CSE643: Artificial Intelligence

Assignment-1

Due date: 23-Sept-2022, 11:59PM **Marks: 7**

FOR THOSE CHOOSING INDIVIDUAL EFFORT

1. Create an electives advisory / prediction system in Prolog for BTech or MTech student of IIITD. It needs to advise a student on what electives to take given the career they want to pursue and the pre-requisites that they have done.
2. Advisory system here refers to a system that will take some inputs from the student and ask further questions to narrow down choices and then suggest to the student the appropriate electives. Prediction system here refers to a system that will take all inputs and then suggest to the student a list of choices with some ranking. DO NOT build a machine learning system here. We need you to write Prolog clauses and show explicit knowledge representation and reasoning.
3. You are free to make your own rules regarding career and assert your own facts. For example, you can consider Subjects, Marks, Grades, Extra-curricular activities, Interest areas, Aptitude, Opportunities, Projects done, BTP/MTP/dissertation/thesis, Extra credits, Extra courses done etc. (you are free to choose what you want and name it the way you want or even create new parameters).
4. Take data from the electives options that students have for various streams in IIITD.
5. You should use Prolog features such as Lists, Input/ Output, Recursion, Backtracking, Binding etc.
6. Should work for different inputs for different students. That is don't make it hard-coded for one student input.
7. Make your own prediction / advisory system. Make it as good as you can, but the advise/ prediction should be useful and practical.
8. You are free to make the program as interesting and as complex as you want – or you can keep it of moderate complexity (don't make it simple as that will not demonstrate your Prolog understanding and skills; and also it really won't have any reasoning so will not be a good "AI" program; and will not fetch you marks).
9. Use of some inputs from references below can be useful for an effective prediction / advisory system. However, you are not bound to use it.
10. Prolog program should work as marks will be based on the working demo of the program and your explanation of the program.

11. Marks will be awarded for the assignment as follows: Working program (2 marks), complexity of the program / kind of Prolog features used (3 marks -- to award marks for non-trivial programs), kind of advice generated (1 mark), ingenuity used (1 mark). Demonstrate the program to your assigned TAs.
12. User Interface will be the Prolog interface.
13. You should submit a ZIP file consisting of the program and a pdf file listing the program and sample screenshots of its working. Name the ZIP file as: AI-A1-<Name>-<RollNo>

References that may be useful in planning career related electives.

1. https://iiitd.ac.in/sites/default/files/docs/placements/2020/Placement%20Brochure%202020-21.pdf
2. https://www.prospects.ac.uk/job-profiles/data-analyst
3. https://www.northeastern.edu/graduate/blog/career-in-artificial-intelligence/
4. https://jobs.smartrecruiters.com/BoschGroup/743999716898847-phd-combined-reasoning-and-learning-approaches

FOR THOSE CHOOSING GROUP of 4 EFFORT

1. Build a shopping recommendation system for customers looking for electronic gadgets, household items, furniture.
2. Recommendation system here refers to a system that will take some inputs from the customer about what he/she is looking for and ask further questions to narrow down choices and then suggest to the customer the appropriate products. DO NOT build a machine learning system here. We need you to write Prolog clauses and show explicit knowledge representation and reasoning.
3. You should use Prolog features such as Lists, Input/ Output, Recursion, Backtracking, Binding etc.
4. Should work for different inputs for different customers. That is don't make it hard-coded.
5. The program should be of good complexity since it is a group effort (don't make it simple as that will not demonstrate your Prolog understanding and skills; and also it really won't have any reasoning so will not be a good "AI" program; and will not fetch you marks).
6. Prolog program should work as marks will be based on the working demo of the program and your explanation of the program.
7. Marks will be awarded for the assignment as follows: Working program (2 marks), complexity of the program / kind of Prolog features used (3 marks -- to award marks for non-trivial programs), kind of recommendation generated (1 mark), ingenuity used (1 mark). Demonstrate the program to your assigned TAs.
8. You will have to also create a report on the program explaining the program, and in it mention who did which portion of the assignment.
9. You should submit a ZIP file consisting of the program, the report and a pdf file listing the program and sample screenshots of its working. Name the ZIP file as: AI-A1-GRP-<GroupNo>.
10. User interface will be the Prolog interface.

OR

1. Build a sentiment analysis system based on reviews posted about hotels and stays, travel sites/ agents, travel means.
2. Sentiment analysis system here refers to a system that will take some reviews from the people who have stayed there and ask further questions to decide the actual 'feeling' or 'experience' of the customer to generate a rating for that stay. DO NOT build a machine learning system here. We need you to write Prolog clauses and show explicit knowledge representation and reasoning.

3. You should use Prolog features such as Lists, Input/ Output, Recursion, Backtracking, Binding etc.
4. Should work for different inputs of different customers. That is don't make it hard-coded.
5. The program should be of good complexity since it is a group effort (don't make it simple as that will not demonstrate your Prolog understanding and skills; and also it really won't have any reasoning so will not be a good "AI" program; and will not fetch you marks).
6. Prolog program should work as marks will be based on the working demo of the program and your explanation of the program.
7. Marks will be awarded for the assignment as follows: Working program (2 marks), complexity of the program / kind of Prolog features used (3 marks -- to award marks for non-trivial programs), kind of sentiment analysis generated (1 mark), ingenuity used (1 mark). Demonstrate the program to your assigned TAs.
8. You will have to also create a report on the program explaining the program, and in it mention who did which portion of the assignment.
9. You should submit a ZIP file consisting of the program, the report and a pdf file listing the program and sample screenshots of its working. Name the ZIP file as: AI-A1-GRP-<GroupNo>.
10. User interface will be the Prolog interface.