ENGG5189 Fuzzy Expert System (30%)
Deadline: 1st Mar., 2015 (23:59:59)

Introduction

Fuzzy expert system is a powerful tool to help you make decision using fuzzy logic. In order to get familiar with the fuzzy theory, you are going to implement a fuzzy expert system application of your proposed topic in this project. This is an **individual** project. The application must be implemented on our fuzzy expert system shell which is a web-based system.

There are three phases for the project: **(1)** topic proposal including the motivations and fuzzy concepts involved, **(2)** finished project which includes the implementation (XML files) and a full report, and **(3)** you have to present your work and demonstrate your application shortly after the project submission deadline.

Submission

There are three phases. Only the finished project and presentation are compulsory.

(1) Topic proposal (Optional, Deadline: 19th Feb., 2015)

Submit your proposal in **PDF** file format through the submission system. The file should at least include the following information.

1. **Title of your project**
2. **Abstract of your project** (around 500 words but no more than 800 words)
    - What is the goal of your expert system?
    - Why should a fuzzy expert system be used?
    - What are the fuzzy concepts?
    - Where to collect the data?
    - …

(2) Finished project (Deadline: 1st Mar., 2015)

Submit a single **ZIP** file (not RAR) through the submission system. The file should include:

1. **Full report** (no length requirement)
    - Introduction
    - Expert system solution
    - Problem modeling
    - System design
    - Features of fuzzy expert system shell: fuzzy types, objects, rule set
    - Inference structures (**at least three layers**)
    - Knowledge acquisition

- Discussions / Conclusion
- References
- Sample consultations

2. **Expert system implementation** (at least three layers)
    - Knowledge base file (.FKB)
    - Rule file (.RUL)
    - XML files (.XML)

(3) Presentation and Demonstration (Shortly after the project submission)

- **Date and venue:** to be determined, around 2nd Mar., 2015 – 13th Mar., 2015
- **Presentation length:** 15 minutes sharp for presentation and demonstration
- **Language of presentation:** English

Furthermore, you should clearly present your project and include the project statistics (i.e. inference structure, object number, inference layer, rule number, object types listed). We may have 2 to 4 sessions and students are required to attend the whole session of their own. There will be a Q&A session for each presenter. Besides, students are required to ask at least one question on the previous presentation. The first presenter asks a question about the last one. We will collect your slides after the presentation.

Grading Criteria

- **Originality**: Is the topic interesting and practical?
- **Knowledge acquisition**: Is the expert knowledge reliable? How difficult to obtain and input the knowledge?
- **Overall system**: Is the inference structure complex, rational and reasonable? Will there be any error?
- **Scientific writing skill**
- **Presentation skill**: Do the audience understand your presentation well?
- **Special features**: Any unique features to assist the decision making, such as images and videos?

Important Points

You must strictly follow these points:

a. You must strictly follow the submission guidelines.

b. Remember to type your **FULL NAME**, **STUDENT ID** on the assignment.

c. Plagiarism will be seriously punished.

Late Submission

According to the course homepage, late submission will lead to marks deduction.

No. of Days Late	**Marks Deduction**
1	10%
2	30%
3	60%
4 or above	100%