Lab 3: Java Fundamentals **III.**

20 pts

Distribute on September 18, 2023
Due before September 24, 2023 (Sunday) at 12:00 midnight

Learning Outcomes ((CLO) vs (SO) Mapping)

- Recognize the software and hardware components of a computer system (1)vs(6)
- Utilize Java syntax in fundamental programming algorithms (3)vs(1)
- Recognize and apply the various input and output devices in programming (4)vs(2)

Requirements

For this lab, you will create a small Java program to practice

- declaring, initializing, and assigning values to variables
- manipulating String objects
- using decision structures such as if-else statements.
- reading input data from the console
- reading more input data from message dialog boxes.
- applying Scanner class methods
- applying Java's wrapper classes for converting strings to numbers
- displaying output on the console window
- displaying output using message dialog boxes.

Preliminaries

1. Create a Java project. The name of the project must be **lab03_<your FirstNameLastName >**. For example, my project would be named, lab03_PeterNg.
2. Add a Java class named **`IO_Practice`**. **Declare it as your main class** when the project is set up with Eclipse

```
public class IO_Practice {

	public static void main(String[] args) {
		// TODO Auto-generated method stub

	}
}
```

3. Add the following comment block to the beginning of your Java class:

```
/*
 *  <your name>
 *  CS 16000-01 – 02/03 Fall Semester 2023
 *  (Note: write either 02 or 03, depending on which is your section.)
 *  Lab 3
```

```
 *
 */
```

Exercises

Recommended Reading: Chapters 2 and 3 of the textbook.
Note: After assigning a literal value to a variable, the code must **always use the variable**

1. Add the import statement

```
import java.util.Scanner;  //required for Scanner class.
```

and

```
import javax.swing.JOptionPane;   //required for JOptionPane class.
```

with

```
System.exit(0);                   //required for JOptionPane class.
```

to your code above the class header except that "System.exit(0)" must be at the end of the main method. All the rest of the code shall be in the main method.

```
package lab03_PeterNgPK;
//Pbm 1
import java.util.Scanner; //required for Scanner class.
import javax.swing.JOptionPane; //required for JOptionPane class.

/**
 * Peter A. Ng CS 16000-01  02/03, Fall Semester 2023
 * Lab 3
 *
 * @author apeng
 *
 */public class IO_Practice1 {

    public static void main(String[] args) {
            // TODO Auto-generated method stub


            System.exit(0);   Required it JOptionPane class is used
    } //end of main
} //end of class
```

2. Declare the following variables:

- **numberOfBooks** of type **`int`**
- **titleLength** of type **`int`**
- **unitPrice** of type **`double`**
- **totalCost** of type **`double`**

- **authorName, bookTitle, publisher, edition, yearPublisher, firstName, middleName, lastName** all of type **`String`** except **yearPublisher** of type **`int`**
- **middleInitial** of type **`char`**
- The customer name: **cfirstName, cmiddleName, clastName** all of type **`String.`**
- The customer address: **streetAddress, cityName, stateName, zipCode** all of type **`String.`**

```
public class IO_Practice1 {

    public static void main(String[] args) {

        //Pbm 2.
          int numberOfBooks, titleLength;
          double unitPrice, totalCost;
          String authorName, bookTitle, publisher, edition;
          String firstName, middleName, lastName;
          int yearPublished; // year published
          char middleInitial;
          String cFirstName, cMiddleName, cLastName;//customer's name.
          String streetAddress, cityName, stateName, zipCode;
          int thisYear; //year of today
       // Pbm 3. ….

         System.exit(0);   //Required it JOptionPane class is used
    } //end of main
} //end of class
```

3. Declare and instantiate a Scanner object that can read data from the console (suggested reading the textbook Chapter 2: 2.13 Reading Keyboard Input, pp 85-88)

```
// Pbm 3. Declare and instantiate a Scanner object that can read data
//       from the console
Scanner keyboardInput = new Scanner(System.in);
```

4. Solicit and read an integer value from the console (you choose the input). Store the input in variable **numberOfBooks**

```
// Pbm 4. Solicit and read an integer value from the console (you
//          choose the input). Store the input in variable numberOfBooks

System.out.println("number of books ordered? ");
numberOfBooks = keyboardInput.nextInt();
```

5. Solicit and read a number with a decimal point from the console (you choose the input). Store the input in variable **unitPrice**

```
// Pbm 5. Solicit and read a number with a decimal point from the
//        console (you choose the input). Store the input in
//        variable unitPrice

System.out.println("Unit price of the book? ");
unitPrice = keyboardInput.nextDouble();
```

