



Control Structures Assignment

```
1 // Control Structures Assignment Example Program
2 // Use this program to answer the questions
3
4 import java.util.Scanner;
5
6 public class ControlStructuresAssignment
7 {
8     public static void main(String args[])
9     {
10         Scanner keyboard = new Scanner( System.in );
11
12         System.out.print("Enter an integer: ");
13         int userNum = keyboard.nextInt();
14
15         if( userNum > 1000 )
16         {
17             System.out.println("Your number is big:");
18         }
19
20         if( userNum % 2 == 0 )
21         {
22             System.out.println("Your number is even");
23         }
24         else
25         {
26             System.out.println("Your number is odd");
27         }
28
29         if( userNum < 10 )
30         {
31             System.out.println("Your number as 1 digit");
32         }
33         else if( userNum<100 )
34         {
35             System.out.println("Your number has 2 digits");
36         }
37         else if( userNum < 1000 )
38         {
39             System.out.println("Your number has 3 digits");
40         }
41         else
42         {
43             System.out.println("Your number has at least 4 digits");
44         }
45
46         System.out.println("Time to count!");
47         int counter = 0;
48         while(counter < 9)
49         {
50             System.out.print(counter + ", and");
51             counter++;
52         }
53
54         System.out.println("\nCounting again!");
55         for(int x = 0 ; x<15 ; x++)
56         {
57             System.out.println( (3*x)%4 );
58         }
59     }
60 }
```

Use the program at the left to answer the questions below.

1. Highlight the *class signature* and the *method signature* both in yellow
2. Draw a green box around the **IF** structure
3. Draw a blue box around the **IF-ELSE** structure
4. Draw a purple box around the **ELSE-IF** structure
5. Draw a red box around the **WHILE** structure
6. Draw an orange box around the **FOR** structure

7. How many variables are created in this program? List their names below:

8. If the user enters the number 87 when prompted, what will the program print between lines 14 and 45?

9. How many times will the **WHILE** loop run?

10. Write down exactly what the **WHILE** loop prints

11. How many times will the **FOR** loop run?

12. What is the largest number printed by the **FOR** loop?

13. We have three different control structures for making decisions: **IF**, **IF-ELSE**, and **ELSE-IF**. Explain the difference between each of these structures.

14. We have two different control structures for looping parts of our program: **WHILE** and **FOR**. Explain the difference between these two structures.

15. Fill in the three missing parts of the for loop below to make a loop that will run exactly 13 times:

```
for( _____ ; _____ ; _____ )  
{  
  
}
```

16. Fill in the three missing parts of the for loop below to make a loop that will run exactly 5 times and will count by 2's:

```
for( _____ ; _____ ; _____ )  
{  
  
}
```

17. Fill in the three missing parts of the for loop below to make a loop that will run exactly 172 times and will start counting with the number -50:

```
for( _____ ; _____ ; _____ )  
{  
  
}
```