

Intro to Java Week 2 Coding Assignment

Points possible: 70

Category	Criteria	% of Grade
Functionality	Does the code work?	25
Organization	Is the code clean and organized? Proper use of white space, syntax, and consistency are utilized. Names and comments are concise and clear.	25
Creativity	Student solved the problems presented in the assignment using creativity and out of the box thinking.	25
Completeness	All requirements of the assignment are complete.	25

Instructions: In Eclipse, or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed. Take screenshots of the code and of the running program (make sure to get screenshots of all required functionality) and paste them in this document where instructed below. Create a new repository on GitHub for this week's assignments and push this document, with your Java project code, to the repository. Add the URL for this week's repository to this document where instructed and submit this document to your instructor when complete.

Coding Steps:

1. What do each of the following Boolean expressions evaluate to?

Boolean Expression	Answer
true && false	false
true false	true
false && false	false
true && (false true)	true
false (true && false)	false
false 1 < 5	true
5 >= 4 && 1 > 3	false
10 < 4 1 > 4	false
12 >= 2 && 1 < 24	true
"Hello".charAt(0) == 'h'	false

2. In Eclipse, create the following Boolean variables and choose what values they hold:
 - a. isHotOutside
 - b. isWeekday
 - c. hasMoneyInPocket
3. Create the following variables (not boolean type, choose the best data type for the variable):
 - a. costOfMilk
 - b. moneyInWallet
 - c. thirstLevel (how thirsty you are on a scale of 1-10)
4. Using the variables you created above and Boolean operators, create variables for the following scenarios:
 - a. shouldByIcecream – this should be true if it is hot outside and there is money in your pocket
 - b. willGoSwimming – this should be true if it is hot outside and it is not a weekday
 - c. isAGoodDay – this should be true if it is hot outside, there is money in your pocket, and it is not a weekday
 - d. willBuyMilk – this should be true if it is hot outside, and thirstLevel is greater than or equal to 3, and moneyInWallet is greater than or equal to 2 times the cost of milk.

Example: If I had the variables isWeekday and isSummer and I was going to create a variable isSchoolDay, I would do something like the following:

```
boolean isSchoolDay = isWeekday && !isSummer;
```

5. Create a new class called Loops. In the main method of this class, create the following loops with any variables you feel are needed:
 - a. A while loop that prints all even numbers from 0 to 100
 - b. A while loop that prints every 3rd number going backwards from 100 until we reach 0
 - c. A for loop that prints every other number from 1 to 100
 - d. A for loop that prints every number from 0 to 100, but if the number is divisible by 3, it prints “Hello” instead of the number, and if the number is divisible by 5, it prints “World” instead of the number, and if it is divisible by both 3 and 5, it prints “HelloWorld” instead of the number.

