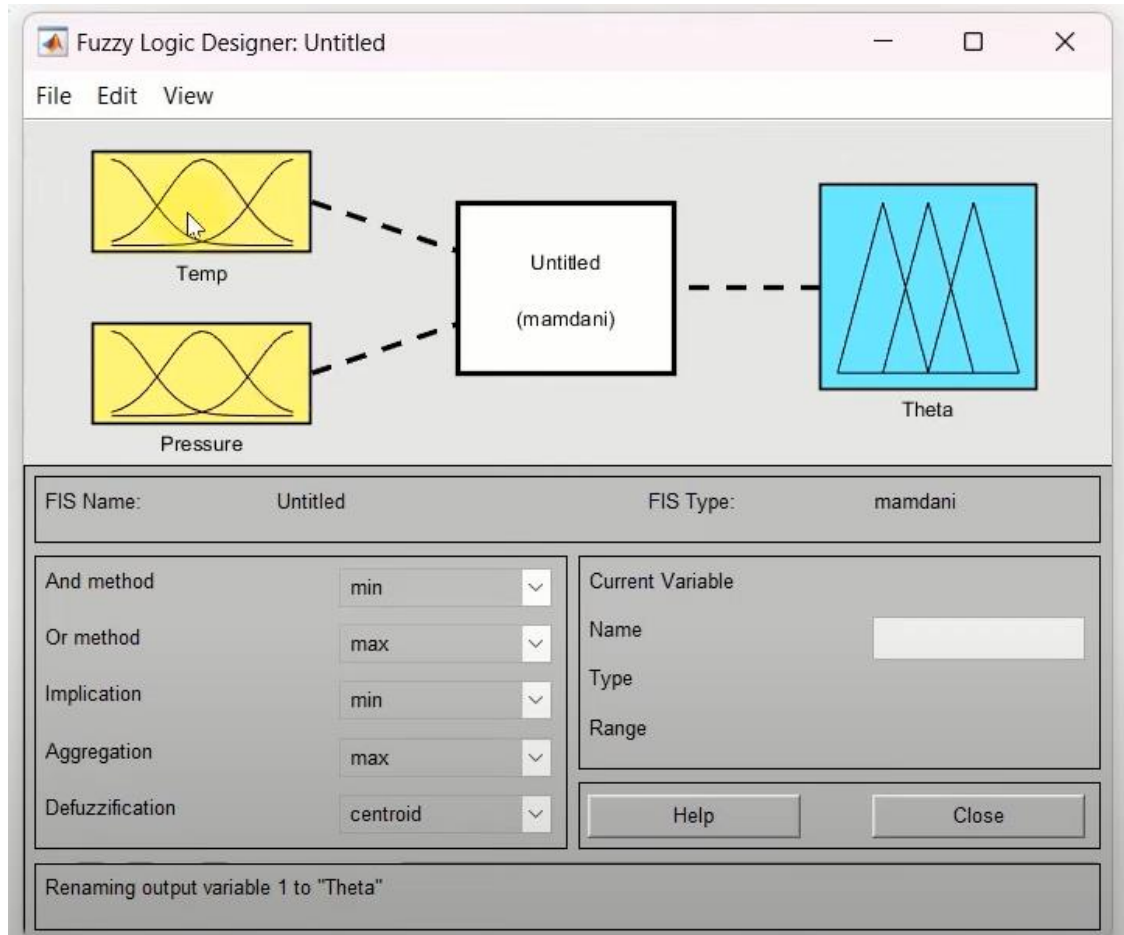
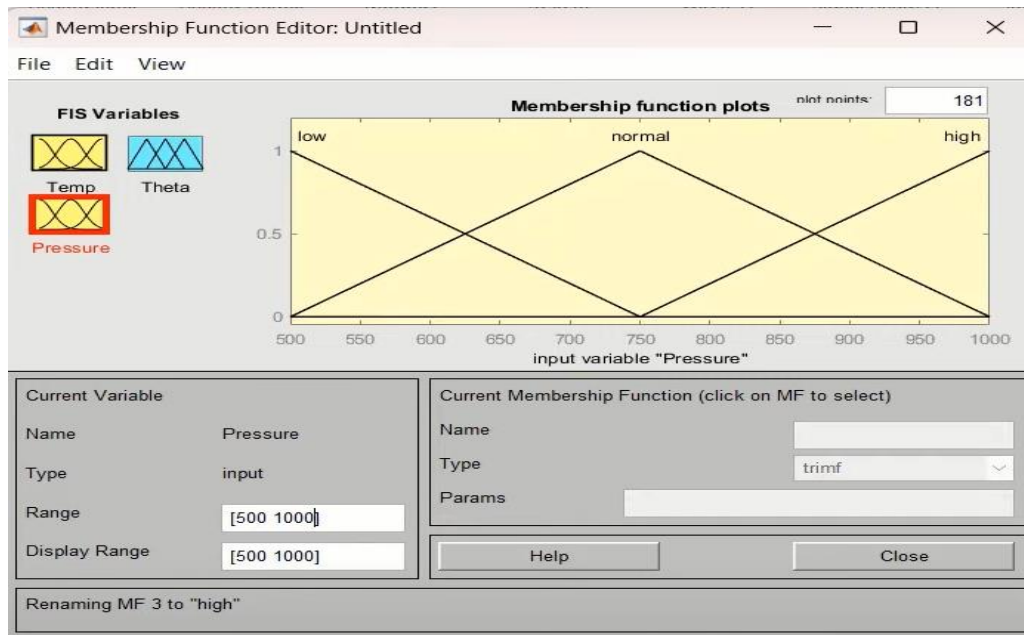


