Massachusetts Institute of Technology

6.038 Artificial Intelligence in Practice

Problem Set 4 (A & B): Tuesday, February 24, 1998
DUE: Tuesday, March 3, 1998

NB: For this assignment, we encourage (but do not require) you to work together in pairs and hand in a single solution per pair. Please select different partners than any from previous problem sets.

1 Background

In this problem set, we explore rule-based systems as a substrate for simple "expert systems". In particular, we look at building a simple advisor system.

2 Files

You will be using a rule-based system tool that is available publicly on the Web. The system is called CLIPS. You have a handout that describes the most relevant parts of CLIPS. The actual system has many, many features but you won't need to master that many of them. There are versions of CLIPS available (under `/mit/6.038/bin/clips`) for Sparc, SGI and Linux. Let us know if you have problems with any of them. As a simple "model" expert system, we will be looking at the Wine advisor. You can find the code in `/mit/6.038/ps4/wine.clp`; we've also attached a hardcopy here. This is one of the standard examples in the CLIPS distribution. You can see others at `/mit/6.038/clips/v6.0/executables/examples/`.

3 Understanding the model

Look at the code for WINEX and understand how it works. You might want to use some of the rule tracing facilities in CLIPS to examine the actual rule firings. Note that the CLIPS rules are implementing an "interpreter" for a simpler rule language (whose rules are bound to `the-wine-rules`). Hand in a brief discussion, explaining the operation of this interpreter, how it handles certainty factors, asks questions, etc. Be sure you explain the purpose of the different CLIPS rules within the interpreter.

4 Modifying the rules

Sticking (mostly) with the rule interpreter as implemented for WINEX, implement a new expert system that would help someone make some decision. We encourage to pick an area of interest to you. If you can't think of anything else, here are a couple of suggestions:

- Picking Engineering Concentrations and/or EC Subjects based on interests and goals.
- Picking things to do on an evening out in the Boston area.

5 Reflection

Did you find the rule language appropriate to express the knowledge you wanted to express? Were there rules or facts that you found you could not express naturally in this format? Give examples.