other KPI metrics, follow this structured approach:

**Page 1: Executive Summary**

**Key Points:**

* **Objective:** The goal of this study is to predict customer churn and identify factors influencing it.
* **Scope:** The analysis covers internal and external factors, KPIs, and recommendations to reduce churn.
* **Findings:** Summarize the main findings regarding churn rates, influential factors, and high-risk segments.

**Key Performance Indicators (KPIs):**

* Churn rate
* Customer lifetime value (CLV)
* Retention rate
* Customer satisfaction score
* Net promoter score (NPS)

**Solutions:**

* Enhancing customer engagement strategies.
* Improving product/service quality based on customer feedback.
* Implementing targeted retention campaigns.

**Page 2: Data Analysis and Churn Rate Calculation**

**Key Points:**

* **Dataset Overview:** Description of the dataset used, including size, sources, and key features.
* **Churn Rate Calculation:** Methodology used to calculate churn rate.
* **Descriptive Statistics:** Overview of basic statistics such as mean, median, and distribution of key features.

**KPIs:**

* Monthly churn rate
* Annual churn rate
* Distribution of churned vs. retained customers

**Solutions:**

* Regularly updating and cleansing the dataset for accuracy.
* Implementing automated churn rate calculation and monitoring.

**Page 3: Internal Factors Affecting Churn**

**Key Points:**

* **Customer Service Quality:** Impact of customer service interactions on churn.
* **Product/Service Usage:** Analysis of how usage patterns influence churn.
* **Customer Engagement:** Effect of engagement initiatives on customer retention.

**KPIs:**

* Average resolution time
* Usage frequency
* Engagement rate (e.g., email open rates, app logins)

**Solutions:**

* Enhancing training programs for customer service representatives.
* Introducing features that encourage more frequent use of the product/service.
* Personalizing engagement efforts based on customer preferences.

**Page 4: External Factors Affecting Churn**

**Key Points:**

* **Market Competition:** Influence of competitors on customer churn.
* **Economic Conditions:** Impact of broader economic factors on churn rates.
* **Demographic Trends:** Role of customer demographics in churn behavior.

**KPIs:**

* Market share
* Economic indicators (e.g., unemployment rate, GDP growth)
* Demographic segmentation of churned customers

**Solutions:**

* Conducting competitive analysis and adjusting strategies accordingly.
* Monitoring economic trends and adapting offerings to remain attractive.
* Tailoring retention efforts to different demographic groups.

**Page 5: Advanced Analytics and Predictive Modeling**

**Key Points:**

* **Predictive Models:** Overview of machine learning models used for churn prediction (e.g., logistic regression, decision trees, neural networks).
* **Feature Importance:** Key features identified as significant predictors of churn.
* **Model Performance:** Evaluation metrics such as accuracy, precision, recall, and AUC-ROC.

**KPIs:**

* Model accuracy
* Precision and recall
* Area under the ROC curve (AUC-ROC)

**Solutions:**

* Continuously improving model accuracy through feature engineering and hyperparameter tuning.
* Regularly validating and updating models with new data.
* Using model insights to proactively address churn risk factors.

**Page 6: Recommendations and Action Plan**

**Key Points:**

* **Strategic Initiatives:** Outline key strategic initiatives based on the analysis.
* **Action Plan:** Detailed action plan for implementing recommendations to reduce churn.
* **Timeline:** Timeline for rolling out the proposed solutions.

**Solutions:**

* Developing personalized retention strategies based on predictive insights.
* Enhancing customer feedback mechanisms to identify pain points early.
* Investing in technology and tools for better customer data analysis and engagement.

This structure provides a comprehensive overview of customer churn prediction, incorporating data analysis, internal and external factors, and other relevant KPIs. Each page should include visual aids such as charts and graphs to represent the data and findings effectively.

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