

MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT (AN AUTONOMOUS INSTITUTION) (Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act, 1956

#### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## 2440581 ARTIFICIAL INTELLIGENCE LAB

### B. Tech. II Year-II Sem

L / T / P / C 0 / 0 / 2 / 1

### **COURSE OUTCOMES - CO'S**

- Develop programs using LISP to perform arithmetic operations, recursive list manipulations, and implement logic-based functions effectively..
- Apply **Prolog programming techniques** to solve real-world AI problems such as game simulations, puzzle solving, and knowledge representation using facts and rules.
- Design and implement AI problem-solving algorithms like Min-Max, Hill Climbing, Simulated Annealing, and heuristic approaches for optimization problems such as the Traveling Salesman Problem (TSP).
- Demonstrate the ability to model and solve classical AI problems like the 8-puzzle, N-Queens,
  Water Jug, and Monkey-Banana problems using declarative programming paradigms.
- Construct robust Prolog-based applications involving list processing, input validation, and user interaction handling, enhancing logical reasoning and error-handling capabilities

# LIST OF EXPERIMENTS:

- 1. Write a LISP code to perform Arithmetic operations.
- 2. Write a Recursive LISP function which takes one argument as a list and return reverse of the list.
- 3. Write a LISP function to compute difference of squares.(if x > y return  $x^2 y^2$ , Otherwisey2  $-x^2$ ).
- 4. Write simple fact for following:
  - A. Ram likes mango.
  - B. Seema is a girl.
  - C. Bill likes Cindy.
  - D. Rose is red.
  - E. John owns gold
- 4. Write a prolog program that convert temperature from Celsius to Fahrenheit
- 5. Write simple Prolog functions such as the following. Take into account lists which are tooshort. -- remove the Nth item from the list. insert as the Nth item.



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- 6. Write a Program to Implement Tic-Tac-Toe game.
- 7. Write a Program to Implement 8-Puzzle problem
- 8. Write a Program to Implement Water-Jug problem
- 9. Write a Program to Implement Monkey Banana Problem.
- 10. Write a Program to Implement N-Queens Problem.
- 11. Write a Program to Implement Min-Max Algorithm.
- 12. Implementation of TSP using heuristic approach using Prolog
- 13. Implementation of Simulated Annealing Algorithm using PROLOG
- 14. Implementation of Hill-climbing to solve 8- Puzzle Problem
- 15. Write a Program see all elements are present in the list or not.
- 16. Write a Program to login so that user can attempt 3 times. After 3rd attempt program must terminate with message "NOT PERMITTED FOR LOGIN"