**Simple XAI Risk (Credit Risk)**

This process documents the creation of a compliant and transparent risk scoring system.

**Phase 1: Data Preparation and Feature Selection**

1. **Data Simulation:** Generate or load a simulated dataset containing key credit risk features (Credit\_Score, Debt\_to\_Income, Num\_Delinquencies, Loan\_Term\_Months) and a binary target (Default\_Target).
2. **Feature Definition:** Verify features are clean (no complex transformations needed, given the simplicity goal).

**Phase 2: Model Training and Explainability**

1. **Model Selection:** Choose **Logistic Regression** for its inherent transparency and ease of interpreting coefficients.
2. **Training:** Fit the model using the prepared feature set.
3. **Coefficient Extraction:** Extract the learned **model coefficients** for each feature. *These coefficients serve as the primary explanation (XAI).*

**Phase 3: Actionable Output and Streamlit Deployment**

1. **Prediction Logic:** Define the final prediction function to calculate the probability of default for a new applicant.
2. **Thresholding:** Establish the clear **Accept/Reject threshold** (e.g., 50% default probability).
3. **Adverse Action Logic:** Implement conditional logic in Streamlit to trigger the display of rejection reasons based on the applicant's input values and the direction of the model's coefficients (e.g., if DTI > 0.5 and the DTI coefficient is positive).
4. **Documentation Output:** Document the exact threshold and the coefficient-based rules used for compliance.