

Homework #2

Due date & time: 10:30pm on Monday February 11, 2008. Email to the instructor (ninghui@cs.purdue.edu) by the due time.

Late Policy: Contact the instructor if you need to submit it late for some reasons beyond your own control.

Additional Instructions: Your submission should include two files, one includes all code for Problem 1, the other includes answers to Problem 2.

Problem 1 Programming Assignments (80 pts) Do not use any Prolog libraries in these programs. Put all code in one file.

1. Learning Prolog Now. Section 5.6. Problem 3. Write the program in a tail-recursive way.
2. Write a predicate `set(InList,OutList)` which takes as input (InList) an arbitrary list, and returns a list (OutList) in which only the first occurrence of each element of the input list is preserved. For example, the query

```
set([2,2,foo,1,foo, [],[]],X).
```

should yield the result

```
X = [2,foo,1,[]].
```

Hint: use the member predicate to test for repetitions of items you have already found.
3. Learning Prolog Now. Section 6.3. Exercise 6.2. (20 pts) Write a program that runs in linear time.
4. Learning Prolog Now. Section 6.3. Exercise 6.4.
5. Learning Prolog Now. Section 7.3. Exercise 7.2.
6. Learning Prolog Now. Section 9.5. Exercise 9.3. Use the following types (atom, number, constant, variable, simple_term, complex_term).
7. Learning Prolog Now. Section 9.5. Exercise 9.4.

Problem 2 Written Assignments (20 pts) Please put your typed answer in one file.

1. Learning Prolog Now. Section 10.4. Exercise 10.2.
2. Learning Prolog Now. Section 10.4. Exercise 10.3.