

## INTRODUCTION

CUSTOMER CHURN, OR THE LOSS OF CUSTOMERS OVER TIME, IS A MAJOR CHALLENGE FOR BUSINESSES. PREDICTING CHURN ALLOWS COMPANIES TO TAKE PROACTIVE MEASURES TO RETAIN CUSTOMERS, IMPROVE SATISFACTION, AND OPTIMIZE MARKETING STRATEGIES.



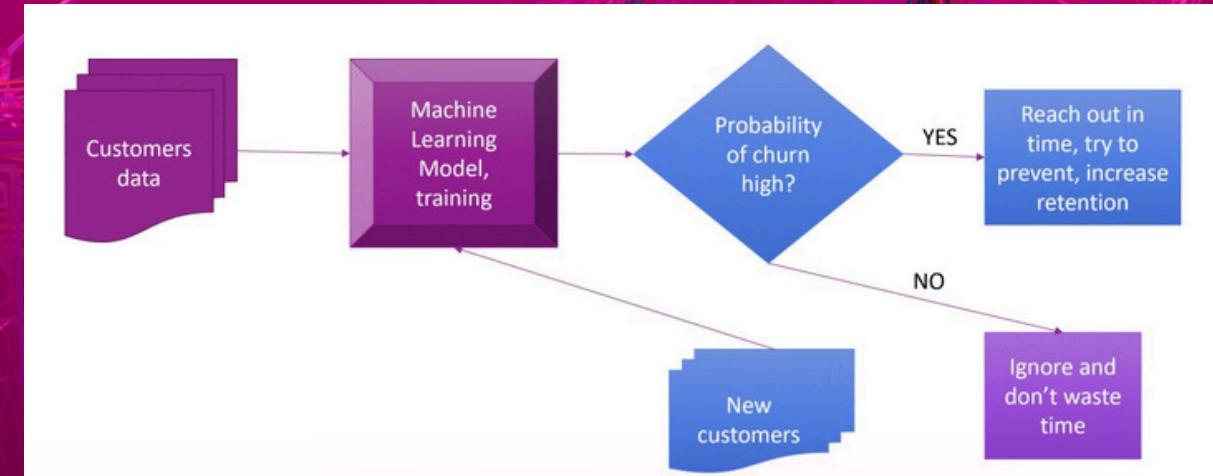
## KEY BENEFITS OF CHURN PREDICTION

ENHANCED CUSTOMER RETENTION: IDENTIFY CUSTOMERS LIKELY TO LEAVE AND TAKE TIMELY ACTION.

OPTIMIZED MARKETING SPEND: FOCUS RESOURCES ON RETAINING VALUABLE CUSTOMERS.

PERSONALIZED CUSTOMER EXPERIENCE: OFFER TAILORED SOLUTIONS TO IMPROVE SATISFACTION.

REVENUE GROWTH: REDUCE CHURN RATES, LEADING TO INCREASED LONG-TERM PROFITS.



# PREDICTING CUSTOMER CHURN USING DATA SCIENCE

## CUSTOMER CHURN PREDICTION PROCESS

- DATA COLLECTION: DEMOGRAPHICS, TRANSACTION HISTORY, CUSTOMER SUPPORT INTERACTIONS, USAGE PATTERNS, FEEDBACK & SURVEYS.
- DATA PREPROCESSING & FEATURE ENGINEERING: HANDLING MISSING DATA, FEATURE SCALING, ENCODING CATEGORICAL DATA, FEATURE SELECTION.
- CHOOSING THE RIGHT MACHINE LEARNING MODEL: LOGISTIC REGRESSION, DECISION TREES & RANDOM FORESTS, SUPPORT VECTOR MACHINES, NEURAL NETWORKS.
- MODEL TRAINING & EVALUATION: ACCURACY, PRECISION & RECALL, F1 SCORE.
- PREDICTION & BUSINESS INSIGHTS: IDENTIFY HIGH-RISK CUSTOMERS BEFORE THEY LEAVE, PROVIDE PERSONALIZED OFFERS AND DISCOUNTS, IMPROVE CUSTOMER SUPPORT AND ENGAGEMENT STRATEGIES, MODIFY PRODUCT FEATURES BASED ON CUSTOMER FEEDBACK.

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## REAL-WORLD APPLICATIONS

- TELECOMMUNICATIONS INDUSTRY
- BANKING & FINANCIAL SERVICES
- E-COMMERCE & RETAIL
- SUBSCRIPTION-BASED SERVICES
- HEALTHCARE & INSURANCE
- TRAVEL INDUSTRY
- GAMING INDUSTRY
- HOSPITALITY & AIRLINES INDUSTRY

