CS571 - ARTIFICIAL INTELLIGENCE LAB

ASSIGNMENT-9: PROLOG

Date: October 30, 2023
Deadline: October 30, 2023 (12:00 PM)
Total Credit: 30

- Markings will be based on the correctness and soundness of the outputs.
- Marks will be deducted in case of plagiarism.
- Proper indentation and appropriate comments are mandatory.
- All code needs to be submitted in '.py' format. Even if you code it in '.IPYNB'
- format, download it in '.py' format and then submit
- You should zip all the required files and name the zip file as: <roll_no>_assignment_<#>.zip, eg. 1501cs11_assignment_01.zip.
- Upload your assignment (the zip file) in the following link: https://www.dropbox.com/request/wi8iJEIzpfZo8BfMR2af
- **Note:** Code should be written from scratch and existing tools can not be used

For any queries regarding this assignment, you can contact:
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Utsav Kumar Nareti (utsavkumarnareti@gmail.com)

Questions

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

Knowledge:

Smith, Baker, Carpenter, and Tailor each have 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.

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?