Project 1

Complete each part in the language of your choice then create a Word, text, or PDF document with sample output of your programs. Include the complete (well-formatted & commented) source code at the end of your document.

Part 1: (25 points) Write a program that has a *non-recursive* function called fact(n) that computes n!. Try computing fact(n) for large values. Can you find the maximum value for n your program will compute *correctly*?

Part 2: (25 points) Write a program that prompts the user for a number X. Print the numbers from 1 to X with the following conditions:

- In place of multiples of 3 print "three".
- In place of multiples of 5, print "five".
- If a number is divisible by both 3 and 5 print "fifteen".
- If a number is divisible by 11 (and not any of the other numbers) skip the next number
- Do not print multiples of 7 (even if a multiple of 3 or 5)

Display 15 numbers per line. Include sample output for X=50.

Part 3: (25 points) A map maker is making a map which will include the states of Arkansas, Louisiana, Tennessee, Mississippi, & Alabama. The map maker only has 3 colors to use and no two states which share a border can be colored the same color. Write a program which finds an acceptable assignment of colors to states. Take care that your program does not assume the solution. For example, your program should not automatically set Tennessee=Louisiana). This may prove to be a difficult problem, but as long as you make a reasonable attempt you will receive full credit.