Homework #6 Solution
(Java Programming for Beginners - OnLine)

Note: *If you complete this (specially 6.1 and 6.2) and next homework, you will be much closure to your in designing your midterm project*

6.1 Write a static method called getUserChoice(), which returns an integer as menu choice based on the requirement in the problem 5.1 (Homework #5). You can re-use the code you wrote from HW#5.1 or from the model answer provided. Modify the main method and all your new method getUserChoice to get the choice from user. Print the choice given by the user in the main method.

```
Welcome to sorting program

        1. Title
        2. Rank
        3. Date
        4. Stars
        5. Like

Enter your choice between 1 and 5  only: a;sfasf saf asf a
You have entered an invalid  choice. Try again.
Enter your choice between 1 and 5  only: 9
You have not entered a number between 1 and 5. Try again.
Enter your choice between 1 and 5  only: 4

You entered valid choice 4
Thank you for giving your choice
```

6.2 Write a static method called getTwoFloats(), which returns an array of two floats based on the problem 5.2 (Homework #5). You can re-use the code you wrote from HW#5.2 or from the model answer provided. Modify the main method to call getTwoFloats and print the two floats in the main method.

Example user interface:

```
Welcome to bonus get two floats program

Enter two floats separated by a space: a;f asfas fasf a
You have entered an invalid input. Try again.
Enter two floats separated by a space: 5.6 a;fa sf asf as
You have entered an invalid input. Try again.
Enter two floats separated by a space: 12.45 34.56
You entered 12.45 and 34.56 successfully!

Press enter key to continue ...
```

6.3 Now, create a new public class. Add both the methods from 6.1 and 6.2 into this file. Write the main method which calls getUserChoice and then also calls getTwoFloats one after another.

Note: Create the scanner and float array in main method, and pass scanner to getUserChoice, and pass same scanner and the array to getTwoFloats. After the getTwoFloats is called the array will have two floats and can be used to display the data like this:

```
Welcome to sorting program

    1. Title
    2. Rank
    3. Date
    4. Stars
    5. Like

Enter your choice between 1 and 5 only: ;f af afa
You have entered an invalid  choice. Try again.
Enter your choice between 1 and 5 only: 4

You entered valid choice 4
Thank you for giving your choice


Welcome to bonus get two floats program

Enter two floats separated by a space: as fas fas fa
You have entered an invalid input. Try again.
Enter two floats separated by a space: 12 2
You entered 12.00 and  2.00 successfully!

    Press enter key to continue ...
```

