HW 02: CitationMachine + FormulaBlackBox

Release date: Friday, September 2nd, 2016

Due date: Friday, September 9th, 2016

Goals

★ To Learn to manipulate strings using the Java String library

★ To learn to perform arithmetic operations on numeric data

Description

You are required to complete two tasks for this homework.

1. The first task is to write a GUI program that reads the following information on a book: author name, year of publication, title, location, and publisher. The program generates the citation string for this book that has a specific format called the APA format.
2. The second task is to write four simple programs; each program accepts input, performs some specific arithmetic operations on this input and displays the output of the operations on the terminal.

Prerequisites

You have to have some hands-on experience on using the methods in the JOptionPane and the Scanner classes to get user input and display messages to the user. You also need some hands-on experience on calling methods in a String Object and performing arithmetic operations according to the operators precedence rules.

Task 1 - CitationMachine

The APA style of citation is typically used to cite information sources in social sciences. The basic format of the citation is as follows. Note that the strings enclosed in opening and closing brackets are placeholders, i.e., they should be replaced with the information of the source that the citation represents.

<*Author_Last_Name*>, <*Author_First_Initial*>. (<*Year_Of_Publication*>). <*Source_Title*>: <*Source_Subtitle*>. <*Location*>: <*Publisher*>.

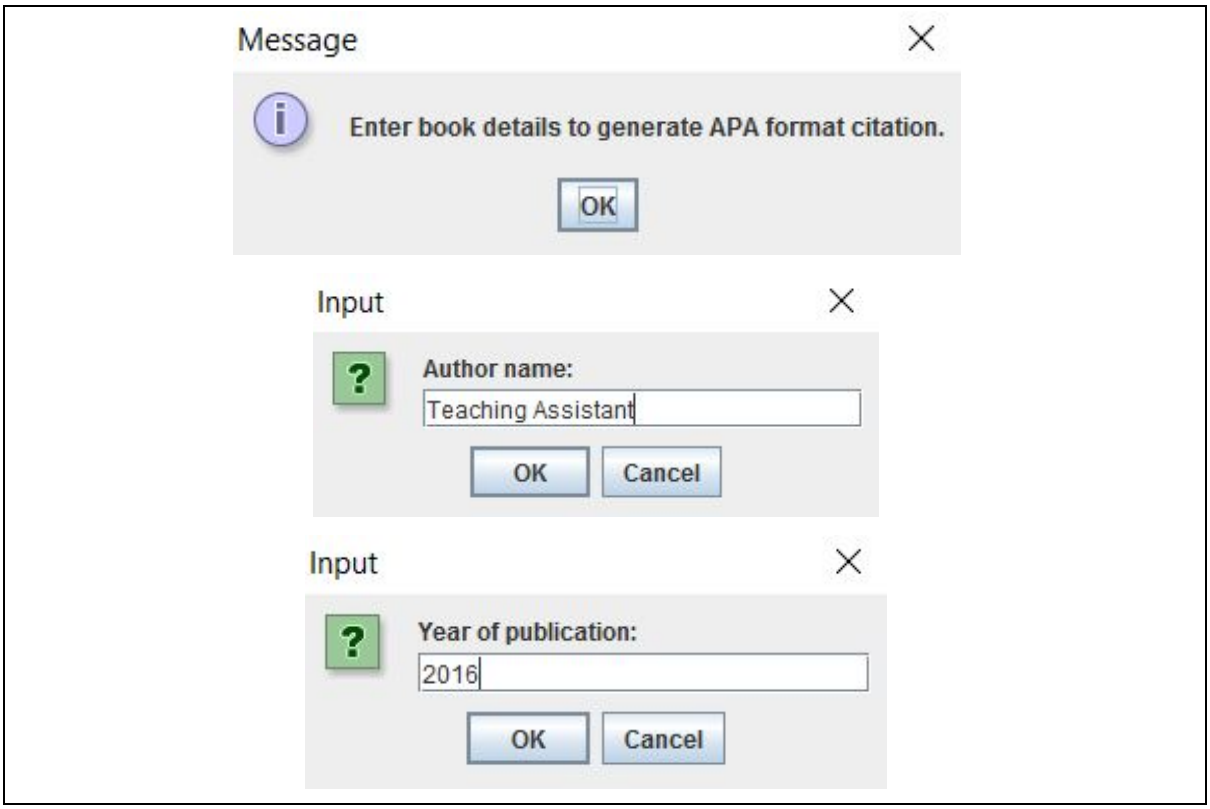
An example of an APA citation is

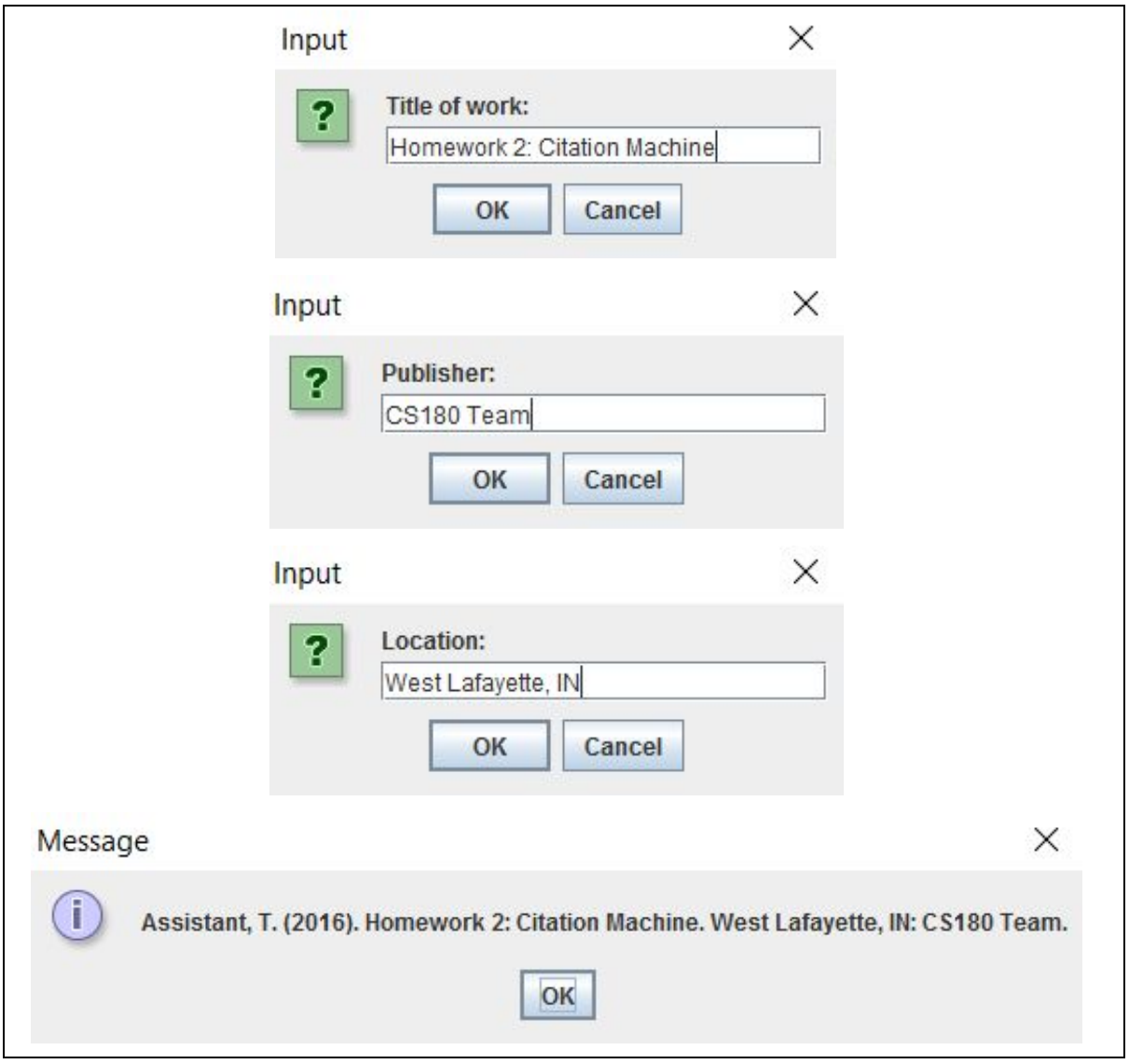
Assistant, T. (2016). *Homework 2: Citation Machine*. West Lafayette, IN: CS180 Team.

You are required to write a program that conforms to the following requirements:

1. The name of the Java source file that contains your program should be "CitationMachine.java".
2. Your program must get the following inputs (in order) using the JOptionPane:
    i. Author first and last names separated by a space
    ii. Year of publication
    iii. Source title and subtitle separated by a colon
    iv. Location
    v. Publisher
3. You program must produce the APA citation using the input information and print the resulting string using the JOptionPane methods. Make sure that your output string has the right spacing and separators.

The following figures show sample input and output of a correct CitationMachine program.



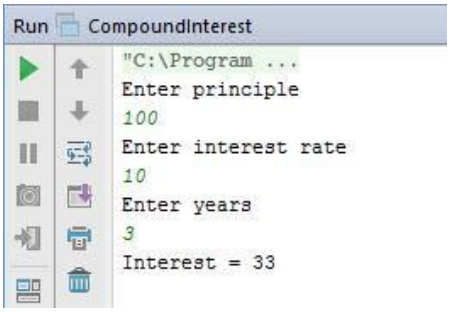

Input
Title of work:
Homework 2: Citation Machine
OK
Cancel
Input
Publisher:
CS180 Team
OK
Cancel
Input
Location:
West Lafayette, IN
OK
Cancel
Message
Assistant, T. (2016). Homework 2: Citation Machine. West Lafayette, IN: CS180 Team.
OK

Task 2 - Four Programs

You are required to write the following programs.

