Business Requirements Document (BRD)

Project Name: Bank Customer Churn & Loan Prediction Analysis
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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.

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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

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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

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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

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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

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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

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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)

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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

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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

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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
