**Project Proposal: Credit File Management System for a Bank**

**1. Problem Domain and Purpose**

The purpose of this database is to assist a bank in effectively managing and tracking credit files. This system will streamline the management of customers’ credit applications, monitor loan statuses, and generate detailed reports on the performance and health of credit portfolios. The goal is to provide bank employees with a tool to track customers, loans, payment history, and creditworthiness in a centralized manner.

**2. Key Functionalities**

* **Customer Management**: The database will track personal details, contact information, and financial backgrounds of each customer.
* **Credit Application Tracking**: It will record each credit application with associated details, such as application date, requested amount, status, and responsible bank officer.
* **Loan Management**: It will maintain information on approved loans, including principal amounts, interest rates, repayment terms, and balance tracking.
* **Payment History Tracking**: Each customer's payment history will be recorded to monitor loan performance and generate risk assessments.
* **Reporting**: The database will produce reports to analyze customer creditworthiness, outstanding loan amounts, repayment delinquencies, and overall portfolio health.

**3. What the Database Should Track**

* **Customers**: Personal and financial details of each individual who has applied for credit.
* **Credit Applications**: Each credit file that has been submitted by a customer, with its status (e.g., pending, approved, rejected).
* **Loans**: Details of loans that have been approved, along with terms, interest rates, and repayment schedules.
* **Payment Transactions**: Records of each payment made by the customer to fulfill the loan, capturing amounts, dates, and payment status.

**4. Types of Reports**

1. **Monthly Loan Status Report**: Shows all loans with their current statuses (active, closed, delinquent).
2. **Customer Creditworthiness Report**: Analyzes customer data to provide a creditworthiness score based on repayment history.
3. **Delinquency Report**: Identifies customers with overdue payments, displaying loan details and overdue amounts.
4. **Loan Officer Performance Report**: Tracks the performance of each bank officer, showing the number of loans processed, approved, and the health of their credit portfolios.

**5. Entities**

1. **Customers**: Stores information on customers, including names, contact details, financial status, and credit history.
2. **Credit Applications**: Tracks each credit request, storing the requested amount, application status, and related customer.
3. **Loans**: Contains data on approved loans, including loan amount, terms, interest rates, and responsible bank officer.
4. **Payments**: Records details of each payment made against a loan, capturing amounts, dates, and any late fees.

**Entity-Relationship (ER) Diagram for Credit File Management System**

Below is a description of the ER diagram for the **Credit File Management System**. The diagram includes the entities, their attributes, and relationships:

**Entities and Attributes:**

1. **Customer**
   * **CustomerID** (Primary Key)
   * FirstName
   * LastName
   * DateOfBirth
   * Email
   * PhoneNumber
   * Address
   * CreditScore
2. **CreditApplication**
   * **ApplicationID** (Primary Key)
   * ApplicationDate
   * RequestedAmount
   * Status (e.g., Pending, Approved, Rejected)
   * LoanOfficerID (Foreign Key, references BankOfficer)
   * CustomerID (Foreign Key, references Customer)
3. **Loan**
   * **LoanID** (Primary Key)
   * PrincipalAmount
   * InterestRate
   * LoanTerm (in months)
   * StartDate
   * EndDate
   * CurrentBalance
   * CustomerID (Foreign Key, references Customer)
   * ApplicationID (Foreign Key, references CreditApplication)
4. **Payment**
   * **PaymentID** (Primary Key)
   * PaymentDate
   * AmountPaid
   * LateFee (if any)
   * LoanID (Foreign Key, references Loan)
5. **BankOfficer**
   * **LoanOfficerID** (Primary Key)
   * OfficerName
   * Department
   * Email
   * PhoneNumber

**Relationships:**

1. **Customer** to **CreditApplication**: One-to-Many relationship
   * A **Customer** can have many **CreditApplications**, but each **CreditApplication** is linked to a single **Customer**.
2. **CreditApplication** to **Loan**: One-to-One relationship
   * Each **CreditApplication** can result in at most one **Loan**, and a **Loan** is based on a single **CreditApplication**.
3. **Loan** to **Payment**: One-to-Many relationship
   * Each **Loan** can have multiple **Payments**, but each **Payment** is related to a single **Loan**.
4. **BankOfficer** to **CreditApplication**: One-to-Many relationship
   * A **BankOfficer** can process multiple **CreditApplications**, but each **CreditApplication** is managed by a single **BankOfficer**.

