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| **EX.N0 : 12** | **Fuzzy inference System** |
| **DATE :** |

**AIM :**

**ALGORITHM :**

**PROGRAM :**

import numpy as np

import skfuzzy as fuzz

from skfuzzy import control as ctrl

distance = ctrl.Antecedent(np.arange(0, 11, 1), 'distance')

speed = ctrl.Consequent(np.arange(0, 101, 1), 'speed')

distance['near'] = fuzz.trimf(distance.universe, [0, 0, 5])

distance['medium'] = fuzz.trimf(distance.universe, [0, 5, 10])

distance['far'] = fuzz.trimf(distance.universe, [5, 10, 10])

speed['slow'] = fuzz.trimf(speed.universe, [0, 0, 50])

speed['medium'] = fuzz.trimf(speed.universe, [0, 50, 100])

speed['fast'] = fuzz.trimf(speed.universe, [50, 100, 100])

rule1 = ctrl.Rule(distance['near'], speed['slow'])

rule2 = ctrl.Rule(distance['medium'], speed['medium'])

rule3 = ctrl.Rule(distance['far'], speed['fast'])

speed\_ctrl = ctrl.ControlSystem([rule1, rule2, rule3])

car\_speed = ctrl.ControlSystemSimulation(speed\_ctrl)

car\_speed.input['distance'] = 7

car\_speed.compute()

print("Computed speed:", car\_speed.output['speed'])

**OUTPUT :**



**RESULT:**