What to submit?: Just submit the solution 6.3

Solution: Solution for 6.1 and 6.2 is combined with 6.3 in one file

```
import java.util.Scanner;
import java.util.InputMismatchException;

/**
 * This is solution for Homework#6
 *
 *   All solutions have been put in one place to minimize
 *   number of classes
 *
 *   The solution combines what was done in homework #6.1 in separate class
 *   In this solution the solutions of homework #6.2 is combined in one class
 *   and tested from one main method.
 *
 * @author bineetsharma
 * @version 1.0
 * @since   03-1-20NN
 *
 * @version 1.1
 * @since 12-21-20NN
```

```
 * Wrote comments, formatted the code and eliminated need for continue statement
 *
 */

public class HW_6_Solution_Java_OnLine{

    //Homework #6.1
    /**
     * @param readInput
     *            : Scanner passed from main method
     *
     *  A loop is used to continue asking for valid choice. The
     *  nextInt method of scanner is used which throws
     *  InputMistatchException if the value is not able to extracted.
     *  When the wrong value is entered the input is still in input
     *  buffer which is cleared by use of nextLine() & then the loop
     *  starts over requesting user choice. The valid choice is
     *  assigned to intputInt and the new value is returned as the
     *  return value from the method
     */

    public static int getUserChoice(Scanner readInput){
        int inputInt;
        System.out.println("\n\t1. Title\n\t2. Rank\n\t3. Date\n" +
                           "\t4. Stars\n\t5. Like\n");
        do { // Loop until we have correct input
            System.out.print("Enter your choice between 1 and 5 " +
                                "only: ");
            try {
                inputInt = readInput.nextInt(); // waits for user input
                if (inputInt >= 1 && inputInt <= 5) {
                    break; // Got it, done
                } else {
                    System.out.println("You have not entered " +
                                "a number between 1 and 5. Try again.");
                }
            } catch (final InputMismatchException e) {
                System.out.println("You have entered an invalid " +
                                      " choice. Try again.");
                readInput.nextLine(); // discard non-int input
            }
        } while (true);
        //if you are here you got the correct choice
        return inputInt;
     } // end of getUserChoice class

    //Homework #6.2
    /**
     * @param myFloats
     *     : assigns two floats from user into the array elements
     * @param readInput
     *            : Scanner passed from main method
     *
     * A loop is used to continue asking for valid values. The
     * nextFloat method of scanner is used which throws
     * InputMistatchException if the value is not able to extracted.
     * When the wrong value is entered the input is still in input
     * buffer which is cleared by use of nextLine() and then the loop
     * starts over requesting two floats The valid floats are
     *  assigned into 0th and 1st element of myFloats array. Since
     * array is passed as reference, the new value will be reflected
     * in calling method (main method in this case)
     */
    public static void getTwoFloats(float [] myFloats, Scanner
                                        readInput){
        do { // Loop until we have correct input
            System.out.print("Enter two floats separated by a " +
                                "space: ");
            try {
```

```
            myFloats[0] = readInput.nextFloat(); // waits for user input
            myFloats[1] = readInput.nextFloat(); // waits for user input
               //if you are here, the floats are good,
            //you are done, break out from loop
            break;
        } catch (final InputMismatchException e) {
            System.out.println("You have entered an invalid " +
                               "input. Try again.");
            readInput.nextLine(); // discard non-float extra inputs
        }
    } while (true);
    //clear the input buffer for next read
    readInput.nextLine();
} //end of getTwoFloats

/**
 * @param args
 *            : not used in this program
 * For Homework #6.1 all important
 * codes for this program is written in getUserChoice method. The
 * main method creates the Scanner object, and declares an
 * integer for choice Sends the scanner to the getUserChoice.
 * When the getUserChoice, it is guaranteed that that the choice
 * is between 1 to 5 which is displayed to the screen and Scanner
 * is closed to avoid the warning ("System Resources Leak")
 * compiler generates.
 *
 * For Homework #6.2 all important
 * codes for this program is written in
 * getTwoFloats method. The main method creates the Scanner
 * object, and declares an array of two floats, and sends both of
 * these objects are reference type to getTwoFloats method. When
 * the getTwoFloats returns, it is guaranteed that two valid
 * floats are in the array which is displayed to the screen and
 * Scanner is close to avoid the warning ("System Resources Leak"
 * compiler generates.
 *
 */

public static void main(String[] args) {

    // Declare Scanner Here and passed where it is needed
    Scanner rI = new Scanner(System.in);

    //Test Homework #6.1
    int userChoice;

    System.out.println("Welcome to sorting program");
    userChoice = getUserChoice(rI);
    System.out.printf("\nYou entered valid choice %d\n",
                            userChoice);
    System.out.println("Thank you for giving your choice");

    //Test Homework #6.2

    //get the valid two floats (you can use double as well)
    float [] myFloats = new float[2];

    System.out.println("\n\nWelcome to bonus get two floats " +
                              "program\n");
    getTwoFloats(myFloats, rI); //since you are sending the
          //array, you will receive new value in array itself
          //you don't need to assign it on your left like you did
          //in case of getChoice
    System.out.printf("You entered %5.2f and %5.2f " +
                              "successfully!\n",
                        myFloats[0], myFloats[1]);

    System.out.println("\nPress enter key to continue ...");
```

```
        rI.nextLine(); //this will wait for user to press enter
                       //if they type something before pressing enter
                       //that is fine

        System.out.println("Thank you for giving two floats");

        rI.close(); //you are done with scanner, now you can safely close it.
    } //end of main
} //end of class HW_6_Solution
```