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1  PKG 08: LOOPS 02
2
3  Challenge 1A: Convert the while loop on line #26 to do-while and for loops.
4
5  #26 of PKG 07
6
7  int i = 0;
8  while (i < sLower.length()) {
9      // body of loop
10     i++;
11 }
12
13
14 To do-while loop
15
16 int i = 0;
17 do {
18     // body of loop
19     i++;
20 } while (i < sLower.length()); // semicolon
21
22
23 To for loop
24
25 for (int i = 0; i < sLower.length; i++) {
26     // body of loop
27 }
28
29 OR
30
31 int i = 0;
32 for (i = 0; i < sLower.length; i++) {
33     // body of loop
34 }
35
36
37 Challenge 1B: Convert the for loop on line #49 to do-while and while loops.
38
39 #49 of PKG 07
40
41 for (int j = 1; j < sLower.length(); j++) {
42     // body of loop
43 }
44
45
46 To do-while loop
47
48 int j = 1;
49 do {
50     // body of loop
51     j++;
52 } while (j < sLower.length()); // semicolon
53
54
55 To while loop
56
57 int j = 1;
58 while (j < sLower.length()) {
59     // body of loop
60     j++;
61 }
62
```

64
65 Challenge 2: Convert the *for* loop to *while* and *do-while* loops.

```
66
67 for (int i = 0; i < 20; i++) {
68     // body of loop
69 }
```

70
71 Please see the answers to Challenge 1B

72
73
74 Challenge 3: Please write a program which behaves like in the below sample run:

75
76
77 *** Analyze the output ***

```
78
79
80
81
82
83 import java.util.Scanner;
84
85 public class ModularMath {
86
87     public static void main(String[] args) {
88
89         // Get keyboard input
90         Scanner input = new Scanner(System.in);
91         System.out.print("Please enter an integer for dividend: ");
92         int dividend = input.nextInt();
93
94         // Declare and initialize variables
95         int remainder;
96         int divisor = 5;
97         int decrement = 3;
98
99         // Formatting table elements
100        String tTittle = "Modular Math ---".toUpperCase(); // Tittle
101        String hLine = "|"; // Horizontal line
102        for (int i = 0; i < 32; i++) {
103            hLine += "-";
104        }
105        hLine += "|";
106
107        // Printing table tittle and header
108        System.out.println(hLine); // Horizontal line 1
109        System.out.printf("%27s %n", tTittle); // Tittle
110        System.out.println(hLine); // Horizontal line 2
111        System.out.printf("%7s %10s %10s %1d %n", "Idx.", "Dividend", "Modulo",
112                                divisor); // Header
113        System.out.println(hLine); // Horizontal line 3
114
115        // Printing table rows
116        for (int i = 0; i < 5; i++) {
117            remainder = dividend % divisor;
118            System.out.printf("%5d %9d %11d %n", i, dividend, remainder);
119            dividend -= decrement;
120        }
121
122        // Printing table bottom
123        System.out.println(hLine); // Horizontal line 4
124    }
125 }
```

```
Please enter an integer for dividend: 17
|-----|
|          MODULAR MATH ---          |
|-----|
|      Idx.   Dividend   Modulo 5      |
|-----|
|      0      17         2             |
|      1      14         4             |
|      2      11         1             |
|      3       8         3             |
|      4       5         0             |
|-----|
```