

CSC 121 Project 1

Due: Friday, March 31

Format: Email a *.zip file* containing all *.java* and *.class* files organized as necessary. Code should be clearly formatted, commented, compiled, and ready to run. Also include *.pdf* or *.doc* files for any documentation and testing record. Include the name of both pair-members as well as “CSC 121 Project 1” in the subject line of the email. (Also include this information in the *.zip file* filename and any code and documentation files.)

Problem description:

Nearly every American aspires to purchase a house. This process requires a plethora of activities to be completed, including a loan for most people. Loans are typically planned for a 15-year or 30-year period with monthly payments including interest that is compounded annually. (Interest rates are currently around 6 to 7%.) An escrow account is usually created to store monies for insurance and property tax. These annual amounts are divided and included in the monthly payments as well. Real-estate transactions conducted by agents include a commission taken from the selling-price, and a seller is paid whatever amount remains after completing payment for any lien previously placed on the house.

Design and code an object-oriented program in Java that facilitates this process by computing several basic items. Ask the user for the selling price of the house, the amount of down payment, the loan interest rate, the annual insurance cost, the property tax percentage, the percentage commission for the agent (typical might be around 6%), and the amount still owed by the seller. Inform the user of the monthly payment necessary at the given interest rate for both 15-year and 30-year periods. This monthly payment should include amounts for tax and insurance that will be routed to the escrow account. Also inform the user of the amount that the agent will receive and the amount that the seller will receive at the time of the transaction.

- 1) Design your program before coding. Include any “pre-writing” and “brainstorming” used in development. Create a design specification that includes any diagrams of your choice as well as UML diagrams for your classes, data, and methods. (Another programmer should be able to take this document and implement the program as directed by your design.) Work together with your partner in this process.
- 2) Implement any necessary classes as well as a class containing your “main” application. You may wish to create “skeleton” code first with artificial values to test basic program flow, but make sure that you complete the final computations in your classes necessary for the correct program operation. Complete the implementation in a pair-programming fashion, making sure to switch “driver” and “navigator” regularly and also consider aspects of good pair-programming discussed in lab.
- 3) Complete the basic steps of the software-lifecycle by finishing implementation of your design, testing your code, and revising as necessary. Include documentation of testing in what you submit. Use real world values to test.