Northeastern Illinois University **Name:_________________________**
CS 200: Programming I
Professor Yehuda Gutstein **NEIU-ID:________________________**

Quiz #6
SOLUTIONS
Instructions:

1. **Do not turn this page until told to do so.**

2. This quiz is ***closed book*** and ***closed notes***.

3. ***Write your name on every page***.

4. You must give your answer to a question on the ***same sheet of paper that the problem appears on***. If you run out of space on the front of the page, you may continue to the back of that page only. If you put your answer on a different page, ***you will not receive credit for that problem!***

5. For problems that ask you to write code, you should only write the method indicated in the problem. You can assume the following import statement and keyboard declarations:

```
                    import java.util.Scanner;

                    Scanner keyboard = new Scanner (System.in);
          or        Scanner kbd = new Scanner (System.in);
          or        Scanner input = new Scanner (System.in);
```

6. You may use "SOP" as an abbreviation for "System.out.print" and "SOPln" for "System.out.println".

7. You do not need to do any error checking of input values, ***<u>unless the problem specifically asks you to do so!</u>***

8. If you are caught looking at other papers or communicating with other students in any way, you will receive an **F** for this quiz.

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<u>Question 1 (20 pts) Tracing.</u>
What is the output of the following Java program?

```java
public class Tracing{
   public static void main(String[] args){
      String[] words = {"ONE","TWO","THREE","FOUR","FIVE"};
      int k = 0;

      for(int i = 0, j = 1; i < words.length; i++){
         k = j;
         j++;
         System.out.println(j + ": " + words[i]);

         if(words.length % j == 0)
            words[i] = words[i] + j;
         else
            words[i] = i + words[i];

      }

      for(int i = words.length - 1, j = k; i >= 0; i--)
         System.out.println(j-- + ": " + words[i]);
   } // end of main
} // end of class
```

Output

```
2:  ONE
3:  TWO
4:  THREE
5:  FOUR
6:  FIVE
5:  4FIVE
4:  FOUR5
3:  2THREE
2:  1TWO
1:  0ONE
```

Question 2 (20 pts) Coding.

- Write the main method of a class that asks the user to enter the number of hours they exercised every day for two consecutive weeks.
- The program should then list the total hours exercised each week and print whether the user's exercise hours increased, decreased, or stayed the same.
- In addition, the program should output the number of days that there was a decrease in exercise hours when compared to the same day the previous week.
- The output must be formatted exactly as the samples below.
- Sample Output:

```
Week 1: 2 5 3 2 8 0 0
Week 2: 0 5 5 2 6 2 2

Week 1: 20 hours
Week 2: 22 hours

Total hours increased.
Days decreased: 2
```

```
Week 1: 1 5 3 2 8 2 0
Week 2: 1 5 3 2 8 2 0

Week 1: 21 hours
Week 2: 21 hours

Total hours the same.
Days decreased: 0
```

```
Week 1: 0 1 3 4 2 2 0
Week 2: 0 1 1 2 1 0 0

Week 1: 12 hours
Week 2: 5 hours

Total hours decreased.
Days decreased: 4
```

```
public static void main(string[] args){
   Scanner kbd = new Scanner(System.in);
   int[] wk1 = new int[7], wk2 = new int[7];
   int wk1Hrs = 0, wk2Hrs = 0, days = 0;
   System.out.print("Week 1: ");
   for(int i = 0; i < wk1.length; i++){
      wk1[i] = kbd.nextInt();
      wk1Hrs += wk1[i];
   }
   System.out.print("Week 2: ");
   for(int i = 0; i < wk2.length; i++){
      wk2[i] = kbd.nextInt();
      wk2Hrs += wk2[i];
      if(wk1[i] > wk2[i])
         days++;
   }
   System.out.println();
   System.out.println("Week 1: " + wk1Hrs + " hours");
   System.out.println("Week 2: " + wk2Hrs + " hours");
   System.out.println();
   if(wk1Hrs > wk2Hrs)
      System.out.println("Total hours increased.");
   else if(wk1Hrs < wk2Hrs)
      System.out.println("Total hours decreased.");
   else
      System.out.println("Total hours the same.");

    System.out.println("Days decreased: " + days);
}
```