Allegro CL Certification Program

Lisp Programming Series Level I

Session 1.3.5

Homework

Question

- What is the difference between the following expressions (and what will the interpreter do)?
  - A
  - 'A
  - " A"
  - #\A

List Anatomy

- Draw the following lists as "box and pointer" diagrams of cons cells
  - (rose marigold petunia)
  - ((rose 1) (marigold 7) (petunia 12))
  - ((nitrogen . 10) (potassium . 5) (phosphorus . 5))

Note: last bullet has dotted lists (not decimals)

Strings

- Write a function that finds an HTML tag:
  - (find-tag "Test.") => "b"
- Write a version that finds multiple tags:
  - (find-tag "Test.Test.") =>("b" "i")
- Write a function that finds the contents of an HTML tag. Pass the tag of interest as an argument.
  - (get-tag-contents "b" "Test.") => "Test."

Arrays

- Write a function that takes a vector of numbers and doubles them “in place”
  - (setq a (vector 123))
  - (double a)
  - a => #(2 4 6)

Symbols

- Write a function that takes a string as input and returns all the words in the string as symbols
- Use your function to read a file and return a count of the occurrence of each word in the form of an association list
- Sort the association list in descending order of most common to least common words

Files

- Write a function that takes this list as input:

(html (body (h1 "Lisp") "Hello from lisp"))

- And produce a text file containing:

<html>

<body>

<h1>Lisp<h1>

Hello from lisp

</body>

</html>