# CS1050 – Prelab 11

## Fall 2021

## Concepts to Practice

- File Processing

## Description

For the prelab assignment, you need to read a text file. The input data file will be called "DnDMonsterScores.csv". This type of file can be opened by spreadsheet programs such as Microsoft Excel, but you can also open it with a text editor like VIM or Notepad. Of course, you can open it and read it with your program too!

The data file consists of a name followed by numbers on each line (except the first line – the first line is a "header" and has the word "Name" followed by the word "AC" followed other words representing the name of each "field", all separated by commas). All of these "fields" are separated by commas. For example:

```
Name,AC,HP,STR,DEX,CON,INT,WIS,CHA
Frog,11,1,1,13,8,1,8,3
Sea Horse,11,1,1,12,8,1,10,2
Shrieker,5,13,1,1,10,1,10,3
```

The file is meant to represent the name of a "monster" in the game Dungeons and Dragons followed by the "armor class" and then the "hit points", etc. for that monster.

To get started on this prelab, type the following while logged in to tc.rnet.missouri.edu:

```
cs1050start prelab11
```

This command will create a directory called prelab11. Go into that directory ("cd prelab11") and get a list of the files there ("ls -la"). Notice that there is a file called prelab11.c. You can start editing this file to do your prelab (but you probably want to change the header since it says it was written entirely by me 😊). Notice that the data file (DnDMonsterScores.csv) is also in this directory.

Your program should read in all of the data (ignoring the "header"), count how many monsters are in the file, and calculate the average armor class (AC) as well as the average hit points (HP) for the monsters in this file. As you process the file, you should output the number (count) of the current monster, its name, its armor class, and its hit points (see sample output). You can read in the other fields as you go or find a way to ignore them.

## Functions You Must Write

You may write any functions you wish to implement this program.

## Tips

- Since the name of the monster can contain spaces (but not a comma), you probably want to use the sample code I provided for scanf(). The format specifier "%[^,]," means read a field until you hit a comma (the part in square brackets means "anything except comma"). Once that field is out of the way, you can read the rest of the line however you like.
- It might be good to read in each of the fields, even if you aren't using them. Alternatively, consider how you might "throw away" those fields the same way we "throw away" the header line.
- The starter file just throws away the header and reads part of a single data line. Looks like you will have to change things to read additional lines, do averages, etc.

## Sample Output

Since the full output is very long, I am displaying only the first few lines and last few lines below. The ellipsis (…) in the middle indicates that a number of lines were omitted for brevity.

```
jimr@JimRArea51:~/CS1050/FS2021/labs/lab11$ compile prelab11.c
jimr@JimRArea51:~/CS1050/FS2021/labs/lab11$ ./a.out
Header line was: Name,AC,HP,STR,DEX,CON,INT,WIS,CHA

1) "Frog" : AC=11,HP=1
2) "Sea Horse" : AC=11,HP=1
3) "Shrieker" : AC=5,HP=13
4) "Bat" : AC=12,HP=1
5) "Crab" : AC=11,HP=2
6) "Lizard" : AC=10,HP=2
7) "Quipper" : AC=13,HP=1
8) "Rat" : AC=10,HP=1
9) "Raven" : AC=12,HP=1
10) "Scorpion" : AC=11,HP=1
…
423) "Empyrean" : AC=22,HP=313
424) "Kraken" : AC=18,HP=472
425) "Silver Dragon -  Ancient" : AC=22,HP=487
426) "Gold Dragon -  Ancient" : AC=22,HP=546
427) "Red Dragon -  Ancient" : AC=22,HP=546
428) "Tarrasque" : AC=25,HP=676


Total monster count = 428
Average AC = 14.24
Average HP = 79.40
```