Demo :=
Fuzzy logic implementation output

1. Fuzzy logic designer



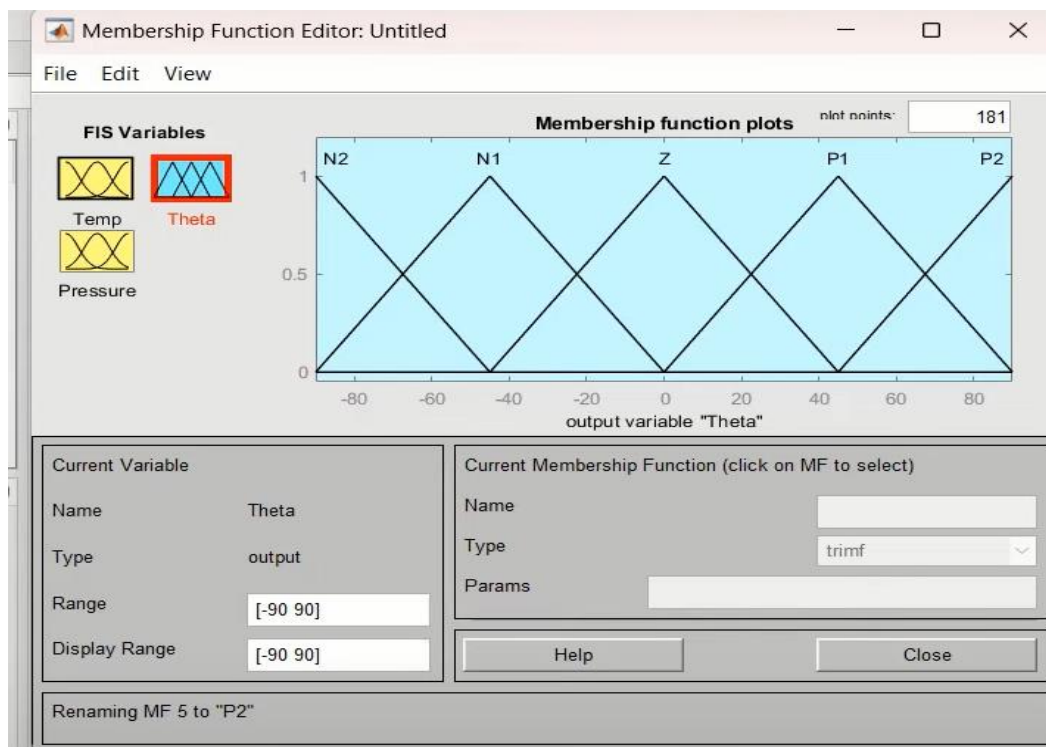


For Temp MF are - Normal , Hot , Super_hot

For pressure Mf are - low , Normal , High

Where as Range is described for pressure [500,1000] and temp [100,900].