6. Assign **totalCost** the total cost of all books

```
//Pbm 6.
totalCost = unitPrice *  numberOfBooks;
//    System.out.printf("The total cost of %d books of unit price " +
//          "$%.2f is $ %,.2f\n", numberOfBooks, unitPrice, totalCost);
```

7. Solicit the customer's name on the console. Make sure that there is a first name, a middle name, and a last name in the input. If there is no middle name or you do not know it, add a replacement name of your own choice. If there is more than one word for the middle name, then use a hyphen – to join words. e.g., John-Hamilton is the middle name of the customer.
Make Scanner:

read the first name and store it in the variable **cfirstName**. e.g., Caleb
Read the middle name and store it in **cmiddleName**, e.g., Hamilton
Read the last name and store it (in upper case) in **clastName**. Henricks

(you will have to call the next( ) method three times). The console yields

```
Enter your first name, middle name, and last name:
Caleb Hamilton Henricks
```

Re-assign all characters of the clastName to all uppercase versions.
Use next().toUpperCase() to transform all the input characters of the last name to upper case.

```
// Pbm 7. Solicit the customer's name on the console. Make sure that ...

      System.out.println("Enter the customer's first name, middle name
and last name: ");
      // Pbm 7. Make the Scanner read the first name and store it in
variable
      // cFirstName. e.g., Caleb
      // Read the middle name and store it in cMiddleName, e.g.,
      // John-Elizabeth
      // Read the last name and store it in cLastName. Henricks
      // (you will have to call the next( ) method three times)
      // Re-assign all characters of the clastName to be all uppercase
      // version.
```

```
 cFirstName = keyboardInput.next();
 cMiddleName = keyboardInput.next();
 cLastName = keyboardInput.next().toUpperCase();

 keyboardInput.nextLine(); // consume the remaining line.
```

Likewise, on the console, solicit and make Scanner read the customer's street address and store it in variable **streetAddress**.

```
Enter the customer's street address(i.e., nos. and street):
100056 Weeping Cherry Drive
```

Then on the console, solicit and make Scanner read the city, state name, and zip code; and store them in variables **cityName**, **stateName**, and **zipCode**, respectively. Examples are as follows:

```
Enter name of the city:
Well Fargo City
Enter name of the state:
Rhode Island
Enter the Zip Code:
02485
```

If the Scanner does not read during these operations, write such as

referenceVariable.nextLine();

This will consume the remaining line.

```
// Pbm 7. Solicit and make Scanner read the customer's street
// address and store it in variable streetAddress.
// Enter customer's street address (i.e., nos. and street):
// 100056 Weeping Cherry Drive.

 System.out.println("Enter the customer's street address(i.e.,
nos. and street): ");
 streetAddress = keyboardInput.nextLine();

 // keyboardInput.nextLine(); //consume the remaining line.

 // Pbm 7. Then on the console, solicit and make Scanner read
 // the city, state name, and zip code; and store them
 // in variables cityName, stateName, and zipCode,
 // respectively. Examples are as follows:

 System.out.println("Enter name of the city: ");
```

```
        cityName = keyboardInput.nextLine();
        System.out.println("Enter name of the state: ");
        stateName = keyboardInput.nextLine();

        System.out.println("Enter the Zip Code: ");
        zipCode = keyboardInput.nextLine();

/*
System.out.println("Name:\t" + cFirstName + " " + cMiddleName + " " + cLastName);
System.out.printf("Street Address:\t%s\nCity:\t%s\tState:\t%s\nZipCode:\t%s\n",
                    streetAddress, cityName, stateName, zipCode);
*/
```

8. Solicit the name of your favorite author on the console. Make sure that there is a first name, a middle name, and a last name in the input. If there is no middle name or you do not know it, add a replacement name of your own choice. If there is more than one word for the middle name, then use a hyphen – to join words. e.g., John-Huffam is the middle name of Charles Dickens.

9. Make the Scanner read the first name and store it in the variable **firstName**. e.g., Charles
Read the middle name and store it in **middleName**, e.g., John Huffam
Read the last name and store it in **lastName**. Dickens
(you will have to call the next( ) method three times)

```
        // Pbm 8 and 9. Solicit the name of the customer's favorite
author on the console.
        // About the author, title, publisher, edition, and year of your
favorite
        // book.

        System.out.println("Enter the customer's favorite author's first
name, middle name and last name: ");
        firstName = keyboardInput.next();
        middleName = keyboardInput.next();
        lastName = keyboardInput.next();
```

10. Extract the middle initial as a character from the middle name and store it in the middleInitial. e.g., J is the middleInitial of John-Huffam.

