CS561/571 - ARTIFICIAL INTELLIGENCE LAB

ASSIGNMENT-7: PROLOG

(Read all the instructions carefully & adhere to them.)

Date: 05th November 2022   **Deadline: 11th November, 2022**

Total Credit: 30

Instructions:

1. The assignment should be completed and uploaded by 11th Nov, 2022, 11:59 PM IST.
2. Markings will be based on the correctness and soundness of the outputs. Marks will be deducted in case of plagiarism.
3. Proper indentation and appropriate comments are mandatory.
4. Make proper documentation of all results and observations with their analysis.
5. You should zip all the required files and name the zip file as roll_no_of_all_group_members .zip, e.g., 1501cs11_1201cs03_1621cs05.zip.
6. Upload your assignment (the zip file) in the following link:
   https://www.dropbox.com/request/tgAgZRgFVPq6tvqsOGot
7. For any queries regarding this assignment, you can contact:
   Deeksha Varshney (deeksha.varshney2695@gmail.com) or
   Gitanjali Kumari (gitanjali.singh228@gmail.com) or
   Samrat Mukherjeee (samratpisv123@gmail.com)

Questions

1. Write a program in Prolog to represent the following knowledge and find the answer to the given questions.
   ### a. *Knowledge*

   Smith, Baker, Carpenter, and Tailor have each a profession (smith, baker, carpenter, and tailor) but not shown by their names. Each of them has a son. But the sons also do not have the profession shown by their name.

   If you know that:

   1) No son has the same profession as his father has and

   2) Baker has the same profession as Carpenter's son has and

   3) Smith's son is a baker.

Question: find the professions of the parents and sons.

2. Write a program in Prolog to represent the following knowledge and find the answer to the given questions.
    a. ***Knowledge:*** On a river bank, there are 3 cannibals and 3 missionaries. Here is a boat with 2 places for crossing the river. If on a bank, there remain more cannibals than missionaries, then it is dangerous since the cannibals may eat them.

    Question: How could they all cross the river without being in danger?