TECHNO MAIN SALTLAKE

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Department: CSE (AI & ML)
Year: 2nd Semester: 4th

Artificial Intelligence Lab (PCCAIML491)

Assignment 1

1. Write a Prolog program for the following food repository by forming the facts, rules and answer the queries: **Facts:** Burger is a food. Sandwich is a food. Pizza is a food. Sandwich is a lunch. Pizza is a dinner. **Rule:** Every food is a meal OR Anything is a meal if it is a food. **Queries:** Is pizza a food? (**Answer:** true) Which food is meal and lunch? (**Answer:** Sandwich) Is sandwich a dinner? (**Answer:** false).

2. Write a Prolog program for the following student-professor relation by forming the facts, rules and answer the queries: **Facts:** Charlie studies csc135. Olivia studies csc135. Jack studies csc131. Arthur studies csc134. Kirke teaches csc135. Collins teaches csc131. Collins teaches csc171. Juniper teaches csc134. **Rule:** X is a professor of Y if X teaches C and Y studies C. **Queries:** Charlie studies what? OR What does Charlie study? (**Answer:** csc135) Who are the students of professor Kirke? (**Answer:** Charlie, Olivia).

3. Write a Prolog program for the following car-owner relation by forming the facts and answer the queries: **Facts:** jack owns bmw car. john owns chevy car. olivia owns civic car. jane owns chevy car. bmw car is sedan. civic car is sedan. chevy car is truck. **Queries:** What does john own? (Answer: car(chevy)) Does john own something? (Answer: true) Who owns car chevy? (Answer: john, jane) Does jane own sedan? (Answer: false) Does jane own truck? (Answer: car(chevy))

4. Write a Prolog program for the following own pet and love relation by forming the facts, rules and answer the queries: **Facts:** Fubby is a cat. Fubby has black spots. Figaro is a dog. Figaro has white spots. **Rules:** Mary owns a Pet if it is a cat and it has black spots. If someone owns something, he loves it. **Queries:** List the all the clauses of predicates cat. (Answer: cat(Fubby)) list the all the clauses of predicates owns. Who loves what? (Answer: marry, Fubby) Mary owns something? (Answer: true)

5. Suppose, we had a player's database like (**Facts**):
   player (rahulDravid, 1996, 2012)
   player (sachinTendulkar, 1989, 2013),
   player (vvsLaxman, 1996, 2012)
   player (sauravGanguly, 1996, 2008)
   player (virendarSehwag, 2001, 2013)

   player (rahulDravid, 1996, 2012) : This statement tells RahulDravid played test cricket from the year 1996 to 2012.

   Queries: Get the players who played in the year 1996? Get the players who started their career in 1996.

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6. Write a Prolog program to check all operators: Addition (+) operator, Subtraction (-) operator, Multiplication (*) operator, Division (%) operator, Power (**/^) operator, Integer division (//) operator, Modulus (mod) operator, Square root (sqrt) operator, maximum (max) operator.

7. Write a Prolog program to check all comparison operators: Greater than (>)operator, Less than (<) operator, Greater than equal to (>=) operator, Less than equal to (=<) operator, Equal (=:=) operator, Not equal (=\=) operator.

8. Write a Prolog program to check the trigonometric operators: SIN operator and COS operator.

9. Write a Prolog program to find the summation of two user entered numbers.

10. Write a Prolog program to find the maximum of two user entered numbers.

11. Write a Prolog program to find the cube of a user entered number.

12. Write a Prolog program to detect whether user has entered a positive or a negative number.

13. Write a Prolog program to convert centigrade into Fahrenheit.