11. Re-assign all characters of the lastName to be all uppercase versions.

```
        // Pbm 10.Extract the middle initial as a character from the
middle name and
```

```
    // store it in middleInitial. e.g., J is the middleInitial of
John-Huffam.
    // Pbm 11. Re-assign all characters of the lastName to be all
uppercase
    // version.

    // page 74. Table 2-15 A few String class method
    middleInitial = middleName.charAt(0);
    lastName = lastName.toUpperCase();

    keyboardInput.nextLine(); // consume the remaining line.
```

12. Re-build the author's name to be of the format (last name (all in uppercase), first name middle initial.). e.g., **DICKENS, Charles J.**. Store it in variable **authorName**.

```
// Pbm 12. Re-build the author's name to be of the format
// (last name (all in uppercase), first name middle initial.).
// e.g., DICKENS, Charles J.. Store it in variable authorName.

authorName = lastName + ", " + firstName + " " + middleInitial + ".";
// System.out.println("Author Name is: " + authorName);
```

13. Solicit the title of your favorite book on the console. e.g., A Tale of Two Cities.

14. Using the nextLine( ) method read the title and store it in a variable **bookTitle**; note that you will have to make a dummy call of the nextLine( ) before the actual reading works, see pp 88 – 92 of your book. This helps to consume the remaining newline.

15. Re-assign **bookTitle** its own all uppercase version. And find the length of the book title and store it in the variable **titleLength**.

```
    // Pbm 13. Solicit the title of customer's favorite book on the console.
    // e.g., A Tale of Two Cities.
    // Pbm 14. Using the nextLine( ) method read the title and store it
    // in variable bookTitle;
    // Pbm 15. Re-assign bookTitle its own all uppercase version

    System.out.println("Title of the customer's favorite book: ");
    bookTitle = keyboardInput.nextLine().toUpperCase();
    // bookTitle = keyboardInput.nextLine();
    // bookTitle = bookTitle.toUpperCase();

    // Pbm 15: And find the length of the book title and store it in
    // the variable titleLength.
    titleLength = bookTitle.length();
    // System.out.println("Book Title (with length) is: " + bookTitle + "("
    // + titleLength + ")");
```

```
// System.out.println("Book Title (with length) is: " + bookTitle + "("
// + bookTitle.length() + ")");
```

16. Solicit the name of the publisher and store it in the variable **publisher**; Solicit the edition for the book, and the year for publishing the book; store them in the variables, **edition** and **yearPublished**, respectively. Solicit the year of today and store it in the variable **thisYear**.

```
// Pbm 16.  Solicit the name of the publisher and store it in the
//          variable publisher; Solicit the edition for the book, and
the
//          year for publishing the book; store them in the variables,
//          edition and yearPublished, respectively.

System.out.println("Enter the name of the publisher for the book: ");
publisher = keyboardInput.nextLine();
System.out.println("Enter the edition for the book: ");
edition = keyboardInput.nextLine();
System.out.println("Enter the year for publishing the book: ");
yearPublished = keyboardInput.nextInt();
System.out.println("What is this year? such as 2023");
thisYear = keyboardInput.nextInt();
```

17. To the console, print the author's name (lastName(upper case), firstName Initial), the **bookTitle** of the book (upper case), followed by the publisher, edition and year published. Then the length of the title and how old is the book? (If it is a year or less than a year old book, then you should print "It is a year old book. If more than a year such as 160 years, then you need to print "It is a 160 years old book.")

```
Information about your Favorite Book:
The customer's favorite author is:
        DICKENS, Charles J
The customer's favorite book from Charles is
        A TALE OF TWO CITIES
        Chapman and Hall Publisher, London, 1st Edition, 1860.
The length of the title is:20.
It is a 160 years old book
```

```
// Pbm 17. To the console, print the author's name (lastName(upper
// case), firstName Initial),
// the bookTitle of the book (upper case), followed by publisher,
// edition and year
// published. Then the length of the title
// Pbm 21(a). Use the following given data. Your printing on the console
// must follow exactly the layout as shown below.
 // Information about the customer's favorite book:
```

```
        System.out.println("\nInformation about the customer's Favorite Book:");
        // authorName = lastName + ", " + firstName + " " + middleInitial;
        System.out.printf("The customer's favorite author is:\n\t%s\n",
authorName);
        System.out.printf("The customer's favorite book from %s is \n\t%s,\n",
firstName, bookTitle);
        System.out.printf("\t%s, %s Edition, %d.\n", publisher, edition,
yearPublished);
        System.out.printf("The length of the title is: %s.\n", titleLength);

// Pbm 17: how old is the book? (If it is a year or less than a year old
// book,
// then you should print "It is a year old book. If more than a year
// such as 160 years, then you need to print "It is a 160 years old
// book.")
// Pbm 21(a). Ensure that the singular/plural noun, such as book or
// books and year or years.
// You need to use a decision structure to get these options.

//if ((2023-yearPublished) > 1)
if ((thisYear-yearPublished) > 1) {
System.out.printf("It is a %d years old book\n", thisYear-yearPublished);
}
else {
System.out.println("It is a year old book");
}
```

