Customer Churn Prediction

Objective:

To predict customer churn and identify key factors influencing customer retention for a business.

Description:

Customer churn is a critical challenge for businesses, as losing customers can have a significant impact on revenue and profitability. The objective of this project is to use data analysis and predictive modeling to:

1. Identify Potential Churners: Develop a predictive model to identify customers who are at risk of churning in the near future.
2. Understand Key Factors: Identify and understand the key factors or attributes that contribute most to customer churn.
3. Reduce Churn: Provide actionable insights to help the business take proactive measures to reduce customer attrition.

Design:

1. Data Collection and Preprocessing:

- Gather customer data from various sources, including the provided Kaggle dataset and any internal data sources.

- Clean and preprocess the data, handling missing values, outliers, and ensuring data quality.

- Feature engineering: Create relevant features, such as customer demographics, usage behavior metrics, and historical interaction data.

2. Data Exploration and Visualization:

- Explore the dataset to gain insights into customer behavior and churn patterns.

- Use IBM Cognos for data visualization to create informative charts, graphs, and dashboards.

- Visualize churn rates over time, customer demographics, and feature distributions.

3. Predictive Modeling:

- Split the dataset into training and testing sets for model development and evaluation.

- Select appropriate machine learning algorithms for classification, such as logistic regression, decision trees, or random forests.

- Train and evaluate multiple models to choose the one with the best performance.

- Assess model accuracy, precision, recall, and F1-score.

4. Interpreting Model Results:

- Interpret the predictive model to understand which features are most important in predicting churn.

- Generate insights into the reasons behind churn based on model outputs.

5. Actionable Recommendations:

- Provide actionable recommendations to the business based on the insights gained.

- Develop strategies to retain customers at risk of churning.

- Implement and monitor these strategies to measure their effectiveness.

6. Reporting and Communication:

- Create reports and presentations using IBM Cognos to communicate the findings and recommendations to stakeholders.

- Ensure that the results are easily understandable and actionable for non-technical audiences.

7. Monitoring and Iteration:

- Continuously monitor the model's performance in a production environment.

- Update the model as needed to adapt to changing customer behavior patterns.

- Iterate on the analysis and modeling process to improve predictive accuracy and effectiveness.

8. Documentation:

- Maintain comprehensive documentation of data sources, preprocessing steps, model selection, and findings for future reference.

9. Project Timeline:

- Create a detailed project timeline with milestones and deadlines for each phase of the project to ensure smooth progress.

This high-level design outlines the steps to address the customer churn prediction problem using IBM Cognos. It emphasizes the

importance of not only building an accurate predictive model but also translating the insights into actionable strategies for reducing churn and retaining valuable customers. The iterative nature of the project ensures adaptability to changing business dynamics.