Problem Statement

An engineering firm wants to make a list of which of its engineers are specialists at the three main programming languages used in the firm: "C/C++", "Java", and "MATLAB". The file **APP_C30_1_programmers.txt** contains 30 engineers' names and which programming language each of them specializes in. The data in the file is ordered such that the first line is a programmer's name and the next line is their specialty. This order repeats until the end of the file. There is only one name or programming language per line, and each line ends in a newline character. The file can be found in **/share/EED/class/engr1281/students/c/Class_30/Application** . Copy the file to your working directory.

Your job is to write a program which reads through the file, counts how many people are specialists for each of the three programming languages, and creates a list of names for each of the three programming languages.

Instructions

Represent

- As a table/group, create a flowchart, algorithm, or pseudocode for solving the problem.

Plan

- Create a file named **APP_C30_1.cpp** .
- Outline the steps your program will take by adding comment statements to your file based on the flowchart, algorithm, or pseudocode.
- Among other variables, you will need two, one-dimensional 400 element **char** arrays for the final parts of the assignment

Implement

- Complete **APP_C30_1.cpp** to:
    - Read a name and language pair in the file.
    - Determine which language was read and keep count for each language.
    - Store the name in a 2D array of characters for the appropriate language using **strcpy()** (you will have three 2D character arrays in total, one for each language).
    - Repeat the above until all names and languages have been read.
    - Print the count and list of names for each language.
    - Store all of the programmer names in one of the 400 element arrays without spaces separating the names using **strcpy()** and/or **strcat()**. Depending on how you do this you might also use **strlen().**
      Print the length of the string stored in the array.
    - Store all of the programmer names in the second 400 element array with one space separating the names using **strcpy()** and/or **strcat()**. Depending on how you do this you might also use **strlen().**
    - Print the length of the string stored in the array.
    - Hint: Consider completing this problem in small pieces. For example, get a piece of code working for just one language first, and then make the necessary changes for the other languages.
- Open an output file, **APP_C30_1_result.txt**, and write everything to the file that is being written to the screen.
- Compile, link, and run your program.

Evaluate

- Verify that the correct engineers are listed for each programming language.

Document
- Create a single PDF that includes your code, the terminal window output, the output file, your flowchart/algorithm/pseudocode, and your verification.
- Submit the PDF to Carmen according to the DAL.

Include the standard comment, **`printf()`** statements indicating name, seat number, etc.