18. Print the result of the order for the book to console as shown in the following template:

```
The total cost of 1 book of unit price $6,900.65 is $ 6,900.65
from the Chapman and Hall Publisher, London.
```

```
// Pbm 18 Print the result of the order for the book to the console as shown
// in..:
if (numberOfBooks > 1) {
// Print the result of the order for two or more books to the console as
// shown in..:
System.out.printf("The total cost of %d books of unit price " + "$%,.2f is
$ %,.2f\nfrom the %s.\n",
            numberOfBooks, unitPrice, totalCost, publisher);
} else {
        // Pbm 18: Print the result of the order for one book to console as
        // shown in..:
        System.out.printf("The total cost of %d book of unit price " + "$%,.2f
is $ %,.2f\nfrom the %s.\n",
            numberOfBooks, unitPrice, totalCost, publisher);
        }
```

19. Use the JOptionPane input dialog box to prompt whether would like to re-order the book. (Read Chapter 2: 2.14 Dialog Boxes, pp. 93-99.)

If yes, Use the JOptionPane input dialog boxes to enter the number of the book to be re-ordered and enter the unit price of the book. If there is no order of the book, print on the console "**There is no reorder of book**."

```
// Pbm 19. Use the JOptionPane input dialog box to prompt whether would like
// to re-order the book.
// If yes, Use the JOptionPane input dialog boxes to enter the number of the
// book to be re-ordered and enter the unit price of the book.

numberOfBooks = 0; // no reorder of the book as the initial assumption
int order = JOptionPane.showConfirmDialog(null, "Do you want to reorder the
book?\n yes or no", "Question?",
            JOptionPane.YES_NO_OPTION);
// if (order == 0)
if (order == JOptionPane.YES_OPTION) {
String input = JOptionPane.showInputDialog(
                          "Enter the number of books ordered:");
numberOfBooks = Integer.parseInt(input);
input = JOptionPane.showInputDialog(
"Enter the unit price of a book ordered:");
unitPrice = Double.parseDouble(input);
totalCost = numberOfBooks * unitPrice;

//Pbm 20 could be embedded here without
//if (!(order == JOptionPane.NO_OPTION)) {}

}
else {
                    System.out.println("There is no reorder of book.");
      }


// Pbm 20. information about Customer
// This segment of statements could be embedded in the if-part of
// Pbm 19 without "if (!(order == JOptionPane.NO_OPTION)) {}"
// Let us learn this: if (!(order == JOptionPane.NO_OPTION)){}
if (!(order == JOptionPane.NO_OPTION)) {

      System.out.println("\nInformation about Customer:");
      System.out.println("Name:\t" + cFirstName + " " + cMiddleName
                                                          + " " +
cLastName);
      System.out.printf("Street
Address:\t%s\nCity:\t%s\nState:\t%s\nZipCode:  %s\n",
                          streetAddress, cityName, stateName, zipCode);
```

```
      if (numberOfBooks > 1) {
            System.out.printf("\nThe total cost for reordering %d books of
unit price " +
                        "$%,.2f is $ %,.2f\nfrom the %s.\n",
                        numberOfBooks, unitPrice, totalCost, publisher);
      }
      else //if (numberOfBooks == 1)
      {
            System.out.printf("\nThe total cost for reordering %d book of
unit price " +
                                    "$%,.2f is $ %,.2f\nfrom the %s.\n",
                                    numberOfBooks, unitPrice, totalCost,
publisher);
                  }
      }//end of if (!(order == JOptionPane.NO_OPTION))



      System.out.println("\nThe end of the invoice.");




            System.exit(0); // required for JOptionPane class.
      }// end of main

   }// end of class IO_Practice2
```

