

```

using FuzzyLogicPCL;
using FuzzyLogicPCL.FuzzySets;
using System;

namespace FuzzyLogicApp
{
    class Program
    {
        static void Main(string[] args)
        {
            // Création du système
            WriteLine("Fonction de remise en forme ", true);
            FuzzySystem system = new FuzzySystem("Fonction de remise en forme");

            WriteLine("1) Ajout des variables", true);

            // Ajout de la variable linguistique "Delai moyen"
            WriteLine("Ajout de la variable Delai moyen");
            LinguisticVariable delaimoyen = new LinguisticVariable("Davg", 0, 2);
            delaimoyen.AddValue(new LinguisticValue("Acceptable", new LeftFuzzySet(0, 2, 0.3, 1)));
            system.addInputVariable(delaimoyen);
            // Ajout de la variable linguistique "Delai maximal"
            WriteLine("Ajout de la variable Delai maximal");
            LinguisticVariable delaimax = new LinguisticVariable("Dmax", 0, 2.5);
            delaimax.AddValue(new LinguisticValue("High", new RightFuzzySet(0, 2.5, 0.5, 2)));
            system.addInputVariable(delaimax);
            // Ajout de la variable linguistique "Distanceheuristique"
            WriteLine("Ajout de la variable L/L0");
            LinguisticVariable distanceheu = new LinguisticVariable("L/L0", 0, 2.5);
            distanceheu.AddValue(new LinguisticValue("Low", new LeftFuzzySet(0, 2.5, 0.8, 2)));
            system.addInputVariable(distanceheu);
            // Ajout de la variable linguistique "DistanceCout"
            WriteLine("Ajout de la variable L/L1");
            LinguisticVariable distancecout = new LinguisticVariable("L/L1", 0, 12);
            distancecout.AddValue(new LinguisticValue("High", new RightFuzzySet(0, 12, 2, 10)));
            system.addInputVariable(distancecout);
            // Ajout de la variable linguistique "FonctionEvaluation"
            WriteLine("Ajout de la variable FonctionEvaluation");
            LinguisticVariable fonctioneval = new LinguisticVariable("FonctionEvaluation", 0, 1);
            fonctioneval.AddValue(new LinguisticValue("High", new RightFuzzySet(0, 1, 0.3, 0.9)));
            fonctioneval.AddValue(new LinguisticValue("Low", new LeftFuzzySet(0, 1, 0.2, 0.7)));
            system.addOutputVariable(fonctioneval);

            WriteLine("2) Ajout des règles", true);
            system.addFuzzyRule("IF Davg IS Acceptable AND L/L0 IS Low THEN FonctionEvaluation IS High");
            system.addFuzzyRule("IF Dmax IS High THEN FonctionEvaluation IS Low");
            system.addFuzzyRule("IF L/L1 IS High THEN FonctionEvaluation IS Low");

```

```
WriteLine("3) Résolution de cas pratiques", true);
```

```
WriteLine("Cas 1 :", true);
```

```
WriteLine("Davg = 0.1239");
```

```
WriteLine("Dmax = 1.1187");
```

```
WriteLine("L/L0 = 0.95414");
```

```
WriteLine("L/L1 = 5.968");
```

```
system.SetInputVariable(delaimoyen, 0.1239);
```

```
system.SetInputVariable(delaimax, 1.1187);
```

```
system.SetInputVariable(distanceheu, 0.95414);
```

```
system.SetInputVariable(distancecout, 5.968);
```

```
// WriteLine("Attendu : zoom normal, centroïde à 2.5");
```

```
WriteLine("Résultat : " + system.Solve() + "\n");
```

```
while (true) ;
```

```
}
```

```
private static void WriteLine(string msg, bool stars = false)
```

```
{
```

```
    if (stars)
```

```
    {
```

```
        msg = "*** " + msg + " ";
```

```
        while (msg.Length < 45)
```

```
        {
```

```
            msg += "*";
```

```
        }
```

```
    }
```

```
    Console.WriteLine(msg);
```

```
}
```

```
}
```

```
}
```