User
- username: String
- password: String
- login()
- logout()

UI
- frame: JFrame
- displayLoginForm()
- displayMortgageCalculator()
- displayCharts()

InputData
- interestRate: double
- mortgageTerm: int
- downPayment: double
- prepaymentPlans: List<PrepaymentPlan>
- age: int
- creditScore: int
- province: String

Mortgage
- principal: double
- interestRate: double
- term: int
- amortizationSchedule: List<AmortizationEntry>
- totalCost: double
- calculateMonthlyPayment()
- generateAmortizationSchedule()
- calculateTotalCost()

PrepaymentPlan
- name: String
- amount: double
- startDate: Date

MortgageCalculator
- calculateMonthlyPayment()
- generateAmortizationSchedule()
- calculateTotalCost()

AmortizationEntry
- paymentNumber: int
- paymentDate: Date
- principalPayment: double
- interestPayment: double
- remainingBalance: double

ChartGenerator
- generateCharts()

TaxAndInsuranceQualifications
- calculateTax()
- calculateInsurance()

Types of Relationships:

Association:
User and MortgageCalculator have an association relationship, representing that a user interacts with the mortgage calculator.

Aggregation:
Mortgage and AmortizationEntry have an aggregation relationship. The Mortgage class contains a collection of AmortizationEntry instances to represent the amortization schedule.

Composition:
UI and MortgageCalculator have a composition relationship. The UI class is composed of a JFrame to represent that the UI contains the main frame for the application.

Inheritance (Generalization):
User is a generalization of MortgageCalculator, indicating that the User class provides login and logout functionality to the MortgageCalculator class.

Dependency:
MortgageCalculator depends on ChartGenerator and TaxAndInsuranceQualifications. This relationship implies that the MortgageCalculator class uses these classes to generate charts and perform tax and insurance calculations.

Summary:

MortgageCalculator is the main class responsible for the core calculations and functionality of the mortgage calculator.

User represents the user interacting with the application and can log in and log out.

UI handles the user interface, including displaying login forms and the mortgage calculator's main window.

InputData contains input values like interest rate, mortgage term, down payment, prepayment plans, age, credit score, and province.

Mortgage handles mortgage-related calculations and maintains an amortization schedule.

AmortizationEntry represents individual entries in the amortization schedule.

PrepaymentPlan represents any prepayment plans that the user may have.

ChartGenerator is responsible for generating charts and visuals.

TaxAndInsuranceQualifications handles calculations related to taxes and insurance based on user information.