UML Class Diagram:

User - userID: int - username: string password: string - email: string - phone: string - address: string + getUserID(): int + getUsername(): string + getEmail(): string + getPhone(): string + getAddress(): string + register(username: string, password: string, email: string, phone: string, address: string): void + login(username: string, password: string): boolean

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LoanApplication
- applicationID: int
- userID: int
- applicationDate: Date
- status: string
- amountRequested: double
- purpose: string
- creditScore: int
+ getApplicationID(): int
+ getUserID(): int
+ getApplicationDate(): Date
+ getStatus(): string
+ getAmountRequested(): double
+ getPurpose(): string
+ getCreditScore(): int
+ submitApplication(userID:
  int, amountRequested:
  double, purpose: string):
  void
+ checkApplicationStatus():
  string
```

```
Loan
- loanID: int
- applicationID: int

    amountApproved: double

- interestRate: double
- termMonths: int
- startDate: Date

    endDate: Date

- repaymentAmount: double

    repaymentSchedule: string

+ getLoanID(): int
+ getApplicationID(): int
+ getAmountApproved(): double |
+ getInterestRate(): double
+ getTermMonths(): int
+ getStartDate(): Date
+ getEndDate(): Date
+ getRepaymentAmount(): double
+ getRepaymentSchedule():

    approveLoan(applicationID:

  int, amountApproved:
  double, interestRate:
  double, termMonths: int,
  startDate: Date, endDate:
  Date): void
```

Explanation:

1. User Class:

- o Represents users who interact with the loan application system.
- o Attributes: userID, username, password, email, phone, address.
- o Methods: register() for user registration, login() for user authentication.

2. LoanApplication Class:

- o Represents the loan application made by users.
- o Attributes: applicationID, userID, applicationDate, status, amountRequested, purpose, creditScore.
- o Methods: submitApplication() to submit a new loan application, checkApplicationStatus() to check the status of an application.

3. Loan Class:

- o Represents a loan that is approved based on a loan application.
- Attributes: loanID, applicationID, amountApproved, interestRate, termMonths, startDate, endDate, repaymentAmount, repaymentSchedule.
- o Methods: approveLoan() to approve a loan based on an application.

4. Payment Class:

- o Represents payments made towards loans.
- o Attributes: paymentID, loanID, amount, paymentDate, status.
- \circ $\:\:$ Methods: ${\tt makePayment}$ () to make a payment towards a loan.

5. CreditBureauReport Class:

- o Represents credit bureau reports associated with users.
- $\circ \quad Attributes: reportID, userID, reportDate, creditScore, creditHistory. \\$
- o Methods: generateReport() to generate a credit report for a user.

6. **Document Class:**

- o Represents documents uploaded by users.
- $\circ \quad Attributes: documentID, userID, documentType, filePath, uploadDate. \\$
- o Methods: uploadDocument() to upload a document for a user.