

CS424/524 Programming Assignment #2

DUE: April 24, 2017 (for MW class); April 25, 2017 (for TR class)

Very short description:

Write a program that finds the minimum and maximum of a list of numbers, and returns the min and max in a list.

More detailed description:

Your program should accept a list of numbers as the only parameter and return a list that consists of the min and max values of the list passed as a parameter. The list passed in may have repeated values.

You must implement 2 versions of the program.

1. One version must be written in the functional paradigm using the language Scheme. Your function name must be minmax. You may not use any built-in min or max functions, and must use functional techniques. So, you may not use any imperative looping structures or assignments or things of that nature.

The user should be able to execute your minmax function with a function call like the following:

```
(minmax '(3 4 6 9 22 203 1 43 8 4))
```

The result of this call would be (1 203)

2. The second version must be written in the logic paradigm using the language Prolog.

The user should be able to query your program in Prolog in the following way:
minmax([3, 4, 6, 9, 22, 203, 1, 43, 8, 4], Result).

The result of this query would be something like
Result = [1, 203]

- You must have a comment block at the beginning of your program that lists your name, the date, the class number and section and a description of what your program does. This program won't be graded for comments and things like that outside of the program header.

You must submit a printout of your program in addition to an electronic copy.

- The printout must be turned in on the last day of class.
- The electronic copy should be submitted via Canvas.
- Please review the rules regarding late programs as outlined in the syllabus
- Only turn in your .pl file (Prolog) and .scm file (Scheme).

Editor - Scheme

An online Scheme interpreter/editor can be found at: <https://scheme.cs61a.org>

If you execute (`edit 'minmax`) at the interpreter prompt, then an editor will open to allow you to edit your file. You will have to copy and paste code in and out of the editor – I'm not sure there is a way to download or upload a file (there may be – I'm just not aware of it).

Another online editor can be found at: <https://repl.it/languages/scheme>

Editor - Prolog

The lab computers have SWI-Prolog, which can also be downloaded for free (<http://www.swi-prolog.org>). You can use the version of Prolog in the lab or the newer version downloaded online. State which version you used in a comment at the top of your program. An online (limited) version of SWI-Prolog can be found at <http://swish.swi-prolog.org>.