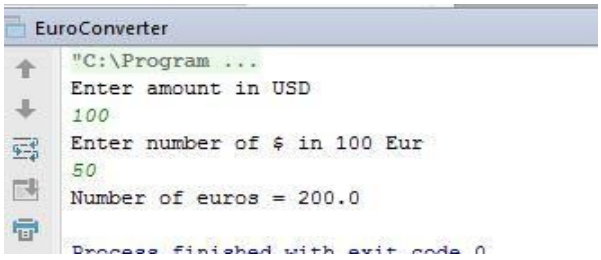
1. **CompoundInterest**

   This program computes the interest that a bank would have on some principal amount deposited in an account. The program takes three inputs from the console: (1) the principal amount, this is the amount of money that have deposited in the bank account, (2) the annual interest rate and (3) the number of years the money stayed in the account. The program then computes the compound interest rounded to the nearest smaller integer values. The source file that contains this program must be named CompoundInterest.java. A demo of the correct operation of a CompoundInterest program is as follows.



2. **EuroConverter**

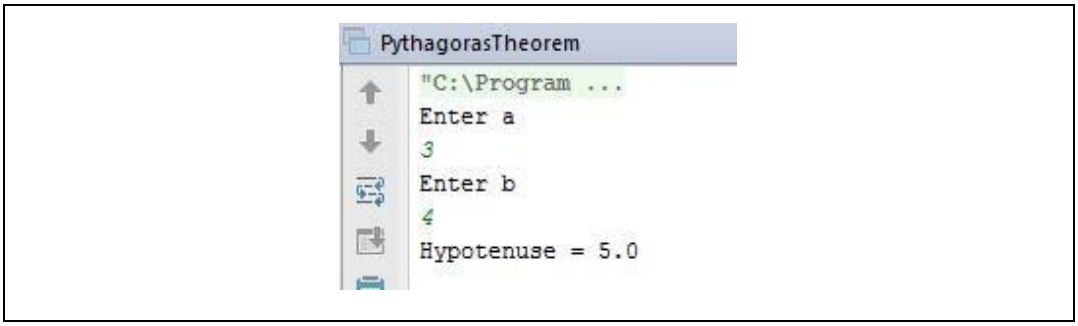
   This program is required to convert an amount in US dollars to Euros. The program takes as input the amount of US dollars to convert, and the number of dollars equivalent to 100 Euros and then prints the equivalent number of Euros to the input amount after performing the conversion. The source file that contains this program must be named EuroConverter.java. A demo of the correct operation of a EuroConverter program is as follows.



3. **Pythagoras**

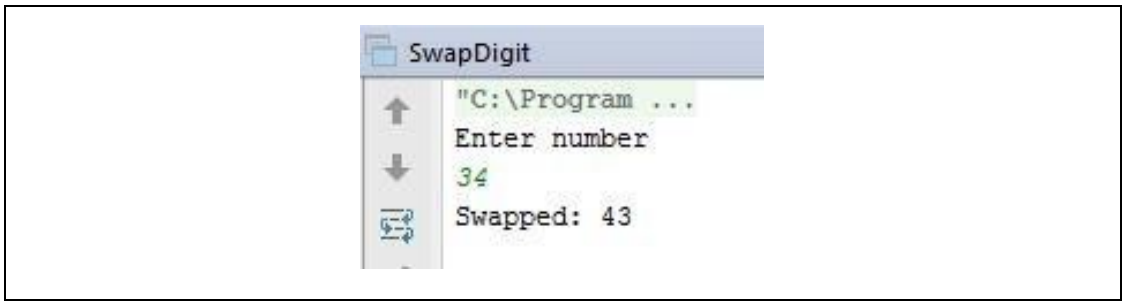
   This program takes two inputs which are the lengths of the base and height of a right-angled triangle and uses the Pythagoras theorem to calculate the length of the

hypotenuse of this triangle. You must name the source file of this program Pythagoras.java. A demo of the correct operation of a Pythagoras program is as follows.



4. SwapDigit

Given an input two digit integer number, the program SwapDigit exchanges the two digits and displays the output in the console as follows. Your code must be placed in a file named SwapDigit.java.



Submission Instructions

Submit all your .java files to Vocareum by following these instructions. **There will be no code style checking.** There is no submission limit for this homework, as long as you submit before the deadline. Keep in mind that only your last submission will be considered.

You are responsible for making sure that your submitted code compiles and runs correctly.

Good Luck