

Chapter 6 Laboratory Exercise

Prelab Assignment

1. Write a while loop equivalent to the for loop below.

```
int sum = 0;
int first = 1;
int last = 10;
int score;
InputBox in = new InputBox();
OutputBox out = new OutputBox();
for (int i = first; i <= last; i++) {
    score = in.readInt();
    sum = sum + score;
    out.println("i = " + i + " sum = " + sum);
}
```

2. How would you need to modify your while loop if the for loop header in exercise 1 was written as

```
for (int i = 10; i <= 1; i--)
```

3. Write a do-while loop equivalent to the for loop shown in exercise 1.

4. Write an if statement that would prevent the execution of the do-while loop you wrote when first is greater than last?

Chapter 5 Laboratory Exercise

1. Rewrite the Java test application from Chapter 6 using a for loop. The user should be prompted for the number of scores to read. Test your program.

-
2. Revise the Java application you wrote for exercise 1 so that the user can process more than one set of scores. The user should be prompted for the maximum number of scores to process in each set of scores. Give the user some means of terminating the processing of scores before the maximum number of scores is entered. Test your program.

3. Write and test a Java application that lists the prime numbers between 1 and 100. A prime number has exactly two factors (1 and itself). One way to check to see whether a number is prime or not, is to test a number n to see if any of the numbers between 2 and $n/2$ divide n evenly. If any of these numbers divide n evenly then n is not prime. For example to check 11 for factors your program should try 2, 3, 4, and 5. Your program should contain a while loop that tests for each number for factors.

4. Rewrite your solution to exercise 3 using a do-while loop instead. Test your solution.

Chapter 6 Laboratory Exercise

Postlab Questions

1. What was the most difficult part of this lab?
2. Would it be desirable to write the primality testing loop as a for loop? Why or why not?
3. Write a Java application that prompts the user for the number of rows to appear in the triangle and then displays the triangle using rows of asterisks. For example, a triangle with 5 rows would appear as follows.

```
*  
***  
*****  
*****  
*****
```