TekFriday - Development Role - Assignment Summary

# Part A: Chatbot for Loan Terms

This Streamlit-based chatbot answers over 50 predefined loan-related questions. It accepts user input in free-form, normalizes the input using a `clean\_input()` function, and returns matched answers from a dictionary. The bot greets the user and maintains a live chat display.

Key Features:

• Built with Streamlit  
• 50+ predefined answers  
• Input cleaning (case, spacing, punctuation)  
• Realistic chatbot UI with session-based message history

# Part B: Loan Risk Calculator

The objective was to calculate a loan risk score using the formula:  
  
 risk\_score = (missed\_repayments \* 2) + (loan\_amount / collateral\_value) + (interest / 2)  
  
The calculated score was then classified into: LOW (<15), MEDIUM (15–25), HIGH (>25).

Enhancements:  
• `missed\_repayments` scaled down by 1000 for logical scoring  
• Added `risk\_score` column  
• Risk classification via a separate function

# Part C: EMI Risk Tagging

A function `classify\_risk(row)` was implemented using `.apply()` to label each row in `main\_loan\_base.csv` with a risk level based on calculated risk score. This column was added alongside the computed `risk\_score`.

# Bonus: Repayment Behavior Analysis

In a bonus analysis, the `repayment\_base.csv` file was joined with `main\_loan\_base.csv` on `loan\_acc\_num`. We calculated the total repaid amount, repayment ratio, and a flag `is\_partially\_repaid` for loans where less than 75% of the amount had been repaid.

# Assumptions Made

• Only `main\_loan\_base.csv` was used for Part B and C unless otherwise stated.  
• `missed\_repayments` were too large for the given thresholds, so they were scaled down by 1000.  
• Test datasets were not used for training or evaluation, assuming they are for internal validation.  
• Additional datasets like `monthly\_balance\_base.csv` and `repayment\_base.csv` were explored optionally.  
• AI-generated responses for the chatbot were generated using OpenAI's ChatGPT.