



# Customer Churn Prediction Project Report

Developing Predictive Models to Enhance Retention Strategies

# Customer Churn Prediction Overview

A strategic approach to customer retention through predictive modeling.

- **Objective: Predict at-risk customers**

Develop a predictive model to identify customers who are likely to churn, enhancing retention strategies.

- **Benefits of proactive engagement**

Enables proactive engagement with at-risk customers, leading to better customer retention and satisfaction.

- **Optimized resource allocation**

Facilitates efficient allocation of resources by focusing on customers with high churn risk, maximizing ROI.

- **Revenue protection strategies**

Implement targeted strategies to protect revenue streams by retaining valuable customers identified through the model.

- **Improved customer satisfaction**

Enhances overall customer experience and satisfaction by addressing issues before they lead to churn.



# Key Steps in Customer Churn Project

An overview of the critical phases in project execution

01

## Data Analysis Techniques

Exploring and examining historical customer data to identify patterns and trends that indicate potential churn risks.

02

## Data Preprocessing Tasks

Cleaning and transforming raw data to ensure accuracy, consistency, and suitability for model training.

03

## Model Development Process

Creating and training predictive models using selected algorithms to accurately forecast customer churn.

04

## Model Performance Evaluation

Assessing the accuracy and reliability of the developed model through various performance metrics and validation techniques.

05

## Model Deployment Strategy

Implementing the predictive model into a real-world environment to monitor customer behaviors and predict churn effectively.



# Overview of Customer Churn Data

Analyzing class imbalance in customer churn dataset

**7,043 records**

## Total Records

The dataset comprises **7,043** records, providing a comprehensive view of customer behavior.

**26.5% churn**

## Churn Rate

Only **26.5%** of customers are identified as churn, indicating potential retention opportunities.

**73.5% retained**

## Retention Rate

The majority, **73.5%** of customers, remain engaged, highlighting areas for targeted marketing.

The background of the left side of the image features a collage of business-related graphics. At the top left, there's a small horizontal bar chart with segments in blue, red, and green. Below it is a line graph with a y-axis ranging from 0 to 7000 in increments of 1000. To the right of the line graph is a 3D bar chart with several bars of varying heights. In the bottom right corner, there are several 3D rectangular blocks in shades of brown and tan. The text 'Key Insights on Customer Churn' is overlaid on this background, with an arrow pointing towards the 3D bar chart.

## Key Insights on Customer Churn

Understanding factors  
influencing customer  
retention and churn  
rates

# Short Tenure: 60%

## High Churn Risk

Customers with a **short tenure** exhibit a **60% higher risk** of **churning**, indicating a critical need for retention strategies.

# Month-to-Month: 75%

## Elevated Churn Rate

Customers on **month-to-month contracts** show a **75% elevated churn rate**, suggesting the need for more stable contract options.

# Fiber Users: 40%

## Churn Likelihood

**Fiber optic service users** are **40% more likely** to **churn**, highlighting potential service-related issues or competitive options.



Model Deployment

# Integrating LightGBM for Production

Deployment of the top-performing model  
to enhance customer churn prediction  
capabilities.

