

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:

Loops.java  

```

1 package com.lisasmith.week2;
2
3 public class Loops {
4
5     // TODO Auto-generated method stub
6
7     // Requirement 1
8     // Evaluate and print out the following Boolean Expressions:
9     System.out.println("Week 2 Coding Assignment");
10    System.out.println("Requirement #1");
11    System.out.println("Boolean Expressions & their results:");
12    System.out.println("-----");
13    System.out.println("true && false: " + (true && false));
14    System.out.println("true || false: " + (true || false));
15    System.out.println("false && false: " + (false && false));
16    System.out.println("true && (false || true): " + (true && (false || true)));
17    System.out.println("false || (true && false): " + (false || (true && false)));
18    System.out.println("false || !5: " + (false || !5));
19    System.out.println("5>4 && 1>3: " + (5>4 && 1>3));
20    System.out.println("10<4 && 1<4: " + (10<4 && 1<4));
21    System.out.println("12>2 && 1<24: " + (12>2 && 1<24));
22    System.out.println("Hello".charAt(0) == 'h': " + ("Hello".charAt(0) == 'h'));
23    System.out.println();
24    System.out.println();
25    // Requirement 2
26    // Boolean variables assigned values
27    boolean isHotOutside = true;
28    boolean isWeekDay = false;
29    boolean hasMoneyInPocket = true;
30
31    // Printing out the Requirement 2 variables
32    // using if-else statements
33    // and appropriate answers based on values
34    System.out.println("Requirement #2");
35    System.out.println("Boolean Variables & \"Yes\" or \"No\" based on their values:");
36    System.out.println("-----");
37    System.out.println("Is it Hot Outside? ");
38    if (isHotOutside) {
39        System.out.println("Yes");
40    } else {
41        System.out.println("No");
42    }
43
44    System.out.print("Is today a week day? ");
45    if (isWeekDay) {
46        System.out.println("Yes");
47    } else {
48        System.out.println("No");
49    }
50
51    System.out.print("Do I have money in my pocket? ");
52    if (hasMoneyInPocket) {
53        System.out.println("Yes");
54    } else {
55        System.out.println("No");
56    }
57
58    System.out.println();
59    System.out.println();
60    // Requirement 3
61    // Variables with appropriate data types and values
62    double costOfMilk = 2.99;
63    double moneyInWallet = 48.00;
64    byte thirstLevel = 2; // Restricted to a scale from 1-10
65
66    // Printing out the Requirement 3 variables
67    // showing chosen values for each variable
68    System.out.println("Requirement #3");
69    System.out.println("Declared variables & their assigned values:");
70    System.out.println("-----");
71    System.out.println("The cost of milk is $" + String.format("%.2f", costOfMilk) + ".");
72    System.out.println("I have $" + String.format("%.2f", moneyInWallet) + " in my wallet.");
73    System.out.println("On a scale from 1 to 10, my level of thirst " + " is at a " + thirstLevel + ".");
74    System.out.println();
75    System.out.println();
76    // Requirement 4
77    // Use variables and boolean operators to create new variables
78    boolean shouldBuyIcecream = isHotOutside && hasMoneyInPocket;
79    boolean willGoSwimming = isHotOutside && isWeekDay;
80    boolean isAGoodDay = isHotOutside && hasMoneyInPocket && isWeekDay;
81    boolean willBuyMilk = isHotOutside && thirstLevel >= 3 && (moneyInWallet >= (2 * costOfMilk));
82
83    // Based on new boolean variables, print the answer to each of the following
84    // questions:
85    // Print either "Yes" or "No" depending on the value of the new booleans.
86    System.out.println("Requirement #4");
87    System.out.println("New Boolean Variables & \"Yes\" or \"No\" based on the boolean statements:");
88    System.out.println("-----");
89    System.out.println("Should we buy Ice Cream? ");
90    if (shouldBuyIcecream) {
91        System.out.println("Yes");
92    } else {
93        System.out.println("No");
94    }
95
96    System.out.println();
97    System.out.print("Will we go swimming? ");
98    if (willGoSwimming) {
99        System.out.println("Yes");
100    } else {
101        System.out.println("No");
102    }
103
104    System.out.println();
105    System.out.print("Is today a good day? ");
106    if (isAGoodDay) {
107        System.out.println("Yes");
108    } else {
109        System.out.println("No");
110    }
111
112    System.out.println();
113    System.out.print("Will we buy milk? ");
114    if (willBuyMilk) {
115        System.out.println("Yes");
116    } else {
117        System.out.println("No");
118    }
119
120    System.out.println();
121    System.out.println();
122    // Requirement 5
123    // Using loops to print out a variety of different requirements
124    System.out.println("Requirement #5");
125    System.out.println("-----");
126
127    // Requirement 5a
128    // Create a while loop that prints all even numbers from 0 to 100.
129    System.out.println("Requirement #5a");
130    System.out.println("Print all EVEN numbers from 0 to 100:");
131    System.out.println("-----");
132
133    int counter = 0;
134    while (counter <= 100) {
135        if (counter % 2 == 0) {
136            System.out.print(counter + " ");
137        }
138        counter++;
139    }
140    System.out.println();
141
142    // Requirement 5b
143    // Create a while loop that prints every third number going backwards from 100
144    // until we reach 0.
145    System.out.println("Requirement #5b");
146    System.out.println("Print every third number going backwards from 100 until we reach 0:");
147    System.out.println("-----");
148
149    int backwardscounter = 100;
150    while (backwardscounter >= 0) {
151        System.out.print(backwardscounter + " ");
152        backwardscounter = backwardscounter - 3;
153    }
154    System.out.println();
155    System.out.println();
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

```

Loops.java  

```

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.println("Should we buy Ice Cream? ");
99 if (shouldBuyIcecream) {
100     System.out.println("Yes");
101 } else {
102     System.out.println("No");
103 }
104
105 System.out.println();
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
113 System.out.println();
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
121 System.out.println();
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
129 System.out.println();
130 System.out.println();
131
132 // Requirement 5
133 // Using loops to print out a variety of different requirements
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 System.out.println("Requirement #5a");
140 System.out.println("Print all EVEN numbers from 0 to 100:");
141 System.out.println("-----");
142
143 int counter = 0;
144 while (counter <= 100) {
145     if (counter % 2 == 0) {
146         System.out.print(counter + " ");
147     }
148     counter++;
149 }
150 System.out.println();
151
152 // Requirement 5b
153 // Create a while loop that prints every third number going backwards from 100
154 // until we reach 0.
155 System.out.println("Requirement #5b");
156 System.out.println("Print every third number going backwards from 100 until we reach 0:");
157 System.out.println("-----");
158
159 int backwardscounter = 100;
160 while (backwardscounter >= 0) {
161     System.out.print(backwardscounter + " ");
162     backwardscounter = backwardscounter - 3;
163 }
164 System.out.println();
165 System.out.println();
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

```

```

109
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 numbers 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 other 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     } else if ((c % 3 == 0) && (c != 0)) {
205         System.out.print("Hello ");
206     } else if ((c % 5 == 0) && (c != 0)) {
207         System.out.print("World ");
208     } else {
209         System.out.print(c + " ");
210     }
211 }
212
213 }
214
215 }
216
217 }
218

```

Screenshots of Running Application:

```

<terminated> Loops [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_261.jdk/Contents/Home/bin/java (Oct 22, 2020, 5:16:34 PM – 5:16:34 PM)

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<= 66 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 other 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>