# Lab Assignment 18 (Recursion)

**Every program must always have the following information in the comments at the top.  
 Program Name  
 Your Name  
 A description of what the program does  
(Failure to include this will result in lost points.)**

Write the following Java programs; then build and run them. When they build and run correctly, copy the code into a separate **text** file for each program, with the same name as that program. Submit the text files. (\*If a program has more than one class, include all classes in that program’s text file.)

1. Write a program named **Lab18A** that has the following.
   * A recursive method that receives an integer parameter and returns the sum of the even digits in it. (Note - your recursive method should not have a loop inside it. It should rely on the recursion to loop.)
   * Remember that num % 10 will give you the last digit in num, and num / 10 will give the number with the last digit removed (for integers).
   * Write a main method to test your method (and make sure you test it with integers that have several digits.)
2. Write a program named **Lab18B** with the following.

* A recursive method that accepts an array of integers and returns a true if each value in the array is equal to the previous value + 5. Otherwise, it should return a false.
* Your recursive method should not have a loop inside it.
* In your main method create one array that matches this pattern and another that does not. Call the method with each array and then print the array and the method result. (Make sure you print a statement with the result that makes sense – not just a true or false with no explanation.)

1. Write a program named **Lab18C** with:

* A recursive method that accepts two strings where the first string is longer than the second string. It should return a string that is equal to the first string with all instances of the second string removed.

**Example:** If the method receives *Mississippi* and *iss* then it should return *Mippi*, which is *Mississippi* with all occurrences of *iss* removed.

If the method receives *disfunctional* and fun, it will return *disctional*.

If the second string is not inside the first string, then the method will just return the first string.

* + Your recursive method should not have a loop inside it.
  + *Each time the method is called, it should only remove one instance of the second string, not all of them at once.*
  + Write a main method to test your method (Make sure you test it with more than one set of data. As with “Mississippi”, the second string may be found multiple times in the first string, and I will test your program with different values.)

1. Write a program named **Lab18D** with:

* A recursive method that will print an integer series. Starting with n = 2, the method should print n2 / (n-1) for all values of n between 2 and 10. The method cannot contain a loop.
* A main method that calls the recursive method. 4, 4, 5, 6