By both Temp and Pressure we get Theta MF graph that is..



Output Variable Theta, Its Display Range [-90,90] and its contain 6MF.

That are -> Negative 2, Negative 1 , Zero , Positive 1 , Positive 2.

MF:- is Triangular Membership Function.

2. Define Fuzzy Rule

Rule Editor: Untitled

File Edit View Options

1. If (Temp is Normal) and (Pressure is low) then (Theta is P2) (1)
2. If (Temp is Normal) and (Pressure is normal) then (Theta is Z) (1)
3. If (Temp is Normal) and (Pressure is high) then (Theta is N2) (1)
4. If (Temp is hot) and (Pressure is low) then (Theta is P2) (1)
5. If (Temp is hot) and (Pressure is normal) then (Theta is Z) (1)
6. If (Temp is hot) and (Pressure is high) then (Theta is N1) (1)
7. If (Temp is super_hot) and (Pressure is low) then (Theta is P1) (1)
8. If (Temp is super_hot) and (Pressure is normal) then (Theta is N2) (1)
9. If (Temp is super_hot) and (Pressure is high) then (Theta is N1) (1)

If Temp is and Pressure is Then Theta is

Normal hot super_hot none low normal high none N2 N1 Z P1 P2 none

☐ not ☐ not ☐ not

Connection: ☐ or ☒ and

Weight: 1

Delete rule Add rule Change rule << >>

The rule is added Help Close

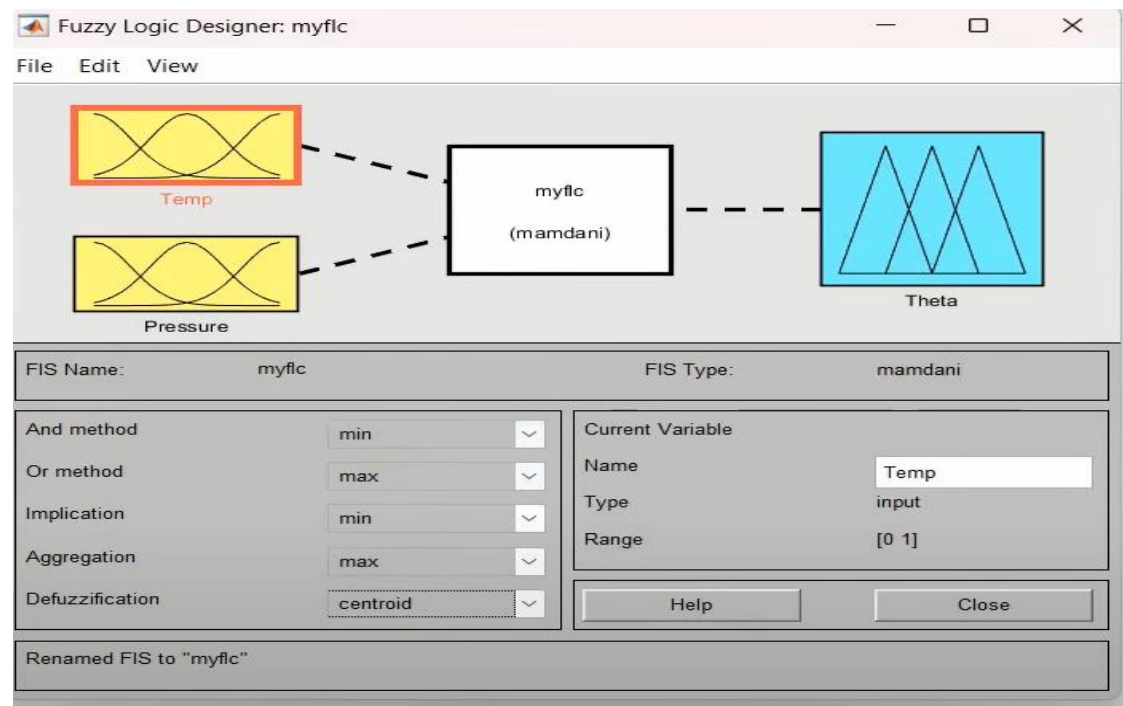
By referencing the table -

		Pressure		
		Low	Normal	High
Temp.	Normal	P_2	Z	N_2
	Hot	P_2	Z	N_1
	Super Hot	P_1	N_2	N_1

we we created Fuzzy rules .

