IDEATION PHASE

Defining the Problem Statements

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Project Name	**Customer Churn Prediction**

CUSTOMER CHURN PREDICTION

Problem Definition and Design Thinking

Introduction

The aim is to develop a predictive model that can accurately predict the churn rate and visualize it. Customer churn is a common problem across businesses in many sectors. If you want to grow as a company, you have to invest in acquiring new clients. Every time a client leaves, it represents a significant investment lost.

In this project, we will outline the problem statement, the steps involved in solving it, and the design thinking approach that will guide our project.

Problem Statement

Objective: Develop a model that can predict the churn rate, retention rate and attrition rate with the help of data analytics.

Data: We have a dataset containing various features of organization (e.g., customer demographics, usage behaviour, and historical interactions) This data will be used to train and evaluate model.

Key Challenges

1. **Data Quality**: Ensuring the dataset is clean, complete, and free of errors.

2. **Feature Selection**: Identifying the most relevant features of organization data.

3. **Model Selection**: Choosing the appropriate machine learning algorithms for the problem.

4. **Model Evaluation**: Evaluating the model's performance using appropriate metrics.

5. **Deployment**: Creating a ML model that helps to identify the retention, churn rate of the organization.

Design Thinking Approach

Empathize

Before getting into solving the problem, it's crucial to empathize with the users and understand their needs. In this case, our organization users are potential product buyers. We need to gather insights into what factors are most important to them when considering customer purchasing details and how accurate predictions can benefit the organization.

Actions

- Conduct surveys or interviews with potential churners to gather their perspectives.
- Analyse historical interactions, market trends to identify critical attrition rate.
- Visualize the obtained data and get the clear idea of the problem.
- Inference the predictive model is analysis the dataset and provide the solutions for the organization.

Define

Based on our understanding of the problem and the organization needs, we will define clear objectives and success criteria for our project.

Objectives

- Develop a predictive model that to achieve why the customer were leaving the organization.
- Virtualize the output in the IBM Cognos platfrom. Which helps to identify and easy to understand.

Ideate

Brainstorm potential solutions and approaches to address the problem. This phase involves thinking creatively and considering various techniques for finding the churn rate of the organization.

Actions

- Using different machine learning algorithms such as Bayesian logistic regression, decision trees, random forests, and support vector machine.
- Experiment with feature engineering techniques to enhance model performance.

Test

Evaluate the model's performance using appropriate metrics and gather feedback from organization.

Actions

- Split the dataset into training and testing sets.
- Train the model on the training set and evaluate it on the testing set.
- Use metrics such as Gradient Boosted Machine Tree “GBM” and Extreme Gradient Boosting “XGBOOST” to assess model performance.
- Collect user feedback on the web interface for usability and accuracy.

Implement

Once the model meets the defined objectives and receives positive feedback from the organization, proceed with full implementation.

Actions

- Train the final machine learning model on the entire dataset.
- Deploy the model as part of a production-ready on IBM Cognos platform.
- Conduct a deep testing to ensure the predictive model is in a analysis process.

Iterate

Continuous improvement is essential. Gather organization feedback and iterate on the model and interface to enhance accuracy and usability.

Actions

- Monitor the model's performance and retrain it periodically with updated data.
- Address organization feedback and make necessary improvements to the predictive model.
- Stay informed about advancements in predictive model and churn rate models for potential improvement.

Conclusion

In this project, we've outlined our approach to solving the problem of finding the churn rate of the organization using machine learning in IBM Cognos platform. We've defined the problem, identified key challenges, and laid out a design thinking approach that involves empathizing with users, defining objectives, ideating potential solutions, prototyping, testing, implementing, and iterating.

Our main goal is to develop a predictive model that provide that provides valuable insights for both organization and customer. By following this structured approach, we aim to create a reliable predictive model that contributes positively to the development of the organization.