20. Print the result regarding the re-ordered information to the console as shown in the following template:

```
Information about Customer:
Name:   Caleb John-Elizabeth HENRICKS
Street Address:    100056 Weeping Cherry Drive
City:   Well Fargo City
State:  Rhode Island
ZipCode:  02485

The total cost for reordering 1 book of the unit price of $6,900.65
is $ 6,900.65 from the Chapman and Hall Publisher, London.
```

```
// Pbm 20. information about Customer
// This segment of statements could be embedded in the if-part of
// Pbm 19 without "if (!(order == JOptionPane.NO_OPTION)) {}"
// Let us learn this: if (!(order == JOptionPane.NO_OPTION)){}
```

```
    if (!(order == JOptionPane.NO_OPTION)) {

                System.out.println("\nInformation about Customer:");
                System.out.println("Name:\t" + cFirstName + " " + cMiddleName
                                                                + " " +
    cLastName);
                System.out.printf("Street
    Address:\t%s\nCity:\t%s\nState:\t%s\nZipCode:  %s\n",
                            streetAddress, cityName, stateName, zipCode);

                if (numberOfBooks > 1) {
                System.out.printf("\nThe total cost for reordering %d books of
    unit price " +
                            "$%,.2f is $ %,.2f\nfrom the %s.\n",
                            numberOfBooks, unitPrice, totalCost, publisher);
                }
                else //if (numberOfBooks == 1)
                   {
                     System.out.printf("\nThe total cost for reordering %d book
    of unit price " +
                                        "$%,.2f is $ %,.2f\nfrom the %s.\n",
                                        numberOfBooks, unitPrice, totalCost,
    publisher);
                    }
                }//end of if (!(order == JOptionPane.NO_OPTION))

 System.out.println("\nThe end of the invoice.");

System.exit(0); //required for JOptionPane class.

//or the following segment of code

// Pbm 20. information about Customer
System.out.println("\nInformation about Customer:");
System.out.println("Name:\t" + cfirstName + " " + cmiddleName + " " +
clastName);
System.out.printf("Street Address:\t%s\nCity:\t%s\nState:\t%s\nZipCode:  %s\n",
          streetAddress, cityName, stateName, zipCode);

    if (numberOfBooks > 1) {
    System.out.printf("\nThe total cost for reordered %d books of unit price " +
                "$%,.2f is $ %,.2f\nfrom the %s.\n",
                numberOfBooks, unitPrice, totalCost, publisher);
    }
    else if (numberOfBooks == 1){
         System.out.printf("\nThe total cost for reordered %d book of unit price " +
                            "$%,.2f is $ %,.2f\nfrom the %s.\n",
                            numberOfBooks, unitPrice, totalCost, publisher);
```

```
      }
      else {
            System.out.print("\nThere is no reorder of book.");
            }
System.out.println("\nThe end of the invoice.");
```

1. (a) Use the following given data. Your printing on the console must follow exactly the layout shown below. Use two blocks in which one is for input (You do not have to show the showInputDialog for the input data, which are used to compute the re-ordered book's statement) and then followed by the consecutive printing output statements. (That means, you need to hold off on the output until you have all the input data requested.) Ensure that the singular/plural noun, such as book or books, and year or years. You need to use a decision structure to get these options.

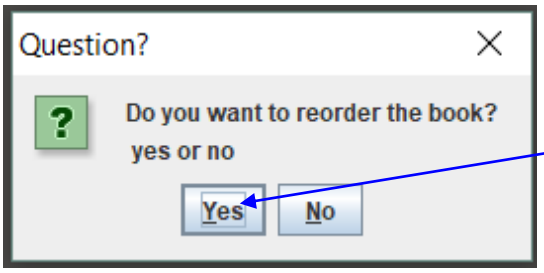
(b) Likewise, repeat problem 20 using your own data as the input for your program.

```
Number of books ordered?
1
Unit price of the book?
6900.65
Enter the customer's first name, middle name and last name:
Caleb John-Elizabeth Henricks
Enter the customer's street address (i.e., nos. and street):
100056 Weeping Cherry Drive
Enter the name of the city:
Well Fargo City
Enter the name of the state:
Rhode Island
Enter the Zip Code:
02485
Enter the customer's favorite author's first name, middle name and
last name:
Charles John-Huffam Dickens
Title of the customer's favorite book:
A Tale of Two Cities
Enter the name of the publisher for the book:
Chapman and Hall Publisher, London
Enter the edition for the book:
1st
Enter the year for publishing the book:
1860
What is this year? such as 2023
2003
```