Connection we taken (AND) which choose minimum.

3. Theta (Output variable)



Before Exporting we set Function Working

AND method - MIN

OR method - MAX

IMPLICATION - MIN

AGGREGATION - MIN

DEFUZZIFICATION - CENTROID

Export out fuzzy logic controller Function as myflc to Matlab Workspace.

Let input : `evalfis (myflc,[400 700])`

Output = 12.0298

// Theta value

If input : `evalfis (myflc, [500 600])`

Output = 11.2879

```
Command Window

>> output = evalfis(myflc,[400 700])

output =

    12.0298

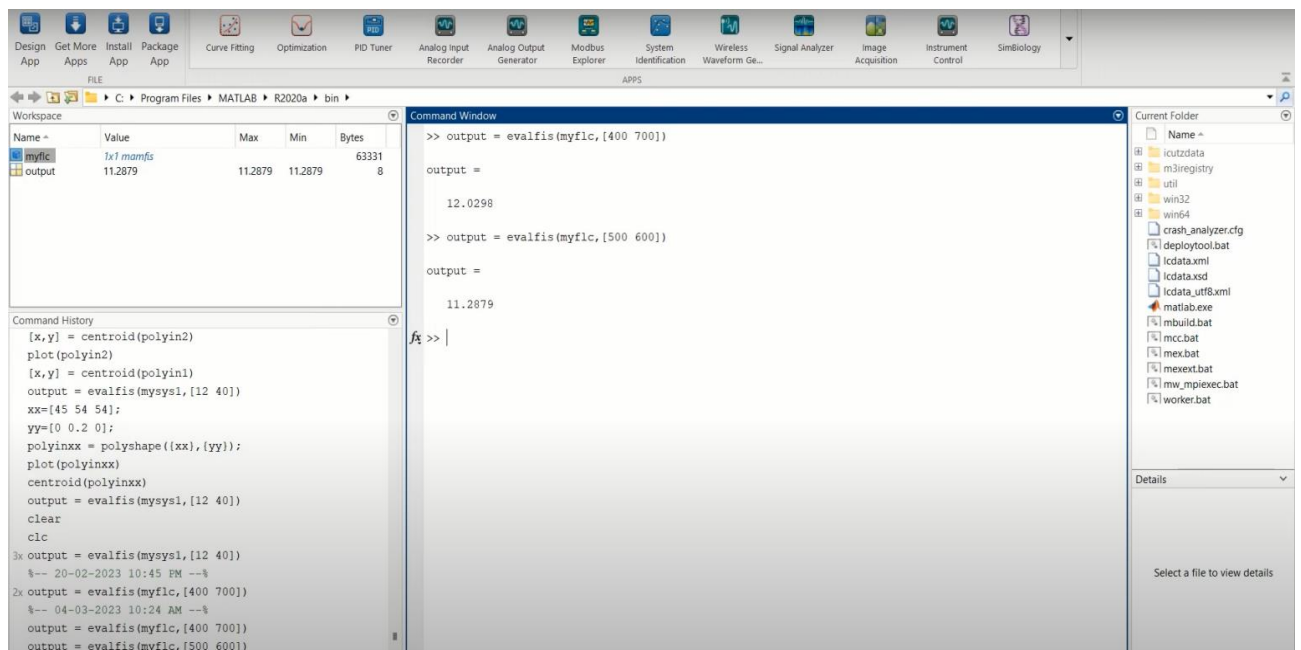
>> output = evalfis(myflc,[500 600])

output =

    11.2879

fx >> |
```

Final Output in Matlab :-



Which is similar to our theoretical value which we find with out traditional method