CS361 Algorithm Winter 2017 Lab 2

Due 4/30/2017

What to do

1. Implement the DP version of MCM algorithm.
2. Implement the memoization version of MCM algorithm, using -1 for ∞.
3. Show top right of the m array for your DP version of MCM algorithm for p being < 30, 4, 8, 5, 10, 25, 15>.
4. Show the m array for your memoization version of MCM algorithm for p being < 30, 4, 8, 5, 10, 25, 15>.
5. Use your Lab 1 read method to read from my data file. Then write a recursive algorithm to list the largest 10 elements of the data you read, and list them in decreasing order as the output. Again, starts with 1,000 and increases at 10x until it needs to read more than 10 million numbers. Output the execution time of your approach.
6. Test your result by calling one of your sorting algorithm to sort the data first and display largest numbers in decreasing order as the output. Output the execution time of your approach.
7. Run your code for 5 and 6 three times, record the execution time in milliseconds for each run on each size, enter the milliseconds reading into an Excel spreadsheet, calculate the average execution time in milliseconds for each run on each size and display your results in both a table and as a line chart.
8. Write a half to one page report to explain your execution time observation and discuss the problem solving approach you applied for step 5. Is it DP, greedy algorithm, or divide-and-conquer?

What to turn in

A PDF file that contains your report followed by code segments and corresponding outputs.

Make sure to comment your code!!!