AP Computer Science
Recursion Mini-Project
Mr. Lew

For this project you will explain the basic principles of recursion. On your presentation day you will present the following:

Powerpoint presentation (which will include the following slides)

a. "Description" slide – This slide describes basic recursion algorithms. This should be a qualitative description...no code yet. Diagrams and/or graphical representations should be used to help describe the concept of recursion.

b. "Role Play" slide – This slide will introduce the role play. Each member of the group will direct a sample recursive algorithm to the class. Use a person in the class to represent each recursive call of a method. For example, when the recursive method is called the first time, person A will stand up to represent the first method call. When the method is called recursively, person B will stand up representing the second method call, and so on. Each person directing the role play will be graded according to his ability to explain the recursive algorithm correctly and how memory usage can be an issue in re

c. "Java code Demonstration" slide – Here you will demonstrate a recursive fractal algorithm in a small Java program that meets the following specifications:
   i. a sample program implementing a recursive method call (with no infinite recursion) is presented.
   ii. the program prints the time elapsed for recursive algorithm to complete its task. Use the provided Timer test program as your testbench.
   iii. students discuss the "best case scenario" for the recursive algorithm (no simulation needed)
   ii. students discuss the "worst case scenario" for the recursive algorithm (no simulation needed)
   iv. students discuss the code and how it corresponds to the algorithm demonstrated in the role play.

d. "Execution Time" slide – This slide will show a graph of "Execution Time vs. Number of Recursive Method Calls". A short discussion should follow that discusses the relationship between these two variables.

e. "Advantages and disadvantages" slide – Here you discuss the advantages and disadvantages of the recursive algorithms (when you might WANT to use it, and when you might NOT want use it. IMPORTANT slide...spend some time on this!!

f. "Memory issues" slide – discuss how much extra memory (if any) is needed in order to use/implement recursive algorithms.