

```

56
57 Equal = (1.0,1.0,1.0,1.0)
58 EqI = (1/2,3/4,5/4,3/2)
59 InvEqI=(2/3,4/5,4/3,2)
60 Weak = (1,3/2,5/2,3)
61 InvWeak=(1/3,2/5,2/3,1)
62 Strong = (2,5/2,7/2,4)
63 InvStrong=(1/4,2/7,2/5,1/2)
64 Very = (5,11/2,13/2,7)
65 InvVery=(1/7,2/11,2/13,1/5)
66 Abs=(7,15/2,17/2,9)
67 InvAbs=(1/9,2/17,2/15,1/7)
68
69 SafetyLine1=[Equal, Equal, Equal, Equal, Equal, Equal, Weak,Strong, EqI, Strong, Very, Strong, Strong, EqI, Strong, Strong]
70 SafetyLine2=[InvWeak, InvStrong, InvEqI, InvStrong, InvVery, Equal, Equal, Equal, Equal, Equal, EqI, EqI,EqI, EqI, InvWeak]
71 SafetyLine3=[InvStrong, InvStrong, InvEqI, InvStrong, InvStrong, InvEqI, InvEqI, InvEqI, InvEqI, Weak, Equal, Equal, Equal, Equal, Equal]
72
73 Fluctuateline1 = [Equal, Equal, Equal, Equal, Equal, EqI, EqI, EqI, Abs, Very, Strong, Abs, EqI, Strong, Strong]
74 Fluctuateline2=[InvEqI, InvEqI, InvEqI, InvAbs, InvVery, Equal, Equal, Equal, Equal, Equal, Abs, Abs, EqI, InvWeak, EqI]
75 Fluctuateline3=[InvStrong, InvAbs, InvEqI, InvStrong, InvStrong, InvAbs, InvAbs, InvEqI, Weak, Equal, Equal, Equal, Equal, Equal]
76
77 ProfitabilityLine1 = [Equal, Equal, Equal, Equal, Equal, InvVery, EqI, Very, InvStrong, InvVery, EqI, InvVery, InvAbs, InvStrong, InvWeak]
78 ProfitabilityLine2 = [Very, InvEqI, InvVery, Strong, Very, Equal, Equal, Equal, Equal, EqI, EqI, InvAbs, EqI, Strong]
79 ProfitabilityLine3 = [InvEqI, Very, Abs, Strong, Weak, InvEqI, InvEqI, Abs, InvEqI, InvStrong, Equal, Equal, Equal, Equal, Equal]
80
81 CharLine1=[Equal, Equal, Equal, Equal, Equal, Very, Abs, Abs, Very, Very, Abs, Abs, Abs, EqI, Very]
82 CharLine2=[InvVery, InvAbs, InvAbs, InvVery, InvVery, Equal, Equal, Equal, Equal, Equal, InvAbs, InvVery, EqI, InvAbs]
83 CharLine3=[InvAbs, InvAbs, InvAbs, InvEqI, InvVery, Abs, Very, InvEqI, Abs, Strong, Equal, Equal, Equal, Equal, Equal]
84
85 #Find the Geometric Mean for Each of the matrices and each location
86 SafeSpot0 = [GeometricMean(SafetyLine1, 0), GeometricMean(SafetyLine2, 0), GeometricMean(SafetyLine3, 0)]
87 SafeSpot1 = [GeometricMean(SafetyLine1, 1), GeometricMean(SafetyLine2, 1),GeometricMean(SafetyLine3, 1)]
88 SafeSpot2 = [GeometricMean(SafetyLine1, 2), GeometricMean(SafetyLine2, 2),GeometricMean(SafetyLine3, 2)]
89 SafeSpot3 = [GeometricMean(SafetyLine1, 3), GeometricMean(SafetyLine2, 3),GeometricMean(SafetyLine3, 3)]
90
91 FlucSpot0 = [GeometricMean(Fluctuateline1, 0), GeometricMean(Fluctuateline2, 0), GeometricMean(Fluctuateline3, 0)]
92 FlucSpot1 = [GeometricMean(Fluctuateline1, 1), GeometricMean(Fluctuateline2, 1), GeometricMean(Fluctuateline3, 1)]
93 FlucSpot2 = [GeometricMean(Fluctuateline1, 2), GeometricMean(Fluctuateline2, 2), GeometricMean(Fluctuateline3, 2)]
94 FlucSpot3 = [GeometricMean(Fluctuateline1, 3), GeometricMean(Fluctuateline2, 3), GeometricMean(Fluctuateline3, 3)]
95
96 ProfitSpot0 = [GeometricMean(ProfitabilityLine1, 0), GeometricMean(ProfitabilityLine2, 0), GeometricMean(ProfitabilityLine3, 0)]
97 ProfitSpot1 = [GeometricMean(ProfitabilityLine1, 1), GeometricMean(ProfitabilityLine2, 1), GeometricMean(ProfitabilityLine3, 1)]
98 ProfitSpot2 = [GeometricMean(ProfitabilityLine1, 2), GeometricMean(ProfitabilityLine2, 2), GeometricMean(ProfitabilityLine3, 2)]
99 ProfitSpot3 = [GeometricMean(ProfitabilityLine1, 3), GeometricMean(ProfitabilityLine2, 3), GeometricMean(ProfitabilityLine3, 3)]
100
101 CharSpot0 = [GeometricMean(CharLine1, 0), GeometricMean(CharLine2, 0), GeometricMean(CharLine3, 0)]
102 CharSpot1 = [GeometricMean(CharLine1, 1), GeometricMean(CharLine2, 1), GeometricMean(CharLine3, 1)]
103 CharSpot2 = [GeometricMean(CharLine1, 2), GeometricMean(CharLine2, 2), GeometricMean(CharLine3, 2)]
104 CharSpot3 = [GeometricMean(CharLine1, 3), GeometricMean(CharLine2, 3), GeometricMean(CharLine3, 3)]
105
106 #Save the Performance Score values
107 SafetyPS = PerformanceScores(SafeSpot0, SafeSpot1, SafeSpot2, SafeSpot3)
108 FlucPS = PerformanceScores(FlucSpot0, FlucSpot1, FlucSpot2, FlucSpot3)
109 ProfitPS = PerformanceScores(ProfitSpot0, ProfitSpot1, ProfitSpot2, ProfitSpot3)
110 Weights = PerformanceScores(CharSpot0, CharSpot1, CharSpot2, CharSpot3)
111
112
113
114 #I am passing in the performance scores and returning the weighted performance scores for each of the options
115 DesalSafe, HProdSafe, SynFuelSafe = WeightPS(SafetyPS, Weights)
116 DesalFluc, HProdFluc, SynFuelFluc = WeightPS(FlucPS, Weights)
117 DesalProf, HProdProf, SynFuelProf = WeightPS(ProfitPS, Weights)
118
119
120
121 #Return the limits of the fuzzy numbers
122 #Finding the left and right points for the member Functions

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