**在规定时间内完成下述题目，将文件打成压缩包，命名为“学号\_姓名.rar”，并将其提交至微课堂http://10.69.42.177。**

# 类图设计

## Borrowing and Lending

### Outcomes

Students successfully completing this question would demonstrate mastery of the following:

* Produce a UML class diagram, from a specification, that shows:
  + classes
  + attributes
  + methods
  + relationships

### Background

In this question, you will create a UML model of an information system for recording loan transactions between borrowers and lenders.

### Description

The system records loan information. A loan is a principal sum of money borrowed by a borrower from a lender.

* Lenders and borrowers are individuals with a name, address, phone, and ID.
* The credit characteristic of a borrower is MonthlyIncome.
* The credit characteristic of a lender is MaxLoanAmount (maximum amount the lender is willing to lend for a loan).
* Each loan has these attributes: LoanID, LoanAmount, InterestRate (a fixed rate that is determined at the time of lending), and LoanTerm (indicates the number of months in which the loan and interest will be fully repaid). Each loan also contains references to the borrower and lender.

The system provides the following functions:

* Add an individual into the system.
* Look up an individual given an ID.
* Remove an individual from the system given an ID.
* Add a lender into the system.
* Look up a lender given an ID.
* Remove a lender from the system given an ID.
* Add a borrower into the system.
* Look up a borrower given an ID.
* Remove a borrower from the system given an ID.
* Add a loan into the system.
* Look up a loan given an ID.
* Remove a loan from the system given an ID.

### Tasks

The following steps will guide you in completing this assignment:

1. Please use Eclipse, [Violet](http://horstmann.com/violet/), PowerPoint, or another tool of your choosing to draw a UML class diagram for loan information system.

* Your UML class diagram should include:
  + The classes that model the loan system. To get you started, the design for a complete LoanInformationSystem class is provided below. You do not need to modify the LoanInformationSystem class. From the details of LoanInformationSystem class, you can infer information about all the classes that you need to create.
  + The association relationships (including the direction, multiplicity, and association attribute).
  + The specialization/generalization relationships.
  + The attributes and methods, including the accessor and mutators (only for the attributes that can be modified).
* Use Sun's coding conventions when naming classes, methods, and attributes.

1. Save the UML class diagram in a SVG, GIF, or JPG format in a file named uml-loan-system. The extension of this file will depend on the format of the image.