

CS510 HW Assignment 4

Due: SUNDAY Feb. 28th 11:59pm

Written Problems:

Problem 1. (25 pts.) Chapter 7, Problem 7.10 a - g.

Programming Problems:

Problem 2. (25 pts.) Write a PROLOG program to solve the logical inference problem about missile sales that we discussed in class. As a reminder, it contains the following facts and rules:

- It is a crime for an American to sell weapons to hostile nations.
- The country of Nono has some missiles.
- All of Nono's missiles were sold to it by Colonel West.
- Missiles are weapons.
- An enemy of America counts as "hostile".
- Colonel West is American.
- Nono is an enemy of America.

and use them to prove that Colonel West is a criminal.

Problem 3. (25 pts.) Add facts and rules to your PROLOG program answer for Problem 2 that will define the following:

- A country as an ally if that country helps America attack an enemy country.
- Nono has helped America by attacking the country of Whoknew.
- Whoknew is an enemy of America.
- It is patriotic to sell weapons to an ally.

use these additions to prove that Colonel West is also a patriot.

Problem 4. (25 pts.) Write PROLOG program for the following family relations: GrandChild, GreatGrandParent, Ancestor, Brother, Sister, Daughter, Son, FirstCousin, BrotherInLaw, SisterInLaw, Aunt, Uncle, and "mth Cousin n times removed" (look up definitions as required). Encode the knowledge in the Figure 8.7 from the textbook. Using your program answer the following questions. Who are:

1. Elizabeth's grand children?,
2. Diana's brothers in law?,
3. Zara's great grand parents?, and
4. Eugenie's ancestors

What to Submit

All homework for this course must be submitted electronically using Bb Vista. Do not e-mail your assignment to a TA or Instructor! If you are having difficulty with your Bb Vista account, you are responsible for resolving these problems with a TA, an Instructor, or someone from IRT, before the assignment is due. It is suggested you complete your work early so that a TA can help you if you have difficulty with this process.

For this assignment, you must submit a PDF document with your answers to the written problems (Do NOT submit a Microsoft Word, OpenOffice document, or any other format that is not a PDF, you will lose points if you do so!). For your PROLOG code all you need to submit is the PROLOG code itself. (ie. the .pl files)

Academic Honesty

You must compose all program and written material yourself, including answers to book questions. All material taken from outside sources must be appropriately cited. If you need assistance with this aspect of the assignment, see a consultant during consulting hours.