**Lab 7: Understanding Recursion**

*Classes and Key Concepts*:

1. RecursiveDeli: Illustrates basic recursion with a "digit sandwich" method, makeDigitSandwich, which builds a string of digits recursively.

2. ArraySum: Demonstrates how to use recursion to sum the elements of an array by dividing the problem into smaller sub-problems (divide-and-conquer).

3. ArraySumVerbose: Extends ArraySum by providing detailed console output to visualize the recursive process of summing array elements.

4. FileTest: Uses the java.io.File class to perform basic operations like checking if a path is a directory and listing its immediate contents.

5. FileLister: Implements recursion to list all the files and directories within a given directory, printing their names to the console.

6. FileLister2: Similar to FileLister, but instead of printing the file names, it collects them into an ArrayList<String>.

7. FileCounter (Modified FileLister): Altered to count all files within a directory and its subdirectories recursively, returning the total count as an integer.

8. PyramidBallCount: Features a method, getPyramidCount, that uses recursion to calculate the total number of balls in a pyramid-shaped structure based on the number of levels.

9. BrickLayoutPatterns: Contains a method, countPatterns, to compute the number of different ways bricks of lengths 1 and 3 can be laid out to form a walkway of length `n`, using recursion.

**Checkpoint Tasks:**

Checkpoint 1: Implemented methods for creating a digit sandwich and for summing the elements of an array using recursion. Also introduced a method to calculate the total number of balls in a pyramid.

Checkpoint 2: Modified an existing file listing method to count files and created a method to calculate the number of brick laying patterns for a walkway.