**All tables which are Created in the data base for the bank loan analysis**

**1. Customers Table**

* **Purpose**: Stores information about customers who have taken or applied for loans.
* **Columns**:
  + customer\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each customer.
  + first\_name (VARCHAR): Customer's first name.
  + last\_name (VARCHAR): Customer's last name.
  + age (INT): Customer's age.
  + gender (VARCHAR): Customer's gender.
  + marital\_status (VARCHAR): Marital status (e.g., single, married).
  + income (DECIMAL): Customer's annual income.
  + employment\_status (VARCHAR): Employment status (e.g., employed, unemployed).
  + credit\_score (INT): Customer's credit score.
  + address (VARCHAR): Customer's address.
  + city (VARCHAR): Customer's city.
  + state (VARCHAR): Customer's state.
  + zip\_code (VARCHAR): Customer's zip code.
  + phone\_number (VARCHAR): Customer's phone number.
  + email (VARCHAR): Customer's email address.

**2. Loans Table**

* **Purpose**: Stores details about the loans provided to customers.
* **Columns**:
  + loan\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each loan.
  + customer\_id (Foreign Key, INT): References Customers(customer\_id).
  + loan\_type (VARCHAR): Type of loan (e.g., personal, auto, mortgage).
  + principal\_amount (DECIMAL): Original loan amount.
  + interest\_rate (DECIMAL): Interest rate applied to the loan.
  + loan\_term (INT): Loan term in months.
  + start\_date (DATE): Date when the loan was disbursed.
  + end\_date (DATE): Date when the loan is due to be fully repaid.
  + loan\_status (VARCHAR): Current status of the loan (e.g., active, repaid, defaulted).

**3. Repayments Table**

* **Purpose**: Tracks payments made by customers towards their loans.
* **Columns**:
  + repayment\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each repayment.
  + loan\_id (Foreign Key, INT): References Loans(loan\_id).
  + payment\_date (DATE): Date of the payment.
  + amount\_paid (DECIMAL): Amount paid in this transaction.
  + payment\_status (VARCHAR): Status of the payment (e.g., on-time, late).

**4. Loan Applications Table**

* **Purpose**: Stores information about loan applications, whether approved or not.
* **Columns**:
  + application\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each application.
  + customer\_id (Foreign Key, INT): References Customers(customer\_id).
  + loan\_type (VARCHAR): Type of loan being applied for.
  + application\_date (DATE): Date of the loan application.
  + approval\_status (VARCHAR): Status of the application (e.g., approved, rejected, pending).
  + approved\_amount (DECIMAL): Amount approved by the bank (may be less than requested).
  + application\_reason (VARCHAR): Reason for applying for the loan (e.g., buying a car, home renovation).

**5. Collateral Table**

* **Purpose**: Records collateral provided for securing loans.
* **Columns**:
  + collateral\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each collateral.
  + loan\_id (Foreign Key, INT): References Loans(loan\_id).
  + collateral\_type (VARCHAR): Type of collateral (e.g., property, vehicle).
  + collateral\_value (DECIMAL): Estimated value of the collateral.
  + description (TEXT): Detailed description of the collateral.

**6. Branches Table**

* **Purpose**: Contains information about the bank's branches.
* **Columns**:
  + branch\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each branch.
  + branch\_name (VARCHAR): Name of the branch.
  + address (VARCHAR): Address of the branch.
  + city (VARCHAR): City where the branch is located.
  + state (VARCHAR): State where the branch is located.
  + zip\_code (VARCHAR): Zip code of the branch.
  + phone\_number (VARCHAR): Branch's contact number.

**7. Loan Officers Table**

* **Purpose**: Stores details of loan officers managing loans.
* **Columns**:
  + officer\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each loan officer.
  + branch\_id (Foreign Key, INT): References Branches(branch\_id).
  + first\_name (VARCHAR): Officer's first name.
  + last\_name (VARCHAR): Officer's last name.
  + email (VARCHAR): Officer's email address.
  + phone\_number (VARCHAR): Officer's contact number.

**8. Loan Guarantees Table**

* **Purpose**: Tracks any guarantees provided for loans.
* **Columns**:
  + guarantee\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each guarantee.
  + loan\_id (Foreign Key, INT): References Loans(loan\_id).
  + guarantor\_name (VARCHAR): Name of the guarantor.
  + guarantor\_relationship (VARCHAR): Relationship of the guarantor to the customer (e.g., family member, friend).
  + guarantee\_amount (DECIMAL): Amount guaranteed by the guarantor.
  + guarantee\_date (DATE): Date when the guarantee was provided.

**9. Interest Rates History Table**

* **Purpose**: Records changes in interest rates over time.
* **Columns**:
  + rate\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each rate change.
  + loan\_type (VARCHAR): Type of loan affected by the rate change.
  + old\_rate (DECIMAL): The previous interest rate.
  + new\_rate (DECIMAL): The updated interest rate.
  + effective\_date (DATE): The date when the new rate became effective.

**10. Default Risk Table**

* **Purpose**: Analyzes and stores the risk of default for each loan.
* **Columns**:
  + risk\_id (Primary Key, INT, AUTO\_INCREMENT): Unique identifier for each risk assessment.
  + loan\_id (Foreign Key, INT): References Loans(loan\_id).
  + risk\_score (DECIMAL): Calculated risk score based on various factors (e.g., credit score, loan amount).
  + risk\_level (VARCHAR): Categorical risk level (e.g., low, medium, high).
  + assessment\_date (DATE): Date of the risk assessment.