Assignment 5 (Marks <20>):

Instructions:

- Posting Date: <18th Nov., 2021>;
- Due date of submission <25th Nov., 2021>
- Demo: TA will announce demo Schedule during Lab timings on <24th Nov., 2021>
- Assignment is to be done in a group of three students.
- The program should be well documented

Implement Fuzzy Inference System (FIS) using MATLAB fuzzy logic toolbox. The goal is to find the rating of the sales of a store. The evaluation criteria are based on the following four input parameters. The output of the system is the sales rating of a given store in the range [0, 10].

Inputs:

- **Daily Customer :** Measured on a scale of 0-10 (Higher rating corresponds to more customers)
- **Electronics items:** Measured on a scale of 0-10 ((Higher rating corresponds to more options)
- **Groceries items**: Measured on a scale of 0-100 (Higher rating corresponds to more options)
- **Competitors in the vicinity :** Measured on a scale of 0-10 (Higher rating corresponds to more competition)

Output:

- **Sales Rating:** In the range [0, 1]

<u>Do the following:</u>

- Select only three input variables from the four and justify why you took those variables into account. (Use the dataset given in 'Values.csv' only to identify important input parameters) [marks 2]
- Define **linguistic variables** - (3 inputs) and performance (1 output) and the corresponding fuzzy membership functions. [marks 4]
- Define a Fuzzy rule base (min 12 appropriate rules) that seems to be suitable for the given system. [marks 4]
- Develop FIS using MATLAB to compute the sales rating. [marks 6]
- Prepare 5 test data and execute FIS and display output. [marks 2]
- Document containing all the details in a text file. [marks 2]