Screenshots of Code:

```
1 package com.lisasmith.week2;
2
3 public class Loops {
4
5     public static void main(String[] args) {
6         // TODO Auto-generated method stub
7
8         // Requirement 1
9         // Evaluate and print out the following Boolean Expressions:
10        System.out.println("Week 2 Coding Assignment");
11        System.out.println("Requirement #1");
12        System.out.println("Boolean Expressions & their results:");
13        System.out.println("-----");
14        System.out.println("true && false: " + (true && false));
15        System.out.println("true || false: " + (true || false));
16        System.out.println("false && false: " + (false && false));
17        System.out.println("true && (false || true): "
18            + (true && (false || true)));
19        System.out.println("false || (true && false): "
20            + (false || (true && false)));
21        System.out.println("false || 1<5: " + (false || 1<5));
22        System.out.println("5>=4 && 1>3: " + (5>=4 && 1>3));
23        System.out.println("10<4 && 1>4: " + (10<4 || 1>4));
24        System.out.println("12>=2 && 1<24: " + (12>=2 && 1<24));
25        System.out.println("\"Hello\".charAt(0) == 'h': "
26            + ("Hello".charAt(0) == 'h'));
27        System.out.println();
28        System.out.println();
29
30        // Requirement 2
31        // Boolean variables assigned values
32        boolean isHotOutside = true;
33        boolean isWeekDay = false;
34        boolean hasMoneyInPocket = true;
35
36        // Printing out the Requirement 2 variables
37        // using if-else statements
38        // and appropriate answers based on values
39        System.out.println("Requirement #2");
40        System.out.println("Boolean Variables & \"Yes\" or \"No\" based on their values:");
41        System.out.println("-----");
42        System.out.print("Is it Hot Outside? ");
43        if (isHotOutside) {
44            System.out.println("Yes");
45        } else {
46            System.out.println("No");
47        }
48
49        System.out.print("Is today a week day? ");
50        if (isWeekDay) {
51            System.out.println("Yes");
52        } else {
53            System.out.println("No");
54        }
55
56        System.out.print("Do I have money in my pocket? ");
57        if (hasMoneyInPocket) {
58            System.out.println("Yes");
59        } else {
60            System.out.println("No");
61        }
62        System.out.println();
63        System.out.println();
64
65        // Requirement 3
66        // Variables with appropriate data types and values
67        double costOfMilk = 2.99;
68        double moneyInWallet = 40.00;
69        byte thirstLevel = 2; // Restricted to a scale from 1-10
70
71
72        // Printing out the Requirement 3 variables
73        // showing chosen values for each variable
74        System.out.println("Requirement #3");
75        System.out.println("Declared variables & their assigned values:");
76        System.out.println("-----");
77        System.out.println("The cost of milk is $" + String.format("%.2f", costOfMilk) + ".");
78        System.out.println("I have $" + String.format("%.2f", moneyInWallet) + " in my wallet.");
79        System.out.println("On a scale from 1 to 10, my level of thirst"
80            + " is at a " + thirstLevel + ".");
81        System.out.println();
82        System.out.println();
83
84        // Requirement 4
85    }
```

```
85 // Requirement 4
86 // Use variables and boolean operators to create new variables
87 boolean shouldBuyIcecream = isHotOutside && hasMoneyInPocket;
88 boolean willGoSwimming = isHotOutside && !isWeekDay;
89 boolean isAGoodDay = isHotOutside && hasMoneyInPocket && !isWeekDay;
90 boolean willBuyMilk = isHotOutside && thirstLevel >= 3 && (moneyInWallet >= (2 * costOfMilk));
91
92 // Based on new boolean variables, print the answer to each of the following
93 // questions:
94 // Print either "Yes" or "No" depending on the value of the new booleans.
95 System.out.println("Requirement #4");
96 System.out.println("New Boolean Variables & \"Yes\" or \"No\" based on the boolean statements:");
97 System.out.println("-----");
98 System.out.print("Should we buy Ice Cream? ");
99 if (shouldBuyIcecream) {
100     System.out.println("Yes");
101 } else {
102     System.out.println("No");
103 }
104 System.out.println();
105
106 System.out.print("Will we go swimming? ");
107 if (willGoSwimming) {
108     System.out.println("Yes");
109 } else {
110     System.out.println("No");
111 }
112 System.out.println();
113
114 System.out.print("Is today a good day? ");
115 if (isAGoodDay) {
116     System.out.println("Yes");
117 } else {
118     System.out.println("No");
119 }
120 System.out.println();
121
122 System.out.print("Will we buy milk? ");
123 if (willBuyMilk) {
124     System.out.println("Yes");
125 } else {
126     System.out.println("No");
127 }
128 System.out.println();
129 System.out.println();
130
131 // Requirement 5.
132 // Using loops to print out a variety of different requirements
133
134 System.out.println("Requirement #5");
135 System.out.println("-----");
136
137 // Requirement 5a.
138 // Create a while loop that prints all even numbers from 0 to 100.
139
140 System.out.println("Requirement #5a");
141 System.out.println("Print all EVEN numbers from 0 to 100:");
142 System.out.println("-----");
143
144 int counter = 0;
145 while (counter <= 100) {
146     if (counter % 2 == 0) {
147         System.out.print(counter + " ");
148     }
149     counter++;
150 }
151 System.out.println();
152 System.out.println();
153
154 // Requirement 5b.
155 // Create a while loop that prints every third number going backwards from 100
156 // until we reach 0.
157
158 System.out.println("Requirement #5b");
159 System.out.println("Print every third number going backwards from 100 until we reach 0:");
160 System.out.println("-----");
161
162 int backwardscounter = 100;
163 while (backwardscounter >= 0) {
164     System.out.print(backwardscounter + " ");
165     backwardscounter = backwardscounter - 3;
166 }
167 System.out.println();
168 System.out.println();
169
```

```

170 // Requirement 5c.
171 // Create a for loop that prints every other number from 1 to 100.
172
173 System.out.println("Requirement #5c");
174 System.out.println("Print every other number from 1 to 100:");
175 System.out.println("-----");
176
177 for (int i = 1; i <= 100; i = i + 2) {
178     System.out.print(i + " ");
179 }
180
181 System.out.println();
182 System.out.println();
183
184 // Requirement 5d.
185 // Create a for loop that prints every number from 0 to 100, with the following
186 // exceptions:
187 //     If the number is divisible by 3, print "Hello" instead of the number,
188 //     and if the number is divisible by 5, print "World" instead of the number,
189 //     and if the number is divisible by both 3 and 5, print "Hello World" instead
190 //     of the number.
191
192 System.out.println("Requirement #5d");
193 System.out.println("Print every number from 0 to 100 with the following rules:");
194 System.out.println("  If the number is divisible by 3 and 5, print 'HelloWorld'.");
195 System.out.println("  If the number is divisible by 3, print 'Hello'.");
196 System.out.println("  If the number is divisible by 5, print 'World'.");
197 System.out.println("  Otherwise, print the number.");
198 System.out.println("-----");
199 System.out.println();
200
201 for (int c = 0; c <= 100; c++) {
202     if ((c % 3 == 0) && (c % 5 == 0) && (c != 0)) {
203         System.out.print("HelloWorld ");
204         System.out.println();
205     } else if ((c % 3 == 0) && (c != 0)) {
206         System.out.print("Hello ");
207     } else if ((c % 5 == 0) && (c != 0)) {
208         System.out.print("World ");
209     } else {
210         System.out.print(c + " ");
211     }
212 }
213
214 }
215
216 }
217
218

