**Business Requirements Document (BRD)**

**Project Name:** Bank Customer Churn & Loan Prediction Analysis  
**Prepared by:** PRATHAMESH SURVE  
**Date:** 5-April-2025

**1. Executive Summary**

In today’s competitive banking environment, retaining existing customers and making accurate loan decisions are crucial to business success. This project focuses on two objectives: predicting which customers are likely to churn and forecasting the approval of new loan applications.

With insights from this analysis, the bank can implement targeted customer retention strategies and make data-driven lending decisions. The result is improved profitability, reduced risk, and optimized customer service.

**2. Business Objectives**

This project aims to help banking teams:  
• Predict customer churn based on historical behavioural and demographic data  
• Forecast loan approval decisions to reduce default risk and improve efficiency  
• Identify patterns in customer behaviour influencing churn or loan approval  
• Develop dashboards for visualization and easy decision-making  
• Support policy decisions in credit and customer engagement teams

**3. Scope**

**In-Scope**  
• Predictive modelling for churn and loan approval  
• Data cleaning, feature engineering, and exploratory data analysis  
• Power BI dashboards for churn and loan insights  
• Documentation (BRD, FRD, Gap Analysis, Use Case, Solution Design)

**Out of Scope**  
• Integration with live banking systems  
• Real-time model deployment  
• Legal or compliance-related assessments

**4. Project Constraints**

**Project Risks**  
• Merging datasets from different domains may require assumptions  
• Limited data points in the loan dataset could affect model reliability  
• Class imbalance may skew predictions if not handled properly

**Team Availability**  
• Data science and business teams may have limited overlap for validation

**Resources**  
• Analysis will be done using Excel, Python, and Power BI (free tools only)

**Dependencies**  
• Business stakeholders' availability for feedback and validation  
• Access to clean and structured datasets

**Deadlines**  
• Week 1: Data understanding, problem framing  
• Week 2–3: EDA, modelling  
• Week 4: Dashboard creation and documentation

**Project Budget**  
• ₹0 — all tools and data are free/open-source

**5. Key Stakeholders**

|  |  |
| --- | --- |
| Stakeholder | Role |
| Credit Risk Team | Use loan predictions to enhance credit decision policies |
| Customer Retention Team | Implement actions based on churn prediction |
| Product Team | Tailor offerings based on insights |
| Business Analyst | Validate and present findings to leadership |

**6. Business Requirements**

|  |  |  |
| --- | --- | --- |
| ID | Requirement Description | Priority |
| BR-01 | Build and validate a model to predict customer churn | High |
| BR-02 | Build and validate a model to predict loan approval | High |
| BR-03 | Create dashboards to visualize churn drivers and loan risk patterns | Medium |
| BR-04 | Document business logic, assumptions and modelling strategies | High |
| BR-05 | Generate actionable insights for retention and credit teams | High |

**7. Data Sources**

**Bank Customer Churn Dataset**  
• Contains demographic and behavioural data on banking customers  
• Target variable: churn (binary)

**Loan Prediction Dataset**  
• Contains historical and new loan applications  
• Target variable: loan status (approved/rejected for training data)

**8. Deliverables**

|  |  |
| --- | --- |
| Document | Description |
| ✅ Business Requirements Document (BRD) | Defines project goals, scope, and stakeholder needs |
| ✅ Gap Analysis | Identifies gaps between current state and desired outcomes |
| ✅ Use Case Document | Describes user flows and pain points |
| ✅ Entity Relationship Diagram (ERD) | Maps key data tables and relationships |
| ✅ Functional Requirements Document (FRD) | Captures system-level rules and logic |
| ✅ Solution Document | Summarizes final solution, results, and model outcomes |
| ✅ Power BI Dashboard | Visual interface showing KPIs and insights |
| ✅ Python-based ML Models | For churn and loan prediction tasks |

**9. Cost-Benefit Analysis**

**Project Costs**

|  |  |  |
| --- | --- | --- |
| Cost Area | Description | Estimated Cost |
| Data Preparation | Cleaning and transformation | ₹0 |
| Analysis & Modelling | Python-based machine learning | ₹0 |
| Dashboard & Reporting | Power BI and documentation | ₹0 |
| Stakeholder Review | Internal collaboration | Internal Time |

**Expected Benefits**

|  |  |  |
| --- | --- | --- |
| Benefit | Description | Estimated Impact |
| Churn Reduction | Improved retention through early alerts | 10–15% decrease in churn |
| Credit Risk Mitigation | Better loan approvals, fewer defaults | ₹1–2 Lakhs loss reduction |
| Operational Efficiency | Faster insights, improved reporting | +30% process improvement |
| Strategic Alignment | Data-backed recommendations | High business impact |

**ROI**: High — Zero-cost project with significant business impact

**10. Success Criteria**

• Churn model achieves minimum 80% accuracy  
• Loan approval model achieves minimum 75% F1-score  
• Dashboard used in business reviews or strategic planning  
• Insights implemented by retention or credit teams  
• Complete documentation of all steps and logic