In this assignment, you are to implement the total symmetry detection algorithm we discussed in class. You may use any programming language you like, but your source code should be well documented. In addition, you are to prepare a write-up describing your implementation and giving the results of your program for several benchmark functions. Your program should do the following:

1. Read in a benchmark circuit in the .pla cube list format.
2. As the circuit is read in, it should be stored in an internal data structure in PCN notation.
3. Apply the total symmetry detection algorithm to each output in the netlist, by processing the PCN cube list.
4. Output the results for each output as to whether it is totally symmetric or not.

If you need to perform internal computations such taking the intersection of two cubes, you should implement these functions using PCN. You should make your code modular as you will be using parts of it in other assignments later in the semester.

You are to process as many of the functions in the .pla benchmark file as possible. For any that you could not process, you must describe why in your write-up.

There is documentation describing the format of the .pla files on the class website.

You should turn in a typed report that describes the data structures you used and the algorithms employed (block diagrams or flow charts may be helpful). Your report should also include a section entitled “Results”, that consist of a table with all the functions listed in the benchmark table and the result of whether the function is totally symmetric or not. Your source code should be printed out and included in an appendix to your report. I may ask you to provide the executable versions of your code to verify your results. If your code does not work for some functions you should discuss this in the results section and state what the problem is.