**Lab 12 Instructions**

In today’s lab you will build a program that finds the firing strength of fuzzy rules in a fuzzy inferencing system. The system should accept two inputs: height and weight. Define three fuzzy sets for height namely “Short”, “Medium” and “Tall”. Similarly, define three fuzzy sets for weight namely “Underweight”, “OK”, and “Overweight”. Obviously, defining fuzzy sets means defining the corresponding membership functions. So, you have to define six membership functions. For example, the MF for “Short” could be defined as

MFShort (Height) = 1 if Height < 5 feet 2 inches

MFShort (Height) = 0 if Height > 5 feet 7 inches

MFShort (Height) = Equation of straight line from (5’2”, 1) to (5’7”, 0)

Similarly, build the other five MFs.

Now build a rule base that has “acceptable” and “not acceptable” as possible outcomes. For example, we can have rules like:

If((Height is Medium or Short) and (Weight is Overweight) then not acceptable

If(Height is Tall) then acceptable

If((Height is Short) and (Weight is OK or Overweight)) then not acceptable

…

Caution: The above rules are completely fictitious and does not correspond to any real system.

Now, given specific instances your system should output the firing strengths of each rule in the rule base. Design your system so that new rules can be added or existing rules can be modified.

Upload your program and a sample output on Moodle. Also, show your work, even if it is partial, during the lab.