IMAT5119: Matlab Laboratory 5 [1]

Learning Outcomes

This lab is an introduction to the GUI. Also covered is saving and loading an FIS, both from the command line and from within the GUI.

Tasks for Lab 5

Tipper FIS

These links take you to a 3-part tutorial on creating an FIS using the Matlab Fuzzy Toolbox GUI:

Part 1:
`https://uk.mathworks.com/videos/getting-started-with-fuzzy-logic-toolbox-part-1-68764.html`
Part 2:
`https://uk.mathworks.com/videos/getting-started-with-fuzzy-logic-toolbox-part-2-68765.html`
Part 3:
`https://uk.mathworks.com/videos/getting-started-with-fuzzy-logic-toolbox-part-3-68766.html`

The tutorial demonstrates how to create a 'tipper' FIS that advises the customer on the amount of tip to give at a restaurant.

Work through the tutorials, replicating each stage to create your own 'tipper' FIS.

Saving and Loading an FIS

Look up *writeFIS* and *readfis* on Matlab *help*.

Download **Lab4FISmamfis.m** from Laboratory 4 of the Matlab exercises on Blackboard[2]. Run the m-file.

For the following two operations observe the changes in the *Current Folder* and the *Workspace*:

Save the FIS to file under the name *loanAdvice*:

```
writeFIS(L,'loanAdvice');
```

Now load the FIS from file under the name *Q*:

```
Q = readfis('loanAdvice');
```

Now open the GUI and from there load the FIS. Explore using the GUI to make alterations to the FIS, such as adding new rules, changing the membership functions, or using different defuzzification methods. Finally, use the GUI to save the amended FIS.

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[1] Sarah Greenfield (acknowledging Bob John, Paco Chiclana and Jenny Carter), 2/11/20

[2] Titled "Solution to Lab 4 exercises (Sarah)"