**COU4201-Knowledge Representation &**

**Logic Programming (2024/2025)**

**Prolog-Based Mini Expert System:**

**Group Project Progress (01)**

# Group Number:

29

# Project Title:

Book Finder Chat Bot in Prolog

# Group Members:

1. M.T. Imaya (Role: Logic Design) (Group Leader)
2. A. M. N.Y. Amarakoon (Role: Testing and Debugging)
3. H.K.C.D. Wijayathilake (Role: File handling)
4. H.D.K. H. Jayasinghe (Role: Database Management)
5. K.A.D.M. Harshi (Role: Logic implementation)
6. K.S.A. Fernando (Role: Knowledge base design)

# 1. Project Overview

This project aims to develop a mini expert system using Prolog. The system will:  
- Utilize a dynamic database.  
- Perform mathematical function handling.  
- Implement user input/output through file handling.  
- Provide recursion or repeat predicates for system logic.  
- Maintain and manage a dynamic knowledge base, checking user inputs against current data.

# 2. Project Goals

1. Design the knowledge base in list notation.
2. Implement rules and logic for inference (forward/backward chaining).
3. Develop input/output mechanisms for file handling.
4. Create dynamic database manipulation with adding/retracting facts.
5. Test system accuracy using a set of predefined queries.
6. Documentation and final report.

# 3. Task Breakdown

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| --- | --- | --- | --- | --- |
| **Task** | **Responsible Member** | **Deadline** | **Progress (%)** | **Notes** |
| Define project scope | Member 1 & 2 & 4 | 10.04.2025 | 100% | Initial plan completed |
| Knowledge base design | Member 1,3 ,6 | 16.04.2025 | 75% | Basic facts are included |
| Logic implementation | Member 1 & 5 | 28.04.2025 | 50% | In progress |
| File handling setup | Member 3 & 6 | 05.05.2025 | 60% | Input/output functions tested |
| Dynamic database functionality | Member 2 & 4 & 6 | 05.05.2025 | 40% | Retract/Assert functionality |
| Testing and Debugging | Member 2 & 3 | 06.05.2025 | 30% | Initial tests show minor bugs |
| Final documentation | Member 5 | 08.05.2025 | 10% | Needs collaboration |
| Presentation | Member 4 & 5 | 08.05.2025 | 10% | Needs project finalization |

# 4. Progress Summary

Milestones Achieved:  
- Basic system architecture completed.  
- Knowledge base partially designed.  
- Some logic for inference implemented.  
- Initial file handling tested successfully.

Pending Milestones:  
- Complete logic implementation for forward/backward chaining.  
- Refine database manipulation (adding and retracting facts).  
- Perform more extensive testing with various inputs.

# 5. Challenges

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| --- | --- | --- |
| **Challenges** | **Impact** | **Mitigation Strategy** |
| Delays in logic implementation | Low | Schedule additional review meetings |
| Bugs in file handling | High | Increase testing frequency |
| Incomplete database functions | Medium | Prioritize dynamic database tasks |

# 6. Next Steps

* Complete all pending tasks by 07th of May.
* Schedule a group review session on 8th of May to assess the overall project.
* Begin the final testing phase by 6th of May
* Begin to prepare the presentation by 7th of May

# 7. Meeting Minutes and Discussions

Meeting #1:  
Date: 06.04.2025

Meeting hours: 1.5hours  
Attendees: All  
Key Points:  
- Discussed what we are going to make & project scope

- Assigned tasks to members.

Meeting #2:  
Date: 11.04.2025

Meeting hours: 2hours  
Attendees: All  
Key Points:  
- Discussed the implementation of the knowledgebase.

- Logic implementation

Meeting #3:  
Date: 27.04.2025

Meeting hours: 2hours  
Attendees: All  
Key Points:  
- Discussed the knowledgebase errors and fixed them.

- Fixed the logic implementation errors.

Meeting #4:  
Date: 01.05.2025

Meeting hours: 3hours  
Attendees: All  
Key Points:  
- Code Optimization

- Discussed about the file handling

Meeting #5:  
Date: 08.05.2025

Meeting hours: 2hours  
Attendees: All  
Key Points:  
- Fixed the errors and finalize the code

- Discussed about the presentation and final documentation

# 8. Action Items

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| --- | --- | --- | --- |
| **Action Item** | **Assigned To** | **Deadline** | **Status** |
| Finalize logic rules | Member 1 & 3 | 08.05.2025 | Completed |
| Bug fixes for I/O | Member 2 & 6 | 08.05.2025 | Completed |
| Documentation draft | Member 4 & 5 | 09.05.2025 | In progress |

**Submitted by: M.T. Imaya Date: 08.05.2025**