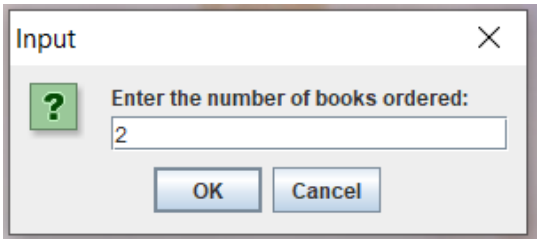
For problem 21. (a): Output data from the above input data requested

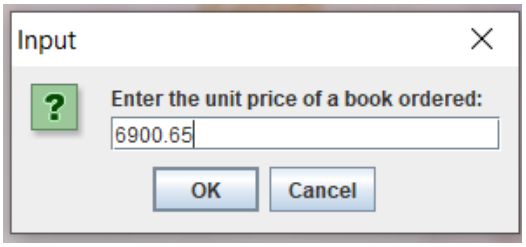
```
Information about the customer's Favorite Book:
The customer's favorite author is:
     DICKENS, Charles J
The customer's favorite book from Charles is
     A TALE OF TWO CITIES
     Chapman and Hall Publisher, London, 1st Edition, 1860.
The length of the title is: 20.
It is a 163 years old book
The total cost of 1 book of unit price $6900.65 is $ 6,900.65
from the Chapman and Hall Publisher, London.

Information about Customer:
Name: Caleb John-Elizabeth HENRICKS
Street Address:  100056 Weeping Cherry Drive
City: Well Fargo City
State: Rhode Island
ZipCode:  02485
```



Note: At here, use JOptionPane prompts yes or no for reordering the book; then inputs the number of books to be reordered, and states the unit price as shown above. This is the location where these three message dialog boxes are shown before the "The total cost for reordered 2 books of ….publisher, London."





```
The total cost for reordered 2 books of unit price $6900.65 is $ 13,801.30
from the Chapman and Hall Publisher, London.

The end of the invoice.
```

Submit: Upload your zipped project folder at the class website on Brightspace/Blackboard

