# Concordia University
## Department of Computer Science
## and Software Engineering

## Introduction to Programming
## COMP 248 --- Winter 2006 --- Section U

## Assignment #1

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| **Deadline:** | week 4, Friday January 25th, 2006 |
| **Evaluation:** | 3% of final mark |
| **Late submission:** | not accepted |
| **Teams:** | this is an individual assignment |
| **Purpose:** | to help you practice the material presented in Chapter 1 |

## Exercises

1. Write a program that reads a person's name in the following format: first name, then middle name or initial, then last name. The program then outputs the name in the following format:

   ```
   Last_Name, First_Name, Middle_Initial.
   ```

   For example, the input:

   ```
   Mary Average User
   ```

   should produce the output:

   ```
   User, Mary A.
   ```

   The input:

   ```
   Mary A. User
   ```

   should also produce the output:

   ```
   User, Mary A.
   ```

   Your program should place a period after the middle initial even if the input did not contain a period. Your program should allow for users who give no middle name or middle name initial. In that case, the output, of course, contains no middle name or initial. For example, the input:

   ```
   Mary User
   ```

   Should produce the output:

   ```
   User, Mary
   ```

2. Negotiating a consumer loan is not always straightforward. One form of loan is the discount installment loan, which works as follows. Suppose a loan has a face value of $1,000, the interest rate is 15%, and the duration is 18 months. The interest is computed by multiplying the face value of $1,000 by 0.15, yielding $150. That figure is then multiplied by the loan period of 1.5 years to yield $225 as the total interest owed. That amount is immediately deducted from the face value, leaving the customer with only $775. Repayment is made in equal monthly installments based on the face value. So the monthly loan payment will be $1,000 divided by 18 (months), which is $55.56. This method of calculation may not be too bad if the customer needs $775, but the calculation is a bit more complicated if the customer needs $1,000. Write a program that will take three inputs: the amount the customer needs to receive, the interest rate, and the duration of the loan in months. The program should the calculate the face value required in order for the customer to receive the amount needed. It should also calculate the monthly payment.

3. Write a program that determines whether a meeting room is in violation of the fire regulations regarding the maximum room capacity. The program will read in the maximum room capacity and the number of people to attend the meeting. If the number of people is less than or equal to the maximum room capacity, the program announces that it is legal to hold the meeting and tell how many additional people may legally attend. If the number of people exceeds the maximum room capacity, the program announces that the meeting cannot be held as planned due to fire regulations and tell how many people must be excluded in order to meet the fire regulations.

## Evaluation Criteria (for each individual exercise)

Comments: 6 pts
      Description of the program (authors, date, purpose):     2 pts
      Description of variables, constants and algorithm:     4 pts
Programming style: 8 pts
      Use of constants where necessary:     2 pts
      Use of significant names for identifiers:     2 pts
      Indentation and readability:     2 pts
      Simplicity of the algorithm:     2 pts
Results on test data and on unseen data:     <u>6 pts</u>
**Total**     **20 pts**

## Submission Procedure

When you are finished all programs, you should submit a paper version and an electronic version of your java source files. **Both** the paper **and** the electronic submission must be on time; otherwise, the assignment will be considered late.

1. **Paper submission:**
   a) Fill out an expectation of originality form (given to you in class or available on the Web page).
   b) Print all your source code (the `.java` files).
   c) Print a screen shot of your output with the data given above.
   d) Staple everything together and give it to your instructor in class. If you cannot give the assignment in class, go to the Department of Computer Science and Software Engineering secretary desk in EV3.139, ask the receptionist to write the date and time on your assignment and initial it, and put the assignment in your instructor's assignment submission box, located in EV3.414.
2. **Electronic submission:**
   Create one zip file, containing all source files for your assignment. The zip file should be called `assignment#_studentID`, where # is the number of the assignment and `studentID` is your student ID number. For example, for the first assignment, student 123456 would submit: assignment1_123456.zip. Use the Electronic Submission Form to upload your zip file. Go to the following URL, fill-in the form, and submit your file: `https://eas.encs.concordia.ca/eas/authentication.jsp`,