Introduction

This is nontrivial mini project of the knowledge and reasoning course. This project aims to measure the students understanding of the knowledge representation techniques and how to apply the reasoning mechanisms to infer new knowledge or taking actions.

Project main Architecture

This project aims to apply the fuzzy logic in knowledge reasoning while building a fuzzy Inference System and taking decision. The general architecture is as illustrated in Figure 1
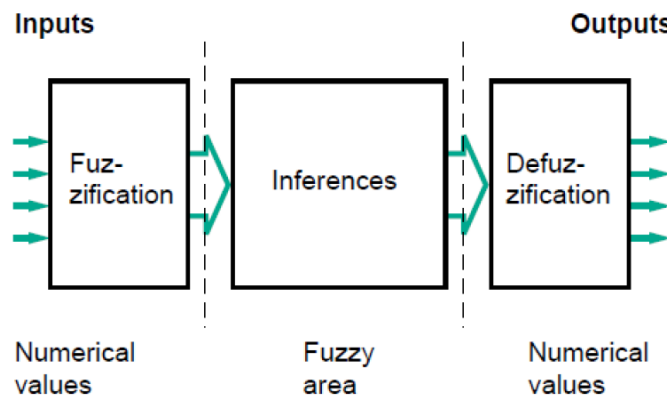

Figure 1 Fuzzy inference system

Project **Submissions** Phases

The submission will be on three phases. Each phase submission is described below:

Phase1

Each group should submit a report containing the following items:

- Project Title

- Project idea / description (1-2 paragraphs)

- Team members (max three students)

- Deadline: Thursday **3 June 2021**

Phase 2

DeadLine: 9 June 2021

Each group should submit a report containing the following items:

- the defined linguistic variables and terms
- Knowledge base layout
- Knowledge base content/rules
- Description of the fuzzification process
- Description of the inference algorithm the you will apply in your inference engine
- Illustrate the cases needed to apply a combination of more than one rule (aggregation)
- Description of the defuzzification component that convert the output data into non-fuzzy values
- Architecture diagram illustrating the main components of the designed project
- Task distribution table; containing a mapping of the implementation responsibility for each component I the architecture diagram to each student in the team.

Phase 3

DeadLine: 16 June 2021

Submission Content:

- Final Implementation source code
- Demo presentation

Examples of projects ideas

- Facial Pattern Recognition.
- Control of Subway Systems.
- Air Conditioners.
- Weather Forecasting Systems.