The Code for this problem:

```
package lab03_PeterNgPK;

import java.util.Scanner; //required for Scanner class.
import javax.swing.JOptionPane; //required for JOptionPane
class.

/**
 * Peter A. Ng CS 16000-01 02/03, Fall Semester 2023
 * Lab 3
 *
 * @author apeng
 *
 */
public class IO_Practice2 {

     public static void main(String[] args) {

          // Pbm 2.
          int numberOfBooks, titleLength;
          double unitPrice, totalCost;
          String authorName, bookTitle, publisher, edition;
          String firstName, middleName, lastName;
          int yearPublished; // year published
          char middleInitial;
          String cFirstName, cMiddleName, cLastName; //
customer's name.
          String streetAddress, cityName, stateName, zipCode;
          int thisYear; //year of today

          // Pbm 3. Declare and instantiate a Scanner object
that can
          // read data from the console
          Scanner keyboardInput = new Scanner(System.in);
```

```
          // Pbm 4. Solicit and read an integer value from the
console
          // you choose the integer as the input).
          // Store the input in variable numberOfBooks.

          System.out.println("Number of books ordered? ");
          numberOfBooks = keyboardInput.nextInt();

          // Pbm 5. Solicit and read a number with a decimal
point from
          // the console (you choose the decimal number as the
input).
          // Store the input in variable unitPrice

          System.out.println("Unit price of the book? ");
          unitPrice = keyboardInput.nextDouble();

          // Pbm 6.
          totalCost = unitPrice * numberOfBooks;
          // System.out.printf("The total cost of %d books of
unit price " +
          // "$%.2f is $ %,.2f\n", numberOfBooks, unitPrice,
totalCost);

          System.out.println("Enter the customer's first name,
middle name and last name: ");
          // Pbm 7. Make the Scanner read the first name and
store it in variable
          // cFirstName. e.g., Caleb
          // Read the middle name and store it in cMiddleName,
e.g.,
          // John-Elizabeth
          // Read the last name and store it in cLastName.
Henricks
          // (you will have to call the next( ) method three
times)
          // Re-assign all characters of the clastName to be all
uppercase
          // version.

          cFirstName = keyboardInput.next();
          cMiddleName = keyboardInput.next();
          cLastName = keyboardInput.next().toUpperCase();

          keyboardInput.nextLine(); // consume the remaining
line.
```

```
          // Pbm 7. Solicit and make Scanner read the customer's
street
          // address and store it in variable streetAddress.
          // Enter customer's street address (i.e., nos. and
street):
          // 100056 Weeping Cherry Drive.

          System.out.println("Enter the customer's street
address(i.e., nos. and street): ");
          streetAddress = keyboardInput.nextLine();

          // keyboardInput.nextLine(); //consume the remaining
line.

          // Pbm 7. Then on the console, solicit and make
Scanner read
          // the city, state name, and zip code; and store them
          // in variables cityName, stateName, and zipCode,
          // respectively. Examples are as follows:

          System.out.println("Enter name of the city: ");
          cityName = keyboardInput.nextLine();
          System.out.println("Enter name of the state: ");
          stateName = keyboardInput.nextLine();

          System.out.println("Enter the Zip Code: ");
          zipCode = keyboardInput.nextLine();

          /*
           * System.out.println("Name:\t" + cFirstName + " " +
cMiddleName + " " +
           * cLastName); System.out.
           * printf("Street
Address:\t%s\nCity:\t%s\tState:\t%s\nZipCode:\t%s\n",
           * streetAddress, cityName, stateName, zipCode);
           */

          // Pbm 8 and 9. Solicit the name of the customer's
favorite author on the console.
          // About the author, title, publisher, edition, and
year of your favorite
          // book.

          System.out.println("Enter the customer's favorite
author's first name, middle name and last name: ");
          firstName = keyboardInput.next();
          middleName = keyboardInput.next();
```

```
          lastName = keyboardInput.next();

          // Pbm 10.Extract the middle initial as a character
from the middle name and
          // store it in middleInitial. e.g., J is the
middleInitial of John-Huffam.
          // Pbm 11. Re-assign all characters of the lastName to
be all uppercase
          // version.

          // page 74. Table 2-15 A few String class method
          middleInitial = middleName.charAt(0);
          lastName = lastName.toUpperCase();

          keyboardInput.nextLine(); // consume the remaining
line.

          // Pbm 12. Re-build the author's name to be of the
format
          // (last name (all in uppercase), first name middle
initial.).
          // e.g., DICKENS, Charles J.. Store it in variable
authorName.

          authorName = lastName + ", " + firstName + " " +
middleInitial + ".";
          // System.out.println("Author Name is: " +
authorName);

          // Pbm 13. Solicit the title of customer's favorite
book on the console.
          // e.g., A Tale of Two Cities.
          // Pbm 14. Using the nextLine( ) method read the title
and store it
          // in variable bookTitle;
          // Pbm 15. Re-assign bookTitle its own all uppercase
version

          System.out.println("Title of the customer's favorite
book: ");
          bookTitle = keyboardInput.nextLine().toUpperCase();
          // bookTitle = keyboardInput.nextLine();
          // bookTitle = bookTitle.toUpperCase();

          // Pbm 15: And find the length of the book title and
store it in
          // the variable titleLength.
```

```
          titleLength = bookTitle.length();
          // System.out.println("Book Title (with length) is: "
+ bookTitle + "("
          // + titleLength + ")");
          // System.out.println("Book Title (with length) is: "
+ bookTitle + "("
          // + bookTitle.length() + ")");

          // Pbm 16. Solicit the name of the publisher and store
it in the variable
