Business Requirement Document (BRD)

\*\*Project Title\*\*: Credit Risk Analysis

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\*\*Version\*\*: 1.0

# 1. Executive Summary

The Credit Risk Analysis Project aims to assess loan applications and identify patterns that lead to defaults. Using SQL for data preparation and Power BI dashboards for visualization, this project provides stakeholders with insights into high-risk customer segments, loan performance trends, and key drivers of default.

# 2. Business Problem

Financial institutions face challenges in identifying borrowers who are at high risk of default. Without proper analysis, lending decisions may lead to:

- Increased default rates

- Higher non-performing assets (NPAs)

- Misallocation of credit to risky customer segments

# 3. Project Objectives

- Identify high-risk loan applicants using historical data.

- Analyze loan performance across demographics, income bands, ownership, and intent.

- Build an interactive Power BI dashboard for stakeholders.

- Provide actionable insights to reduce default rates and improve loan approval strategies.

# 4. Scope

In Scope:

- Data extraction, cleaning, and transformation using SQL.

- Development of KPIs such as Default Rate %, High-Risk Applications %, Average Loan Amount, and Average Applicant Income.

- Creation of a 2-page Power BI dashboard: Executive Summary and Risk Segmentation.

- Documentation of insights and recommendations.

Out of Scope:

- Predictive modeling or machine learning for credit scoring.

- Real-time integration with live financial systems.

- Deployment of risk management solutions.

# 5. Stakeholders

- Business Analyst (Owner): Harshal Deshpande

- Project Sponsor: Credit Risk / Lending Team

- Data Team: SQL Analysts, Data Engineers

- End Users: Loan Officers, Risk Managers, Senior Management

# 6. Data Overview

Dataset: Public Credit Risk dataset (Kaggle)

Key Columns: person\_age, person\_income, person\_home\_ownership, person\_emp\_length, loan\_intent, loan\_grade, loan\_amnt, loan\_int\_rate, loan\_status (0 = Non-Default, 1 = Default), loan\_percent\_income, cb\_person\_default\_on\_file, cb\_person\_cred\_hist\_length

# 7. Functional Requirements

Data Cleaning & Transformation (SQL):

- Remove duplicates and null values

- Handle invalid/negative entries

- Create derived fields (Age Band, Income Band, Loan-to-Income Ratio)

Dashboard (Power BI):

- KPI Cards: Total Applications, Default Rate %, Avg Loan Amount, Avg Income

- Charts & Visuals:

• Loan Status Distribution

• Default Rate by Age Band & Income Band

• Loan Intent vs Default Rate

• Loan Grade Analysis

• Home Ownership vs Defaults

• Matrix Table (Loan Grade × Intent with Default Rate %)

# 8. Non-Functional Requirements

- Dashboard must be interactive and user-friendly.

- Data refresh should support CSV import or SQL queries.

- Visuals should avoid clutter (grouping & banding used for better readability).

# 9. Key KPIs

- Default Rate % = Defaults / Total Applications

- High-Risk Segments (Income Band, Loan Intent, Loan Grade)

- Average Loan Amount & Interest Rate

- Applications by Age Group

# 10. Deliverables

- Cleaned SQL dataset

- Data cleaning & exploration queries (SQL)

- Power BI Dashboard (2 Pages)

- BRD Document

- README file in GitHub Portfolio

# 11. Expected Benefits

- Better identification of risky loan applicants

- Data-driven lending decisions

- Improved portfolio quality & reduced defaults

- Professional dashboard for management reporting