MAS-M2

Project Subject for the Multi-Agent System Course

Objective
The goal of this project is to design, implement, and analyze a Multi-Agent System (MAS) of your choice. You will work as a team, or alone, to deliver a functional MAS that demonstrates the concepts covered in class. Your project must be accompanied by detailed documentation and a presentation.

Project Requirements

1. **Implementation of a Multi-Agent System**
    - Design and implement a system involving multiple agents that interact to solve a problem or simulate a scenario.
    - The MAS can address problems such as:
        - Resource allocation and negotiation.
        - Collaborative problem-solving.
        - Simulations (e.g., traffic systems, evacuation planning, ecosystems, or economies).
        - Competitive scenarios (e.g., auctions, games).
    - Choose an appropriate programming language and development framework/library for your system.
2. **Documentation & Deliverables**
    - **Source Code**: Provide all source files in a structured and readable format.
    - **Executable**: Deliver a compiled or ready-to-run version of the system.
    - **Compilation Guide**: Provide clear, step-by-step instructions for compiling and running the code.
3. **Project Report**
   Your team must submit a report that includes:
    - **Project Overview**: A summary of the problem, the proposed solution, and the system's objectives.
    - **Model of the MAS**: Propose and explain the model behind your system.
        - Include agent types, roles, goals, and communication strategies.
        - Describe how the agents' behaviors interact to achieve the overall system objectives.
    - **System Design**: Explanation of the architecture, agent design, and decision-making strategies.
    - **Code Explanation**: Provide details on key parts of the code, such as algorithms, agent behaviors, and communication protocols.
    - **Team Contribution**: A breakdown of each member's role and contributions to the project.

- **Usage Instructions**: A user guide for running and interacting with the system.

4. **Presentation**
    - Prepare a **10-minute presentation** to explain your project.
        - Focus on the problem solved, your approach, the MAS model, and its functionality.
        - Include a brief demonstration of your MAS in action (live or pre-recorded).
    - The presentation will be followed by a **5-minute Q&A session**.

Evaluation Criteria

Category	Weight
Functionality of MAS	30%
Code Quality and Clarity	20%
Report Quality	20%
Presentation Quality	20%
Originality and Relevance	10%

Deadlines

- **Project Proposal Submission**: *Monday, December 2, 2024*
  Submit a short description of your MAS idea, including the problem it addresses and the proposed approach.
- **Final Deliverables**: *Sunday, January 26, 2025*
  Submit the complete project package (code, executable, and report).
- **Presentation Day**: *Monday, January 27, 2025*

Additional Notes

- Feel free to consult with the instructor if you need guidance on the feasibility of your project idea.
- Ensure that your MAS implementation demonstrates clear application of concepts like autonomy, cooperation, communication, and environment interaction.
- Team size: 1–4 students per group.

Good luck and enjoy building your Multi-Agent System!