          // publisher; Solicit the edition for the book, and
the year
          // for publishing the book; store them in the
variables,
          // edition and yearPublished, respectively.Solicit the
year of today and
          // store it in the variable thisYear.

          System.out.println("Enter the name of the publisher
for the book: ");
          publisher = keyboardInput.nextLine();
          System.out.println("Enter the edition for the book:
");
          edition = keyboardInput.nextLine();
          System.out.println("Enter the year for publishing the
book: ");
          yearPublished = keyboardInput.nextInt();
          System.out.println("What is this year? such as 2023");
          thisYear = keyboardInput.nextInt();

          // Pbm 17. To the console, print the author's name
(lastName(upper
          // case), firstName Initial),
          // the bookTitle of the book (upper case), followed by
publisher,
          // edition and year
          // published. Then the length of the title
          // Pbm 21(a). Use the following given data. Your
printing on the console
          // must follow exactly the layout as shown below.
          // Information about the customer's favorite book:
          System.out.println("\nInformation about the customer's
Favorite Book:");
          // authorName = lastName + ", " + firstName + " " +
middleInitial;
          System.out.printf("The customer's favorite author
is:\n\t%s\n", authorName);
```

```
          System.out.printf("The customer's favorite book from
%s is \n\t%s,\n", firstName, bookTitle);
          System.out.printf("\t%s, %s Edition, %d.\n",
publisher, edition, yearPublished);
          System.out.printf("The length of the title is: %s.\n",
titleLength);

          // Pbm 17: how old is the book? (If it is a year or
less than a year old
          // book,
          // then you should print "It is a year old book. If
more than a year
          // such as 160 years, then you need to print "It is a
160 years old
          // book.")
          // Pbm 21(a). Ensure that the singular/plural noun,
such as book or
          // books and year or years.
          // You need to use a decision structure to get these
options.

          // if ((2023-yearPublished) > 1)
          if ((thisYear - yearPublished) > 1) {
               System.out.printf("It is a %d years old book.\n",
thisYear - yearPublished);
          } else {
               System.out.println("It is a year old book.");
          }

          // Pbm 18 Print the result of the order for the book
to the console as shown
          // in..:
          if (numberOfBooks > 1) {
               // Print the result of the order for two or more
books to the console as
               // shown in..:
               System.out.printf("The total cost of %d books of
unit price " + "$%,.2f is $ %,.2f\nfrom the %s.\n",
                         numberOfBooks, unitPrice, totalCost,
publisher);
          } else {
               // Pbm 18: Print the result of the order for one
book to console as
               // shown in..:
               System.out.printf("The total cost of %d book of
unit price " + "$%,.2f is $ %,.2f\nfrom the %s.\n",
```

```
                         numberOfBooks, unitPrice, totalCost,
publisher);
          }


          // Pbm 19. Use the JOptionPane input dialog box to
prompt whether would like
          // to re-order the book.
          // If yes, Use the JOptionPane input dialog boxes to
enter the number of the
          // book to be re-ordered and enter the unit price of
the book.

          numberOfBooks = 0; // no reorder of the book as the
initial assumption
          int order = JOptionPane.showConfirmDialog(null, "Do
you want to reorder the book?\n yes or no", "Question?",
                    JOptionPane.YES_NO_OPTION);
          // if (order == 0)
          if (order == JOptionPane.YES_OPTION) {
               String input = JOptionPane.showInputDialog(
                                   "Enter the number of books
ordered:");
               numberOfBooks = Integer.parseInt(input);
               input = JOptionPane.showInputDialog(
                              "Enter the unit price of a book
ordered:");
               unitPrice = Double.parseDouble(input);
               totalCost = numberOfBooks * unitPrice;

          //Pbm 20 could be embedded here without
          //if (!(order == JOptionPane.NO_OPTION)) {}

          }
          else {
               System.out.println("There is no reorder of
book.");
          }

          // Pbm 20. information about Customer
        // This segment of statements could be embedded in the
if-part of
          // Pbm 19 without "if (!(order ==
JOptionPane.NO_OPTION)) {}"
          // Let us learn this: if (!(order ==
JOptionPane.NO_OPTION)){}
          if (!(order == JOptionPane.NO_OPTION)) {
```

```
            System.out.println("\nInformation about Customer:");
            System.out.println("Name:\t" + cFirstName + " " +
cMiddleName
                                                                + " "
+ cLastName);
            System.out.printf("Street
Address:\t%s\nCity:\t%s\nState:\t%s\nZipCode:  %s\n",
                        streetAddress, cityName, stateName,
zipCode);

            if (numberOfBooks > 1) {
            System.out.printf("\nThe total cost for reordering %d
books of unit price " +
                        "$%,.2f is $ %,.2f\nfrom the %s.\n",
                        numberOfBooks, unitPrice, totalCost,
publisher);
            }
            else //if (numberOfBooks == 1)
               {
                  System.out.printf("\nThe total cost for
reordering %d book of unit price " +
                                    "$%,.2f is $ %,.2f\nfrom the
%s.\n",
                                    numberOfBooks, unitPrice,
totalCost, publisher);
                  }
            }//end of if (!(order == JOptionPane.NO_OPTION))

            //          else { //Only I need this if Pbm 19 did not
have this code.
//                      System.out.print("\nThere is no reorder of
book.");
//                  }


            System.out.println("\nThe end of the invoice.");


            System.exit(0); // required for JOptionPane class.
      }// end of main

}// end of class IO_Practice2
```