```

Screenshots of Running Application:

```
Loops.java Console
<terminated> Loops [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_261.jdk/Contents/Home/bin/ja
Week 2 Coding Assignment
Requirement #1
Boolean Expressions & their results:
-----
true && false: false
true || false: true
false && false: false
true && (false || true): true
false || (true && false): false
false || 1<5: true
5>=4 && 1>3: false
10<4 && 1>4: false
12>=2 && 1<24: true
"Hello".charAt(0) == 'h': false

Requirement #2
Boolean Variables & "Yes" or "No" based on their values:
-----
Is it Hot Outside? Yes
Is today a week day? No
Do I have money in my pocket? Yes

Requirement #3
Declared variables & their assigned values:
-----
The cost of milk is $2.99.
I have $40.00 in my wallet.
On a scale from 1 to 10, my level of thirst is at a 2.

Requirement #4
New Boolean Variables & "Yes" or "No" based on the boolean statements:
-----
Should we buy Ice Cream? Yes

Will we go swimming? Yes

Is today a good day? Yes

Will we buy milk? No

Requirement #5
Requirement #5a
Print all EVEN numbers from 0 to 100:
-----
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100

Requirement #5b
Print every third number going backwards from 100 until we reach 0:
-----
100 97 94 91 88 85 82 79 76 73 70 67 64 61 58 55 52 49 46 43 40 37 34 31 28 25 22 19 16 13 10 7 4 1

Requirement #5c
Print every other number from 1 to 100:
-----
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97 99

Requirement #5d
Print every number from 0 to 100 with the following rules:
  If the number is divisible by 3 and 5, print 'HelloWorld'.
  If the number is divisible by 3, print 'Hello'.
  If the number is divisible by 5, print 'World'.
  Otherwise, print the number.
-----
0 1 2 Hello 4 World Hello 7 8 Hello World 11 Hello 13 14 HelloWorld
16 17 Hello 19 World Hello 22 23 Hello World 26 Hello 28 29 HelloWorld
31 32 Hello 34 World Hello 37 38 Hello World 41 Hello 43 44 HelloWorld
46 47 Hello 49 World Hello 52 53 Hello World 56 Hello 58 59 HelloWorld
61 62 Hello 64 World Hello 67 68 Hello World 71 Hello 73 74 HelloWorld
76 77 Hello 79 World Hello 82 83 Hello World 86 Hello 88 89 HelloWorld
91 92 Hello 94 World Hello 97 98 Hello World
```

URL to GitHub Repository:

<https://github.com/sw-dev-lisa-s-nh/IntroToJava-week2>